كلية الطب والعلوم الصحية
معهد الصحة العامة
UAEU College of Medicine and Health Sciences
Institute of Public Health

جامعة الإمارات العربية المتحدة
United Arab Emirates University

INSTITUTE OF PUBLIC HEALTH

A Compilation of High-Impact Research Publications

Book of Abstracts

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FOREWORD

The Institute of Public Health (IPH) at the College of Medicine and Health Sciences, United Arab Emirates University, proudly presents this new 'Compilation of High-Impact Research Publications: Book of Abstracts'. This new volume highlights our unwavering commitment to advancing Public Health through rigorous scientific research, using innovative methodologies, and impactful collaborations. With nearly 300 scientific articles published in highly prestigious journals over the past five years, the work presented in this collection duly emphasize our dedication to improving health outcomes at the local, regional, and global levels.

Our research is clearly enriched by the active involvement of our undergraduate medical students and graduate students pursuing Master of Public Health (MPH) and PhD degrees. Their contributions reflect our commitment to fostering the next generation of public health professionals and researchers. Through mentorship and integration into cutting-edge projects, our students gain invaluable research experience while contributing to meaningful advancements in public health science. Many of the abstracts included in this book result from student-led or student-collaborative research, showcasing their ability to tackle pressing public health challenges with innovation and rigor.

The research efforts at the IPH align closely with national health priorities in the United Arab Emirates, addressing key areas such as non-communicable diseases, control of infectious diseases, injuries, occupational and environmental health, child and mother health, health promotion, health economics and health systems' research, and workforce development. Our work also contributes directly towards the achievement of the United Nations Sustainable Development Goals (SDGs), particularly in areas such as 'good health and well-being' (SDG 3), 'quality education' (SDG 4), and 'partnerships for the goals' (SDG 17). By integrating local priorities with global frameworks, we aim to generate locally relevant and globally impactful evidence, which ensures that our findings can inform policies and interventions that advance public health at all levels.

This book of abstracts is more than a record of our academic accomplishments - it is rather a source for new actionable knowledge in Public Health. Each study reflects a step forward in strengthening our understanding of the determinants of health, which helps identifying new solutions to promote and improve the health and well-being of our individuals and communities. By consolidating this body of work, we aim to provide stakeholders with an accessible and comprehensive evidence base that can be translated into impactful health policies, programs, and practices.

We hope this collection inspires further collaboration and innovation in the field of public health. It is a testament to the dedication of our faculty, students, researchers, and partners who strive to address emerging health priorities and challenges. Together, we reaffirm our commitment to advancing public health research, education, and practice for a healthier, more equitable future.

Prof. Michal Grivna
Director, Institute of Public Health
College of Medicine and Health Sciences
United Arab Emirates University

Contents

NON-COMMUNICABLE DISEASES

Types of tobacco consumption and the oral microbiome in the United Arab Emirates Healthy Future (UAEHFS) Pilot Study

Authors: Vallès, Y; Inman, C.K; Peters, B.A; Ali, R; Wareth, L.A; Abdulle, A; Alsafar, H; Anouti, F.A; Dhaheri, A.A; Galani, D; Haji, M; Hamiz, A.A; Hosani, A.A; Houqani, M.A; Junaibi, A.A; Kazim, M; Kirchhoff, T; Mahmeed, W.A; **Al-Maskari, F;** Alnaeemi, A; Oumeziane, N; Ramasamy, R; Schmidt, A.M; Weitzman, M; Zaabi, E.A; Sherman, S; Hayes, R.B; Ahn, J.

Journal: Scientific Reports | **Year**: 2018 | **DOI**: https://doi.org/10.1038/s41598-018-29730-x

Abstract

Background: Cigarette smoking alters the oral microbiome; however, the effect of alternative tobacco products remains unclear. Middle Eastern tobacco products like dokha and shisha, are becoming globally widespread.

Methods: We tested for the first time in a Middle Eastern population the hypothesis that different tobacco products impact the oral microbiome. The oral microbiome of 330 subjects from the United Arab Emirates Healthy Future Study was assessed by amplifying the bacterial 16S rRNA gene from mouthwash samples. Tobacco consumption was assessed using a structured questionnaire and further validated by urine cotinine levels. Oral microbiome overall structure and specific taxon abundances were compared, using PERMANOVA and DESeq analyses respectively.

Results: Our results show that overall microbial composition differs between smokers and nonsmokers ($p = 0.0001$). Use of cigarettes ($p = 0.001$) and dokha ($p = 0.042$) were associated with overall microbiome structure, while shisha use was not ($p = 0.62$). The abundance of multiple genera were significantly altered (enriched/depleted) in cigarette smokers; however, only Actinobacillus, Porphyromonas, Lautropia and Bifidobacterium abundances were significantly changed in dokha users whereas no genera were significantly altered in shisha smokers.

Conclusion: For the first time, we show that smoking dokha is associated to oral microbiome dysbiosis, suggesting that it could have similar effects as smoking cigarettes on oral health.

Keywords: smoking; tobacco; dokha; oral microbiome; United Arab Emirates

Thyroid malignancy among patients with thyroid nodules in the United Arab Emirates: A five-year retrospective tertiary centre analysis

Authors: Alseddeeqi, E; Baharoon, R; Mohamed, R; Ghaith, J; Al-Helali, A; **Ahmed, L. A.**

Journal: Thyroid Research | **Year**: 2018 | **DOI**: https://doi.org/10.1186/s13044-018-0061-x

Abstract

Background: Thyroid malignancy constitutes the sixth common cancer type in the United Arab Emirates (UAE). There are no epidemiological data outlining the prevalence of cancer in thyroid nodules, nor previous analysis of ultra-sonographic features correlating with thyroid malignancy in the UAE. This study aimed to estimate the prevalence of thyroid malignancy in patients with thyroid nodules and to describe the ultra-sonographic characteristics of thyroid nodules harbouring malignancy.

Methods: A retrospective electronic medical records review of all thyroid nodules in patients (aged 18 to 80 years) with normal thyroid-stimulating hormone (TSH) levels, who underwent ultrasound guided fine needle aspiration cytology (UG-FNA) at Sheikh Khalifa Medical City (SKMC) during 2011-2015.

Results: 436 patients with normal TSH underwent UG-FNA cytological examination of thyroid nodules (n = 555 nodules). The overall crude prevalence of thyroid cancer among patients was 10.1% (95% CI 7.5-13.3). The age-adjusted prevalence of thyroid cancer among UAE nationals, Arabs, Far East Asians, and Caucasians were 9.6% (3.6-15.6), 10.0% (6.2-13.8), 16.8% (4.5-29.0) and 16.3% (1.7-30.9), respectively. The crude prevalence was 14.5% (95% CI 6.2-22.8) in men, and 9.3% (95% CI 6.3-12.2) in women. The echogenicity features were significantly different between the cancerous and noncancerous nodules (p = 0.025). Cancerous nodules were relatively more hyper- and hypo-echoic, while noncancerous nodules were mostly complex.

Conclusion: We report a higher prevalence of thyroid malignancy among patients with thyroid nodules relative to that reported in other parts of the world. The rate of thyroid malignancy was higher in patients of Far-East Asian and Caucasian ethnic background.

Keywords: cancer; prevalence; thyroid; thyroid cancer; thyroid nodules; United Arab Emirates

Personal activity intelligence and mortality in patients with cardiovascular disease: The HUNT Study

Author: Kieffer, S.K; Zisko, N; Coombes, J.S; **Nauman, J**; Wisløff, U.

Journal: Mayo Clinic Proceedings | **Year**: 2018 | **DOI**: https://doi.org/10.1016/j.mayocp.2018.03.029

Abstract

Objective: To test whether Personal Activity Intelligence (PAI), a personalized metric of physical activity (PA) tracking, is associated with all-cause and cardiovascular disease (CVD) mortality in patients with self-reported CVD and to determine whether these associations change depending on whether contemporary PA recommendations are met.

Patients and Methods: A total of 3133 patients with CVD (mean [SD] age, 67.6 [10.3] years; 64% men) were followed from the date of participation in the Nord-Trøndelag Health Study (between January 1, 1984, and February 28, 1986) until the date of death or the end of follow-up (December 31, 2015). The participants' weekly PAI score was calculated and divided into 4 groups (PAI scores of 0, ≤50, 51-99, and ≥100). We used Cox proportional hazards regression models to estimate hazard ratios for CVD and all-cause mortality rates.

Results: After mean follow-up of 12.5 years (39,157 person-years), there were 2936 deaths (94%), including 1936 CVD deaths. Participants with weekly PAI scores of 100 or greater had 36% (95% CI, 21%-48%) and 24% (95% CI, 10%-35%) lower risk of mortality from CVD and all causes, respectively, compared with the inactive group. Participants had similar risk reductions associated with their weekly PAI scores regardless of following contemporary PA recommendations or not.

Conclusion: Obtaining a weekly PAI score of at least 100 was associated with lower mortality risk from CVD and all causes in individuals with CVD regardless of whether the current PA recommendations were met.

Keywords: cardiovascular disease; mortality; personal activity intelligence; physical activity

Prevalence of type 2 diabetes, prediabetes, and gestational diabetes mellitus in women of childbearing age in Middle East and North Africa, 2000-2017: Protocol for two systematic reviews and meta-analyses

Authors: **Al-Rifai, R.H; Aziz, F.**

Journal: Systematic Reviews | **Year**: 2018 | **DOI**: https://doi.org/10.1186/s13643-018-0763-0

Abstract

Background: Diabetes mellitus (DM) in women of childbearing age may affect the fetus, thereby accelerating the intergenerational risk of DM. The Middle East and North Africa (MENA) region is experiencing a growing epidemic of DM.

Aim: We aim to conduct two systematic reviews to summarize the burden of DM in women of childbearing age in the MENA region. In the systematic review 1, we aim to (1) systematically aggregate the evidence on type 2 DM (T2DM) and prediabetes and (2) to synthesize overall estimate on the prevalence of T2DM and overall estimate on the prevalence of prediabetes, in women of childbearing age (15-49 years). In the systematic review 2, we aim to (1) systematically aggregate the evidence on gestational DM (GDM) and (2) to synthesize overall estimate on the prevalence of GDM in pregnant women.

Methods: For systematic reviews 1 and 2, we will conduct a comprehensive search of the literature published in six electronic databases (MEDLINE-PubMed, EMBASE, Web of Science, SCOPUS, Cochrane Library, and Academic Search Complete). Variant and broad search terms will be designed to identify epidemiologic studies on the prevalence of T2DM and prediabetes in women of childbearing age, and GDM in pregnant women, published between 2000 and 2017. The MENA region will be defined according to the World Bank Country and Lending Groups. Retrieved citations will be screened, and data from the eligible research reports against specific eligibility criteria will be extracted. The findings of each systematic review will be reported separately following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Guidelines (PRISMA).

Conclusion: The findings of the two reviews will help in understanding the regional burden of these three types of DM in specific population groups to identify priority areas for interventions.

Keywords: gestational diabetes mellitus; MENA region; meta-analysis; Middle East and North Africa region; systematic review; type 2 diabetes mellitus

Patterns of tobacco use in the United Arab Emirates Healthy Future (UAEHFS) pilot study

Authors: Al-Houqani, M; Leinberger-Jabari, A; Naeemi, A.A; Junaibi, A.A; Zaabi, E.A; Oumeziane, N; Kazim, M; **Maskari, F.A**; Dhaheri, A.A; Wareth, L.A; Mahmeed, W.A; Alsafar, H; Anouti, F.A; Abdulle, A; Inman, C.K; Hamiz, A.A; Haji, M; Ahn, J; Kirchhoff, T; Hayes, R.B; Ramasamy, R; Schmidt, A.M; Shahawy, O.E; Weitzman, M; Ali, R; Sherman, S.

Journal: PLoS ONE | **Year**: 2018 | **DOI**: https://doi.org/10.1371/journal.pone.0198119

Abstract

Background: Self-reported tobacco use in the United Arab Emirates is among the highest in the region. Use of tobacco products other than cigarettes is widespread, but little is known about specific behavior use patterns. There have been no studies that have biochemically verified smoking status.

Methods: The UAE Healthy Future Study (UAEHFS) seeks to understand the causes of non-communicable diseases through a 20,000-person cohort study. During the study pilot, 517 Emirati nationals were recruited to complete a questionnaire, provide clinical measurements and biological samples. Complete smoking data were available for 428 participants. Validation of smoking status via cotinine testing was conducted based on complete questionnaire data and matching urine samples for 399 participants, using a cut-off of 200ng/ml to indicate active smoking status.

Results: Self-reported tobacco use was 36% among men and 3% among women in the sample. However, biochemical verification of smoking status revealed that 42% men and 9% of women were positive for cotinine indicating possible recent tobacco use. Dual and poly-use of tobacco products was fairly common with 32% and 6% of the sample reporting respectively.

Conclusions: This is the first study in the region to biochemically verify tobacco use self-report data. Tobacco use in this study population was found to be higher than previously thought, especially among women. Misclassification of smoking status was more common than expected. Poly-tobacco use was also very common. Additional studies are needed to understand tobacco use behaviors and the extent to which people may be exposed to passive tobacco smoke. Implications This study is the first in the region to biochemically verify self-reported smoking status.

Keywords: tobacco use; smoking; United Arab Emirates; self-reported smoking; cotinine testing; poly-tobacco use; UAE Healthy Future Study

Bone mineral density at the hip and its relation to fat mass and lean mass in adolescents: The Tromsø Study, Fit Futures

Authors: Winther, A; Jørgensen, L; **Ahmed, L.A;** Christoffersen, T; Furberg, A.-S; Grimnes, G; Jorde, R; Nilsen, O.A; Dennison, E; Emaus, N.

Journal: BMC Musculoskeletal Disorders | **Year**: 2018 | **DOI**: https://doi.org/10.1186/s12891-018-1933-x

Abstract

Background: Positive association between body weight and bone mass is well established, and the concept of body mass index (BMI) is associated with higher areal bone mineral density (aBMD) and reduced fracture risk. BMI, that comprises both fat mass (FM) and lean mass (LM) may contribute to peak bone mass achievement in different ways. This study explored the influence of body composition in terms of total body LM and FM on hip aBMD-values in adolescence.

Methods: In 2010/2011, 93% of the region's first-year upper-secondary school students (15-17 years old) in Tromsø, Norway attended the Tromsø Study, Fit Futures. Areal BMD at femoral neck (aBMDFN) and total hip (aBMDTH) (g/cm2), total body LM and FM (g) were measured by dual energy X-ray absorptiometry (DXA). Height and weight were measured, and BMI calculated. Lifestyle variables were collected by self-administered questionnaires and interviews, including questions on time spent on leisure time physical activity. Stratified analyses of covariance and regression models included 395 girls and 363 boys. Crude results were adjusted for age, height, sexual maturation, physical activity levels, vitamin D levels, calcium intake, alcohol consumption and smoking habits.

Results: Unadjusted distribution indicated higher aBMD-levels at higher LM-levels in both genders ($p < 0.001$), but higher aBMD at higher FM-levels were found only in girls ($p < 0.018$). After multiple adjustments, aBMDFN-levels in girls were associated by 0.053 g/cm2 and 0.032 g/cm2 per standard deviation (SD) change in LM and FM ($p < 0.001$). Corresponding values in boys were 0.072 and 0.025 ($p < 0.001$). The high LM groups accounted for the highest aBMD-levels, while aBMD-levels at the LM/FM-combinations indicated different patterns in girls compared to boys. The adjusted odds ratio (95% CI) for low levels of aBMDFN was 6.6 (3.4,13.0) in boys, compared to 2.8 (1.6,4.9) in girls per SD lower LM.

Conclusions: LM and FM should be regarded as strong predictors for bone mass and hence bone strength in adolescents. A gender specific difference indicated that high lean mass is of crucial importance prominently in boys. In adolescents with low lean mass, especially in girls, high fat mass may partially ameliorate the effect of deficient lean mass levels.

Keywords: aBMD; adolescents; DXA; fat mass; lean mass; population-based study

The UAE Healthy Future Study: a pilot for a prospective cohort study of 20,000 United Arab Emirates nationals

Authors: Abdulle, A; Alnaeemi, A; Aljunaibi, A; Al Ali, A; Al Saedi, K; Al Zaabi, E; Oumeziane, N; Al Bastaki, M; Al-Houqani, M; **Al Maskari, F;** Al Dhaheri, A; **Shah, S.M; Loney, T; El-Sadig, M; Oulhaj, A;** Wareth, L.A; Al Mahmeed, W; Alsafar, H; Hirsch, B; Al Anouti, F; Yaaqoub, J; Inman, C.K; Al Hamiz, A; Al Hosani, A; Haji, M; Alsharid, T; Al Zaabi, T; Al Maisary, F; Galani, D; Sprosen, T; El Shahawy, O; Ahn, J; Kirchhoff, T; Ramasamy, R; Schmidt, A.M; Hayes, R; Sherman, S; Ali, R.

Journal: BMC Public Health | **Year**: 2018 | **DOI**: https://doi.org/10.1186/s12889-017-5012-2

Abstract

Background: The United Arab Emirates (UAE) is faced with a rapidly increasing burden of non-communicable diseases including obesity, diabetes, and cardiovascular disease. The UAE Healthy Future study is a prospective cohort designed to identify associations between risk factors and these diseases amongst Emiratis. The study will enroll 20,000 UAE nationals aged ≥18 years. Environmental and genetic risk factors will be characterized and participants will be followed for future disease events. As this was the first time a prospective cohort study was being planned in the UAE, a pilot study was conducted in 2015 with the primary aim of establishing the feasibility of conducting the study. Other objectives were to evaluate the implementation of the main study protocols, and to build adequate capacity to conduct advanced clinical laboratory analyses.

Methods: Seven hundred sixty-nine UAE nationals aged ≥18 years were invited to participate voluntarily in the pilot study. Participants signed an informed consent, completed a detailed questionnaire, provided random blood, urine, and mouthwash samples and were assessed for a series of clinical measures. All specimens were transported to the New York University Abu Dhabi laboratories where samples were processed and analyzed for routine chemistry and hematology. Plasma, serum, and a small whole blood sample for DNA extraction were aliquoted and stored at -80 °C for future analyses.

Results: Overall, 517 Emirati men and women agreed to participate (68% response rate). Of the total participants, 495 (95.0%), 430 (82.2%), and 492 (94.4%), completed the questionnaire, physical measurements, and provided biological samples, respectively.

Conclusions: The pilot study demonstrated the feasibility of recruitment and completion of the study protocols for the first large-scale cohort study designed to identify emerging risk factors for the major non-communicable diseases in the region.

Keywords: adult; chronic disease; cohort studies; pilot projects; prospective studies; public health; United Arab Emirates

Results from the United Arab Emirates' 2018 report card on physical activity for children and youth

Authors: **Paulo, M.S; Nauman, J;** Abdulle, A; Aljunaibi, A; Alzaabi, M; Barakat-Haddad, C; **Sheek-Hussein, M; Shah, S.M;** Yousufzai, S; **Loney, T**.

Journal: Journal of Physical Activity and Health | **Year**: 2018 | **DOI**: https://doi.org/10.1123/jpah.2018-0543

Abstract

Background: Since formation in 1971, the United Arab Emirates (UAE) has experienced tremendous economic and industrial development that has improved the health, wealth, and education of the population. Concomitantly, there has been a shift from a traditional physically active outdoor lifestyle to a modern urbanised, indoor, and technology-driven lifestyle. Limited national surveillance from the last 10 years shows that only ~20% of UAE children accumulate the recommended amount of moderate-to-vigorous intensity physical activity (MVPA; ≥60 minutes per day). Both Emirati and expatriate adults have high rates of obesity, diabetes mellitus, and cardiovascular disease. Hence, the low prevalence of physical activity (PA) amongst UAE children is a major concern as physical inactivity is an independent risk factor for future chronic disease. This paper presents the key findings from the UAE's 2018 Report Card on PA for Children and Youth

Results: Overall PA levels remain low and sedentary behaviours remain high amongst UAE children. Only 16% of UAE children achieved the recommended amount of MVPA (ie ≥60 min/d)2 and this has fallen from 20% in 2005. Expatriate children and boys had higher levels of PA compared to Emirati children and girls, respectively; however, PA levels declined from early to late adolescence in all groups. Less than half of children achieved the screen time recommendations (ie ≤2 h/d) and this declined with age, especially amongst girls. Only 25% of children participated in physical education classes on ≥3 d/wk (~150 min/wk). Overall, only 41% (M 32%; F 51%) of adolescents aged 13–17 years achieved the WHO's BMI-for-age reference standard for a healthy body size.

Conclusion: The majority of UAE children are not achieving the daily recommendations for PA or screen time. Findings highlight the dire need for action-based research that can lead to evidence-informed public health strategies that have the capacity to increase PA for children, adolescents, and adults. Sustained nationwide school- and community-based culturally-appropriate interventions are required to improve PA at a population level. Further development of active transport networks, walkable environments, and active spaces may help to increase PA across the entire UAE population.

Keywords: physical activity; children; United Arab Emirates; sedentary behavior; screen time; obesity

Evaluation of a photographic food atlas as a tool for quantifying food portion size in the United Arab Emirates

Authors: Ali, H.I; Platat, C; Mesmoudi, N.E; **El Sadig, M;** Tewfik, I.

Journal: PLoS ONE | **Year**: 2018 | **DOI**: https://doi.org/10.1371/journal.pone.0196389

Abstract

Background: Although, United Arab Emirates (UAE) has one of the highest prevalence of overweight, obesity and type 2 diabetes in the world, however, validated dietary assessment aids to estimate food intake of individuals and populations in the UAE are currently lacking.

Methods: We conducted two observational studies to evaluate the accuracy of a photographic food atlas which was developed as a tool for food portion size estimation in the UAE. The UAE Food Atlas presents eight portion sizes for each food. Study 1 involved portion size estimations of 13 food items consumed during the previous day. Study 2 involved portion size estimations of nine food items immediately after consumption. Differences between the food portion sizes estimated from the photographs and the weighed food portions (estimation error), as well as the percentage differences relative to the weighed food portion for each tested food item were calculated.

Results: Four of the evaluated food items were underestimated (by -8.9% to -18.4%), while nine were overestimated (by 9.5% to 90.9%) in Study 1. Moreover, there were significant differences between estimated and eaten food portions for eight food items ($P<0.05$). In Study 2, one food item was underestimated (-8.1%) while eight were overestimated (range 2.52% to 82.1%). Furthermore, there were significant differences between estimated and eaten food portions ($P<0.05$) for six food items.

Conclusion: The limits of agreement between the estimated and consumed food portion size were wide indicating a large variability in food portion estimation errors. These reported findings highlight the need for further developments of the UAE Food Atlas to improve the accuracy of food portion size intake estimations in dietary assessments. Additionally, recalling food portions from the previous day did not seem to increase food portion estimation errors in this study.

Keywords: dietary assessment; food portion estimation; obesity; type 2 diabetes; food intake

Sustained physical activity, not weight loss, associated with improved survival in coronary heart disease

Authors: Moholdt, T; Lavie, C.J; **Nauman, J.**
Journal: Journal of the American College of Cardiology | **Year**: 2018 |
DOI: https://doi.org/10.1016/j.jacc.2018.01.011

Abstract

Background: Individuals with coronary heart disease (CHD) are recommended to be physically active and to maintain a healthy weight. There is a lack of data on how long-term changes in body mass index (BMI) and physical activity (PA) relate to mortality in this population.

Objectives: This study sought to determine the associations among changes in BMI, PA, and mortality in individuals with CHD.

Methods: The authors studied 3,307 individuals (1,038 women) with CHD from the HUNT (Nord-Trøndelag Health Study) with examinations in 1985, 1996, and 2007, followed until the end of 2014. They calculated the hazard ratio (HR) for all-cause and cardiovascular disease (CVD) mortality according to changes in BMI and PA, and estimated using Cox proportional hazards regression models adjusted for age, smoking, blood pressure, diabetes, alcohol, and self-reported health.

Results: There were 1,493 deaths during 30 years of follow-up (55% from CVD, median 15.7 years). Weight loss, classified as change in BMI <-0.10 kg/m2/year, associated with increased all-cause mortality (adjusted HR: 1.30; 95% confidence interval [CI]: 1.12 to 1.50). Weight gain, classified as change in BMI ≥0.10 kg/m2/year, was not associated with increased mortality (adjusted HR: 0.97; 95% CI: 0.87 to 1.09). Weight loss only associated with increased risk in those who were normal weight at baseline (adjusted HR: 1.38; 95% CI: 1.11 to 1.72). There was a lower risk for all-cause mortality in participants who maintained low PA (adjusted HR: 0.81; 95% CI: 0.67 to 0.97) or high PA (adjusted HR: 0.64; 95% CI: 0.50 to 0.83), compared with participants who were inactive over time. CVD mortality associations were similar as for all-cause mortality.

Conclusions: The study observed no mortality risk reductions associated with weight loss in individuals with CHD, and reduced mortality risk associated with weight gain in individuals who were normal weight at baseline. Sustained PA, however, was associated with substantial risk reduction.

Keywords: HUNT; body mass index; exercise; mortality; myocardial infarction; obesity paradox.

Type 2 diabetes and pre-diabetes mellitus: A systematic review and meta-analysis of prevalence studies in women of childbearing age in the Middle East and North Africa, 2000-2018

Authors: **Al-Rifai, R.H; Majeed, M;** Qambar, M.A; Ibrahim, A; Alyammahi, K.M; **Aziz, F**.

Journal: Systematic Reviews | **Year**: 2019 | **DOI**: https://doi.org/10.1186/s13643-019-1187-1

Abstract

Background: Investing in women's health is an inevitable investment in our future. We systematically reviewed the available evidence and summarized the weighted prevalence of type 2 diabetes (T2DM) and pre-diabetes mellitus (pre-DM) in women of childbearing age (15-49 years) in the Middle East and North African (MENA) region.

Methods: We comprehensively searched six electronic databases to retrieve published literature and prevalence studies on T2DM and pre-DM in women of childbearing age in the MENA. Retrieved citations were screened and data were extracted by at least two independent reviewers. Weighted T2DM and pre-DM prevalence was estimated using the random-effects model.

Results: Of the 10,010 screened citations, 48 research reports were eligible. Respectively, 46 and 24 research reports on T2DM and pre-DM prevalence estimates, from 14 and 10 countries, were included. Overall, the weighted T2DM and pre-DM prevalence in 14 and 10 MENA countries, respectively, were 7.5% (95% confidence interval [CI], 6.1-9.0) and 7.6% (95% CI, 5.2-10.4). In women sampled from general populations, T2DM prevalence ranged from 0.0 to 35.2% (pooled, 7.7%; 95% CI, 6.1-9.4%) and pre-DM prevalence ranged from 0.0 to 40.0% (pooled, 7.9%; 95% CI, 5.3-11.0%). T2DM was more common in the Fertile Crescent countries (10.7%, 95% CI, 5.2-17.7%), followed by the Arab Peninsula countries (7.6%, 95% CI, 5.9-9.5%) and North African countries and Iran (6.5%, 95% CI, 4.3-9.1%). Pre-DM prevalence was highest in the Fertile Crescent countries (22.7%, 95% CI, 14.2-32.4%), followed by the Arab Peninsula countries (8.6%, 95% CI, 5.5-12.1%) and North Africa and Iran (3.3%, 95% CI, 1.0-6.7%).

Conclusions: T2DM and pre-DM are common in women of childbearing age in MENA countries. The high DM burden in this vital population group could lead to adverse pregnancy outcomes and acceleration of the intergenerational risk of DM. Our review presented data and highlighted gaps in the evidence of the DM burden in women of childbearing age, to inform policy-makers and researchers. Systematic review registration: PROSPERO CRD42017069231.

Keywords: pre-diabetes mellitus; type 2 diabetes; women of childbearing age

Temporal changes in cardiorespiratory fitness and risk of dementia incidence and mortality: a population-based prospective cohort study

Authors: Tari, A.R; **Nauman, J;** Zisko, N; Skjellegrind, H.K; Bosnes, I; Bergh, S; Stensvold, D; Selbæk, G; Wisløff, U.

Journal: The Lancet Public Health | **Year**: 2019 | **DOI**: https://doi.org/10.1016/s2468-2667(19)30183-5

Abstract

Background: Cardiorespiratory fitness is associated with risk of dementia, but whether temporal changes in cardiorespiratory fitness influence the risk of dementia incidence and mortality is still unknown. We aimed to study whether change in estimated cardiorespiratory fitness over time is associated with change in risk of incident dementia, dementia-related mortality, time of onset dementia, and longevity after diagnosis in healthy men and women at baseline.

Methods: We linked data from the prospective Nord-Trøndelag Health Study (HUNT) done in Nord-Trøndelag, Norway with dementia data from the Health and Memory Study and cause of death registries (n=30 375). Included participants were apparently healthy individuals for whom data were available on estimated cardiorespiratory fitness and important confounding factors. Datasets were matched to each participant through their 11-digit personal identification number. Cardiorespiratory fitness was estimated on two occasions 10 years apart, during HUNT1 (1984–86) and HUNT2 (1995–97). HUNT2 was used as the baseline for follow-up. Participants were classified into two sex-specific estimated cardiorespiratory fitness groups according to their age (10-year categories): unfit (least fit 20% of participants) and fit (most fit 80% of participants). To assess the association between change in estimated cardiorespiratory fitness and dementia, we used four categories of change: unfit at both HUNT1 and HUNT2, unfit at HUNT1 and fit at HUNT2, fit at HUNT1 and unfit at HUNT2, fit at both HUNT1 and HUNT2. Using Cox proportional hazard analyses, we estimated adjusted hazard ratios (AHR) for dementia incidence and mortality related to temporal changes in estimated cardiorespiratory fitness.

Findings: During a median follow-up of 19·6 years for mortality, and 7·6 years for incidence, there were 814 dementia-related deaths, and 320 incident dementia cases. Compared with participants who were unfit at both assessments, participants who sustained high estimated cardiorespiratory fitness had a reduced risk of incident dementia (AHR 0·60, 95% CI 0·36–0·99) and a reduced risk of dementia mortality (0·56, 0·43–0·75). Participants who had an increased estimated cardiorespiratory fitness over time had a reduced risk of incident dementia (AHR 0·52, 95% CI 0·30–0·90) and dementia mortality (0·72, 0·52–0·99) when compared with those who remained unfit at both assessments. Each metabolic equivalent of task increase in estimated cardiorespiratory fitness was associated with a risk reduction of incident dementia (adjusted HR 0·84, 95% CI 0·75–0·93) and dementia mortality (0·90, 0·84–0·97). Participants who increased their estimated cardiorespiratory fitness over time gained 2·2 (95% CI 1·0–3·5) dementia-free years, and 2·7 (0·4–5·8) years of life when compared with those who remained unfit at both assessments.

Interpretation: Change in estimated cardiorespiratory fitness is an independent risk factor for incidence dementia and dementia mortality. Maintaining or improving cardiorespiratory fitness over time may be a target to reduce risk of dementia incidence and mortality, delay onset, and increase longevity after diagnosis. Our data highlight the importance of assessing cardiorespiratory fitness in health risk assessment for people at risk of dementia.

Keywords: cardiorespiratory fitness; dementia; United Arab Emirates

Circulating microRNAs as predictive biomarkers of myocardial infarction: Evidence from the HUNT Study

Authors: Velle-Forbord, T; Eidlaug, M; Debik, J; Sæther, J.C; Follestad, T; **Nauman, J;** Gigante, B; Røsjø, H; Omland, T; Langaas, M; Bye, A.

Journal: Atherosclerosis | **Year**: 2019 | **DOI**: https://doi.org/10.1016/j.atherosclerosis.2019.07.024

Abstract

Background: Several risk prediction models for coronary heart disease (CHD) are available today, however, they only explain a modest proportion of the incidence. Circulating microRNAs (miRs) have recently been associated with processes in CHD development, and may therefore represent new potential risk markers. The aim of the study was to assess the incremental value of adding circulating miRs to the Framingham Risk Score (FRS).

Methods: This is a case-control study with a 10-year observation period, with fatal and non-fatal myocardial infarction (MI) as endpoint. At baseline, ten candidate miRs were quantified by real-time polymerase chain reaction in serum samples from 195 healthy participants (60–79 years old). During the follow-up, 96 participants experienced either a fatal (n = 36) or a non-fatal MI (n = 60), whereas the controls (n = 99) remained healthy. By using best subset logistic regression, we identified the miRs that together with the FRS for hard CHD best predicted future MI. The model evaluation was performed by 10-fold cross-validation reporting area under curve (AUC) from the receiver operating characteristic curve (ROC).

Results: The best miR-based logistic regression risk-prediction model for MI consisted of a combination of miR-21-5p, miR-26a-5p, mir-29c-3p, miR-144-3p and miR-151a-5p. By adding these 5 miRs to the FRS, AUC increased from 0.66 to 0.80. In comparison, adding other important CHD risk factors (waist-hip ratio, triglycerides, glucose, creatinine) to the FRS only increased AUC from 0.66 to 0.68.

Conclusions: Circulating levels of miRs can add value on top of traditional risk markers in predicting future MI in healthy individuals.

Keywords: cardiovascular disease; prevention; risk prediction; serum

Body weight and body mass index influence bone mineral density in late adolescence in a two-year follow-up study. The Tromsø Study: Fit Futures

Authors: Nilsen, O.A; **Ahmed, L.A;** Winther, A; Christoffersen, T; Thrane, G; Evensen, E; Furberg, A.-S; Grimnes, G; Dennison, E; Emaus, N.

Journal: JBMR Plus | **Year**: 2019 | **DOI**: https://doi.org/10.1002/jbm4.10195

Abstract

Background: Determinants of bone acquisition in late adolescence and early adulthood are not well-described. This 2-year follow-up study explored the associations of body weight (BW), body mass index (BMI), and changes in weight status with adolescent bone accretion in a sample of 651 adolescents (355 girls and 296 boys) between 15 and 19 years of age from The Tromsø Study: Fit Futures.

Methods: This Norwegian population-based cohort study was conducted from 2010 to 2011 and was repeated from 2012 to 2013. We measured femoral neck, total hip, and total body bone mineral content and areal bone mineral density (aBMD) by dual-energy X-ray absorptiometry. We measured height, BW, calculated BMI (kg/m 2), and collected information on lifestyle at both surveys.

Results: Mean BMI (SD) at baseline was 22.17 (3.76) and 22.18 (3.93) in girls and boys, respectively. Through multiple linear regression, baseline BW and BMI were positively associated with ΔaBMD over 2 years of follow-up at all skeletal sites in boys ($p < 0.05$), but not in girls. ΔBW and ΔBMI predicted ΔaBMD and ΔBMC in both sexes, but the strength of the associations was moderate. Individuals who lost weight during follow-up demonstrated a slowed progression of aBMD accretion compared with those gaining weight, but loss of BW or reduction of BMI during 2 years was not associated with net loss of aBMD.

Conclusion: In conclusion, our results confirm that adequate BW for height in late adolescence is important for bone health. Associations between change in weight status and bone accretion during follow-up were moderate and unlikely to have any clinical implication on adolescents of normal weight. Underweight individuals, particularly boys, are at risk of not reaching optimal peak bone mass and could benefit from an increase in BMI.

Keywords: adolescence; BMI; DXA; general population studies; Peak Bone Mass

Screen time and metabolic syndrome among expatriate adolescents in the United Arab Emirates

Authors: Khan, M.A; **Shah, S.M;** Shehab, A; Ghosal, S; Muhairi, S.J; **Al-Rifai, R.H; Al Maskari, F;** Alkaabi, J; **Nauman, J.**

Journal: Diabetes and Metabolic Syndrome | **Year**: 2019 | **DOI**: https://doi.org/10.1016/j.dsx.2019.07.006

Abstract

Background: Both screen time and metabolic syndrome (MetS) are associated with health outcomes. However, limited data exist on the association between screen time and MetS among expatriate adolescents living in United Arab Emirates (UAE).

Methods: We conducted a cross-sectional school-based study on 473 expatriate adolescents (47% girls) aged 12–18 years in Al-Ain district of Abu Dhabi Emirates in the UAE. Data was collected with the expertise of trained nurses & IDF criteria was used to define MetS. Information on screen time (computer, television, and video game use combined) during a regular day was self-reported, and divided into two categories: <2, or ≥2 h per day. Using logistic regression analyses, adjusted odds ratios (OR) and 95% confidence intervals (CI) were estimated for the association between screen time and MetS.

Results: A high proportion of adolescents (75.3%) spent ≥2 h daily on screen. The prevalence of MetS was 8.5% in those with <2 h per day of screen time compared with 13.5% in those who reported ≥2 h per day. There was a graded positive association between screen time and MetS (P-trend = 0.01). Each hour increase in screen time was associated with 21% (OR, 1.21; 95% CI, 1.08–1.35) greater likelihood of having MetS. The adjusted OR value associated with ≥2 h of daily screen time was 2.20 (95% CI, 1.04–4.67), compared with adolescents who spent less than 2 h of daily screen time.

Conclusion: Higher screen time by expatriate adolescents was associated with an increased likelihood of having MetS.

Keywords: adolescents; cardiovascular disease; expatriate; obesity; physical activity; primary care; public health; risk factors; screen time; sedentary behavior; UAE; youths

Non-alcoholic fatty liver disease: Prevalence and all-cause mortality according to sedentary behaviour and cardiorespiratory fitness. The HUNT Study

Authors: Croci, I; Coombes, J.S; Bucher Sandbakk, S; Keating, S.E; **Nauman, J;** Macdonald, G.A; Wisloff, U.

Journal: Progress in Cardiovascular Diseases | **Year**: 2019 | **DOI**: https://doi.org/10.1016/j.pcad.2019.01.005

Abstract

Background: Sedentary behaviour (SB) and low physical activity (PA) are independently associated with non-alcoholic fatty liver disease (NAFLD). Compared to PA, high cardiorespiratory fitness (CRF) has been associated with a higher protection against all-cause mortality and a number of specific diseases. However, this relationship has not been investigated in NAFLD. This study examined the roles of SB and CRF on: i) the likelihood of having NAFLD in the general population, and ii) the risk of mortality over 9 years within individuals having NAFLD.

Methods: A cross-sectional analysis of 15,781 adults (52% female; age range 19–95 years) was conducted. Self-reported SB was divided into tertiles. CRF was estimated using validated non-exercise models, and the presence of NAFLD from the Fatty Liver Index. Adjusted Odds Ratios and 95% Confidence Intervals for NAFLD were estimated using logistic regression analyses. Hazard Ratios for all-cause mortality were estimated using Cox proportional hazard regression in individuals with NAFLD.

Results: For each additional 1 h/d of SB, the likelihood of having NAFLD was significantly increased by 4% (CI, 3–6%). In combined analyses, compared with the reference group [high CRF and low (≤4 h/d) SB], individuals with low CRF had a markedly higher likelihood of having NAFLD (OR, 16.9; CI 12.9–22.3), even if they had SB ≤ 4 h/d. High CRF attenuated the negative role of SB up to 7 h/d on NAFLD. Over 9.4 ± 1.3 years of follow-up, individuals with NAFLD and low CRF had the risk of mortality increased by 52% (CI, 10–106%) compared to those with high CRF, regardless of SB or meeting PA guidelines.

Conclusions: Low CRF increases the risk of premature death in individuals with NAFLD, and is strongly associated with higher likelihood of having NAFLD, outweighing the influence of SB.

Keywords: exercise; hepatic steatosis; peak oxygen consumption; physical activity; prevention; sitting

Personal Activity Intelligence (PAI): A new standard in activity tracking for obtaining a healthy cardiorespiratory fitness level and low cardiovascular risk

Authors: **Nauman, J;** Nes, B.M; Zisko, N; Revdal, A; Myers, J; Kaminsky, L.A; Wisløff, U.

Journal: Progress in Cardiovascular Diseases | **Year**: 2019 | **DOI**: https://doi.org/10.1016/j.pcad.2019.02.006

Abstract

Despite all the evidence of health benefits related to physical activity (PA) and cardiorespiratory fitness (CRF), low levels of PA have reached pandemic proportions, and inactivity is the fourth leading cause of death worldwide. Lack of time, and inability to self-manage are often cited as main barriers to getting adequate PA. Recently, a new personalized metric for PA tracking named Personal Activity Intelligence (PAI) was developed with the aim to make it easier to quantify how much PA per week is needed to reduce the risk of premature mortality from non-communicable diseases. PAI can be integrated in self-assessment heart rate devices and defines a weekly beneficial heart rate pattern during PA by considering the individual's sex, age, and resting and maximal heart rates. Among individuals ranging from the general population to subgroups of patients with cardiovascular disease (CVD), a PAI score ≥100 per week at baseline, an increase in PAI score, and a sustained high PAI score over time were found to delay premature death from CVD and all causes, regardless of whether or not the current PA recommendations were met. Importantly, a PAI score ≥100 at baseline, maintaining ≥100 PAIs and an increasing PAI score over time was associated with multiple years of life gained. Moreover, obtaining a weekly PAI ≥100 attenuated the deleterious association between CVD risk factor clustering and prolonged sitting time. PAI and objectively measured CRF (as indicated by VO 2peak) were positively associated in a graded fashion, and individuals with a PAI score between 100 and 150 had expected age and sex specific average VO 2peak values. A PAI score ≥100 was associated with higher VO 2peak in both men (4.1 mL·kg $^{-1}$ ·min $^{-1}$; 95% CI, 3.5 to 4.6) and women (2.9 mL·kg $^{-1}$ ·min $^{-1}$; 95% CI, 2.4 to 3.3), compared to the reference group of <100 PAI. The combined analysis of PAI, PA and VO 2peak demonstrated that a PAI score ≥100 was associated with high VO 2peak values regardless of meeting or not meeting the current PA recommendations. Collectively, these findings suggest that PAI has the potential to be a useful tool to motivate people to become and stay physically active by quantifying the amount of PA needed to produce significant health benefits.

Keywords: activity tracking; cardiorespiratory fitness; cardiovascular disease; mortality; physical activity promotion; prevention

Temporal changes in a novel metric of physical activity tracking (personal activity intelligence) and mortality: The HUNT Study, Norway

Authors: Kieffer, S.K; Croci, I; Wisløff, U; **Nauman, J**.

Journal: Progress in Cardiovascular Diseases | **Year**: 2019 |

DOI: https://doi.org/10.1016/j.pcad.2018.09.002

Abstract

Background: Personal Activity Intelligence (PAI) is a novel activity metric that translates heart rate variations during exercise into a weekly score. Weekly PAI scores assessed at a single point in time were found to associate with lower risk of premature cardiovascular disease (CVD) mortality in the general healthy population. However, to date, the associations between long-term longitudinal changes in weekly PAI scores and mortality have not been explored. The aim of the present study was to prospectively examine the association between change in weekly PAI scores estimated 10 years apart, and risk of mortality from CVD and all-causes.

Methods: We performed a prospective cohort study of 11,870 men and 13,010 women without known CVD in Norway. By using data from the Nord-Trøndelag Health Study (HUNT), PAI was estimated twice, ten years apart (HUNT1 1984-86 and HUNT2 1995-97). Mortality was followed-up until December 31, 2015. Adjusted hazard ratios (AHR) and 95% confidence intervals (CI) for death from CVD and all-causes related to temporal changes in PAI were estimated using Cox regression analyses.

Results: During a mean (SD) of 18 (4) years of follow-up, there were 4782 deaths, including 1560 deaths caused by CVD. Multi-adjusted analyses demonstrated that participants achieving a score of ≥100 PAI at both time points had 32% lower risk of CVD mortality (AHR 0.68; CI: 0.54–0.86) for CVD mortality and 20% lower risk of all-cause mortality (AHR 0.80; CI: 71–0.91) compared with participants obtaining <100 weekly PAI at both measurements. For participants having <100 PAI in HUNT1 but ≥100 PAI in HUNT2, the AHRs were 0.87 (CI: 0.74–1.03) for CVD mortality, and 0.86 (CI: 0.79–0.95) for all-cause mortality. We also found an inverse linear relationship between change in PAI and risk of CVD mortality among participants with 0 PAI ($P < 0.01$), and ≤50 PAI ($P = 0.04$) in HUNT1, indicating that an increase in PAI over time is associated with lower risk of mortality. Excluding the first three years of follow-up did not substantially alter the findings. Increasing PAI score from <100 PAI in HUNT1 to ≥100 PAI in HUNT2 was associated with 6.6 years gained lifespan.

Conclusion: Among men and women without known CVD, an increase in PAI score and sustained high PAI score over a 10-year period was associated with lower risk of mortality.

Keywords: activity tracking; cardiovascular disease mortality; physical activity promotion; prevention

Predictors of dropout in exercise trials in older adults: The Generation 100 Study

Authors: Viken, H; Reitlo, L.S; Zisko, N; **Nauman, J;** Aspvik, N.P; Ingebrigtsen, J.E; WislØff, U; Stensvold, D.

Journal: Med Sci Sports Exerc | **Year**: 2019 | DOI: https://doi.org/10.1249/mss.0000000000001742

Abstract

Background: Dropout from exercise programs, both in the real world and in research, is a challenge, and more information on dropout predictors is needed for establishing strategies to increase the likelihood of maintaining participants in a prescribed exercise program. The aim of the present study was to determine the dropout rate and its predictors during a 3-yr exercise program in older adults.

Methods: In total, 1514 men and women (mean ± SD age = 72.4 ± 1.9 yr) were included in the present study. Participants were randomized to either a supervised exercise intervention or to follow national guidelines for physical activity (PA). Self-reported demographics (e.g; education), general health, morbidity (e.g; heart disease, memory loss, and psychological distress), smoking, and PA were examined at baseline. Cardiorespiratory fitness (CRF) and grip strength were directly measured at baseline. Dropout rate was evaluated after 1 and 3 yr. Multivariate logistic regression analysis was used to identify dropout predictors.

Results: The total dropout rate was 11.0% (n = 166) after 1 yr and 14.9% (n = 225) after 3 yr. Significant predictors of dropout after 1 yr were low education, low grip strength, lower cardiorespiratory fitness, low PA level, and randomization to supervised exercise. The same predictors of dropout were significant after 3 yr, with reduced memory status as an additional predictor.

Conclusion: This is the largest study to identify dropout predictors in a long-term exercise program in older adults. Our findings provide new and important knowledge about potential risk factors of dropout in long-term exercise programs in older adults.

Keywords: attrition; elderly; physical activity; randomized controlled trial

Prevalence of diabetes and cardio-metabolic risk factors in young men in the United Arab Emirates: A cross-sectional national survey

Authors: Alzaabi, A; Al-Kaabi, J; **Al-Maskari, F**; Farhood, A. F; **Ahmed, L. A**.

Journal: Endocrinol Diabetes Metab | **Year**: 2019 | DOI: https://doi.org/10.1002/edm2.81

Abstract

Background: Dropout from exercise programs, both in the real world and in research, is a challenge, and more information on dropout predictors is needed for establishing strategies to increase the likelihood of maintaining participants in a prescribed exercise program. The aim of the present study was to determine the dropout rate and its predictors during a 3-yr exercise program in older adults.

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Conclusion: This is the largest study to identify dropout predictors in a long-term exercise program in older adults. Our findings provide new and important knowledge about potential risk factors of dropout in long-term exercise programs in older adults.

Keywords: UAE; age-specific prevalence; diabetes; metabolic disorders

Association between duration of residence and prevalence of type 2 diabetes among male South Asian expatriate workers in the United Arab Emirates: A cross-sectional study

Authors: **Shah, S.M;** Jaacks, L.M; **Al-Maskari, F;** Al-Kaabi, J; **Aziz, F; Soteriades, E; Loney, T;** Farooqi, H; Memon, A; Ali, R.

Journal: BMJ Open | **Year**: 2020 | **DOI**: https://doi.org/10.1136/bmjopen-2020-040166

Abstract

Background: Expatriates account for about 80% of the total population in the United Arab Emirates (UAE). This study aimed to evaluate the hypothesis that prevalence of type 2 diabetes in male South Asian expatriates increases with increased length of residence in the UAE.

Methods: This cross-sectional study recruited a representative sample (n=1375) of male South Asian expatriates aged ≥18 years in Al Ain, UAE. Sociodemographic, anthropometric and lifestyle data were obtained using a pilot-tested adapted version of the WHO STEPS instrument. Duration of residence was used as a marker for acculturation. Type 2 diabetes was defined as a self-reported physician diagnosis of diabetes or a glycosylated haemoglobin blood level ≥6.5%.

Results: Mean (±SD) age of participants was 34.0±9.9 years. Overall, the prevalence of type 2 diabetes was 8.3% (95% CI 6.8% to 9.8%). Diabetes prevalence was positively associated with longer duration of residence in the UAE, 2.7%, <5 years; 8.2%, 5-10 years; and 18.8%, >10 years. After adjusting for age, nationality, and income and age, expatriates were more likely to develop diabetes if residing in the UAE for 5-10 years (OR=2.18; 95% CI 1.02 to 4.67) or >10 years (OR=3.23; 95% CI 1.52 to 6.85) compared with those residing for <5 years.

Conclusions: After controlling for potential confounding factors, longer duration of residence was significantly associated with a higher prevalence of type 2 diabetes in male South Asian expatriate workers in the UAE.

Keywords: diabetes & endocrinology; epidemiology; general endocrinology; public health

Global and regional incidence, mortality and disability-adjusted life-years for Epstein-Barr virus-attributable malignancies, 1990-2017

Authors: Khan, G; Fitzmaurice, C; Naghavi, M; **Ahmed, L.A.**

Journal: BMJ open | **Year**: 2020 | **DOI**: https://doi.org/10.1136/bmjopen-2020-037505

Abstract

Objective: To determine the global and regional burden of Epstein-Barr virus (EBV)-attributed malignancies.

Methods: An international comparative study based on the Global Burden of Disease (GBD) Study estimates. Global population by age, sex, region, demographic index and time. The burden of EBV-attributed Burkitt lymphoma (BL), Hodgkin lymphoma (HL), nasopharyngeal carcinoma (NPC) and gastric carcinoma (GC) was estimated in a two-step process. In the first step, the fraction of each malignancy attributable to EBV was estimated based on published studies; this was then applied to the GBD estimates to determine the global and regional incidence, mortality and disability-adjusted life-years (DALYs) for each malignancy by age, sex, geographical region and social demographic index (SDI) from 1990 to 2017.

Results: The combined global incidence of BL, HL, NPC and GC in 2017 was 1.442 million cases, with over 973 000 deaths. An estimated 265 000 (18%) incident cases and 164 000 (17%) deaths were due to the EBV-attributed fraction. This is an increase of 36% in incidence and 19% in mortality from 1990. In 2017, EBV-attributed malignancies caused 4.604 million DALYs, of which 82% was due to NPC and GC alone. The incidence of both of these malignancies was higher in high and middle-high SDI regions and peaked in adults aged between 50 and 70 years. All four malignancies were more common in males and the highest burden was observed in East Asia.

Conclusion: This study provides comprehensive estimates of the burden of EBV-attributed BL, HL, NPC and GC. The overall burden of EBV-related malignancies is likely to be higher since EBV is aetiologically linked to several other malignancies not included in this analysis. Increasing global population and life expectancy is expected to further raise this burden in the future. The urgency for developing an effective vaccine to prevent these malignancies cannot be overstated.

Keywords: epidemiology; microbiology; oncology; public health

Metabolic syndrome among children aged 6 to 11 years, Al Ain, United Arab Emirates: Role of obesity

Authors: **Shah, S.M; Aziz, F; Al Meskari, F;** Al Kaabi, J; Khan, U.I; Jaacks, L.M.

Journal: Pediatric Diabetes | **Year**: 2020 | **DOI**: https://doi.org/10.1111/pedi.13027

Abstract

Objectives: To evaluate the association of metabolic syndrome with the varying degrees of obesity among children aged 6 to 11 years in Al Ain, United Arab Emirates (UAE).

Methods: As an ancillary to the primary study examining prevalence of MetS in a random sample of 1186 adolescents from 114 schools in Al Ain, parents and siblings aged 6 to 11 years were invited to participate in this study. After informed consent from parents and assent from children, trained nurses administered questionnaires to assess socio-demographic and lifestyle variables and conducted anthropometric measurements. Fasting blood samples were drawn to measure plasma lipids and glucose. We used Centers for Diseases Control and Prevention (CDC)-defined categories of body mass index (BMI = kg/m^2) for normal weight (<85th percentile), overweight (≥85th to 94th percentile), and obese (≥95th percentiles). MetS was defined according to National Cholesterol Education Program's (NCEP)/Adult Treatment Panel III (ATP III) criteria.

Results: Of the total 234 siblings aged 6 to 11 years, 8.9% (95% Confidence Interval [CI]: 5.6-13.4) had MetS. The prevalence of MetS increased with the severity of obesity, 4.5% in normal, 16.7% in overweight, and 30.0% in obese subjects. The age, sex, and ethnicity adjusted odds (1.55, 95% CI: 1.23-1.96) of MetS increased significantly with per unit increase in BMI.

Conclusions: The prevalence of MetS in study subjects increased with an increase in BMI. School-based interventions targeting metabolic risks in this population are urgently needed.

Keywords: children; diabetes; metabolic syndrome; obesity; UAE

Cigarette smoking and smokeless tobacco use among male South Asian migrants in the United Arab Emirates: A cross-sectional study

Authors: **Ali, R; Loney, T;** Al-Houqani, M; **Blair, I; Aziz, F;** Al Dhaheri, S; **El Barazi, I; Soteriades, E.S; Shah, S.M.**

Journal: BMC Public Health | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s12889-020-08942-9

Abstract

Background: Few data were available on smoking and smokeless tobacco use in South Asian migrants in the United Arab Emirates (UAE). This study aimed to identify the prevalence and correlates of cigarette smoking and smokeless tobacco use in male South Asian migrants in the UAE.

Methods: We used a cross-sectional study to recruit a random representative sample of male South Asian migrants, including Indian (n = 433), Pakistani (n = 383) and Bangladeshi (n = 559) nationalities. We used multivariable logistic regression analysis to identify significant correlates of cigarettes smoking and smokeless tobacco use.

Results: 1375 South Asian migrant adult males participated in the study (response rate 76%) with a mean age of 34 years (SD ± 10). The overall prevalence of cigarette smoking was 28% (95%CI 25-30%) and smokeless tobacco use was 11% (95%CI 10-13%). The prevalence of current cigarette smoking was 21, 23, and 37% among participants from India, Pakistan and Bangladesh, respectively. The prevalence of current smokeless tobacco use was 6, 12, and 16% for Indian, Pakistani, and Bangladeshi participants, respectively. Among study participants, Bangladeshi nationality, hypertension, and alcohol use were significant correlates of current cigarette smoking. Significant correlates of smokeless tobacco use included increased age, less than college level education, alcohol use, and Pakistani or Bangladeshi nationality.

Conclusions: Current smoking and smokeless tobacco use in South Asian migrants represent a significant public health burden in the UAE. Effective public health measures are needed to reduce tobacco use in this migrant population.

Keywords: cigarette smoking; migrants; prevalence; smokeless tobacco use; South Asian; United Arab Emirates

Agreement between cardiovascular disease risk assessment tools: An application to the United Arab Emirates population

Authors: **Oulhaj, A;** Bakir, S; Aziz, F; **Suliman, A;** Almahmeed, W; Sourij, H; Shehab, A.

Journal: PLoS ONE | **Year**: 2020 | **DOI**: https://doi.org/10.1371/journal.pone.0228031

Abstract

Introduction: Evidence regarding the performance of cardiovascular disease (CVD) risk assessment tools is limited in the United Arab Emirates (UAE). Therefore, we assessed the agreement between various externally validated CVD risk assessment tools in the UAE.

Methods: A secondary analysis of the Abu Dhabi Screening Program for Cardiovascular Risk Markers (AD-SALAMA) data, a large population-based cross-sectional survey conducted in Abu Dhabi, UAE during the period 2009 until 2015, was performed in July 2019. The analysis included 2,621 participants without type 2 Diabetes and without history of cardiovascular diseases. The CVD risk assessment tools included in the analysis were the World Health Organization for Middle East and North Africa Region (WHO-MENA), the systematic coronary risk evaluation for high-risk countries (SCORE-H), the pooled cohort risk equations for white (PCRE-W) and African Americans (PCRE-AA), the national cholesterol education program Framingham risk score (FRAM-ATP), and the laboratory Framingham risk score (FRAM-LAB).

Results: The overall concordance coefficient was 0.50. The agreement between SCORE-H and PCRE-W, PCRE-AA, FRAM-LAB, FRAM-ATP and WHO-MENA, were 0.47, 0.39, 0.0.25, 0.42 and 0.18, respectively. PCRE-AA classified the highest proportion of participants into high-risk category of CVD (16.4%), followed by PCRE-W (13.6%), FRAM-LAB (6.9%), SCORE-H (4.5%), FRAM-ATP (2.7%), and WHO-MENA (0.4%).

Conclusions: We found a poor agreement between various externally validated CVD risk assessment tools when applied to a large data collected in the UAE. This poses a challenge to choose any of these tools for clinical decision-making regarding the primary prevention of CVD in the country.

Keywords: cardiovascular disease; risk assessment tools; external validation; United Arab Emirates

Self-esteem and other risk factors for depressive symptoms among adolescents in the United Arab Emirates

Authors: **Shah, S.M;** Dhaheri, F.A; Albanna, A; Jaberi, N.A; Eissaee, S.A; Alshehhi, N.A; Al Shamisi, S.A; Al Hamez, M.M; Abdelrazeq, S.Y; **Grivna, M;** Betancourt, T.S.

Journal: PLoS ONE | **Year**: 2020 | **DOI**: https://doi.org/10.1371/journal.pone.0227483

Abstract

Background: Little is known about depressive symptoms among adolescents in the United Arab Emirates (UAE). This study aimed to identify the prevalence of depression and its association with self-esteem, individual, parental and family factors among adolescents aged 12 to 18 in UAE.

Methods: Six hundred adolescents, aged 12 to 18 years were recruited from 4 of 111 schools in a cross-sectional study. We administered Beck Depression Inventory Scale and Rosenberg Self-esteem Scale to measure self-report symptoms of depression and self-esteem. We used multiple linear regression to identify significant predictors of depression.

Results: Over 86% of the identified sample participated to the survey. The mean age of the sample was 14.3 (±1.3) with an excess of girls (61%). Depressive symptoms were detected in 17.2% (95% CI 14.2–20.7). There was an inverse relationship between self-esteem scores and depressive symptoms. Positive predictors of depressive symptoms, having controlled for age, gender, and ethnicity included experiencing neglect, being verbally abused in school, having no monthly allowance to spend in school, a history of physical morbidities requiring treatment, being a current or past smoker and a low family income.

Conclusion: The high prevalence of depressive symptoms measured in this survey suggests a significant public health problem among adolescents in the UAE. Public health interventions aimed at facilitating education and early detection and potential treatment of depressive symptoms are a priority in the region.

Keywords: depression, self-esteem, public health interventions, adolescents, UAE

Prevalence, awareness, treatment, and control of hypertension in the United Arab Emirates: A systematic review and meta-analysis

Authors: **Bhagavathula, A.S; Shah, S.M;** Aburawi, E.H.

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph182312693

Abstract

Background: Evidence for the prevalence, awareness, treatment, and control of hypertension in the United Arab Emirates (UAE) is limited. A systematic review and meta-analysis were conducted to summarize the existing knowledge regarding the prevalence, awareness, treatment, and control of hypertension in the UAE.

Methods: We searched PubMed/MEDLINE, Embase, Scopus, and Google Scholar using prespecified medical subject handling (MeSH) terms and text words to identify the relevant published articles from 1 January 1995 to 31 August 2021. Population-based prospective observational studies conducted among healthy adult subjects living in the UAE and that defined hypertension using the guidelines-recommended blood pressure (BP) cut-offs ≥ 130/80 mmHg or ≥ 140/90 mmHg were considered.

Results: Of 1038 studies, fifteen cross-sectional studies were included for data extraction involving 139,907 adults with a sample size ranging from 74 to 50,138 and with cases defined as blood pressure ≥ 140/90 mmHg. The pooled prevalence of hypertension was 31% (95% confidence interval (CI): 27–36), and a higher prevalence was observed in Dubai (37%, 95% CI: 28–45) than in the Abu Dhabi region (29%, 95% CI: 24–35) and in multicenter studies (24%, 95% CI: 14–33). The level of awareness was only 29% (95% CI: 17–42), 31% (95% CI: 18–44) for treatment, and 38% (95% CI: 19–57) had controlled BP (< 140/90 mmHg).

Conclusion: This study revealed a high prevalence of hypertension with low awareness and suboptimal control of hypertension. Multifaceted approaches that include the systematic measurement of BP, raising awareness, and improving hypertension diagnoses and treatments are needed.

Keywords: awareness; blood pressure; control; hypertension; meta-analysis; prevalence

The interrelationship and accumulation of cardiometabolic risk factors amongst young adults in the United Arab Emirates: The UAE Healthy Future Study

Authors: Mezhal, F; Oulhaj, A; Abdulle, A; AlJunaibi, A; Alnaeemi, A; Ahmad, A; Leinberger-Jabari, A; Al Dhaheri, A.S; Tuzcu, E.M; AlZaabi, E; **Al-Maskari, F;** Alanouti, F; Alameri, F; Alsafar, H; Alblooshi, H; Alkaabi, J; Wareth, L.A; Aljaber, M; Kazim, M; Weitzman, M; Al-Houqani, M; Ali, M.H; Oumeziane, N; El-Shahawy, O; **Al-Rifai, R.H;** Scherman, S; **Shah, S.M;** Loney, T; Almahmeed, W; Idaghdour, Y; **Ahmed, L.A;** Ali, R.

Journal: Diabetology and Metabolic Syndrome | **Year**: 2021 | **DOI**: https://doi.org/10.1186/s13098-021-00758-w

Abstract

Background: Similar to other non-communicable diseases (NCDs), people who develop cardiovascular disease (CVD) typically have more than one risk factor. The clustering of cardiovascular risk factors begins in youth, early adulthood, and middle age. The presence of multiple risk factors simultaneously has been shown to increase the risk for atherosclerosis development in young and middle-aged adults and risk of CVD in middle age. Objective: This study aimed to address the interrelationship of CVD risk factors and their accumulation in a large sample of young adults in the United Arab Emirates (UAE).

Methods: Baseline data was drawn from the UAE Healthy Future Study (UAEHFS), a volunteer-based multicenter study that recruits Emirati nationals. Data of participants aged 18 to 40 years was used for cross-sectional analysis. Demographic and health information was collected through self-reported questionnaires. Anthropometric data and blood pressure were measured, and blood samples were collected. Results: A total of 5126 participants were included in the analysis. Comorbidity analyses showed that dyslipidemia and obesity co-existed with other cardiometabolic risk factors (CRFs) more than 70% and 50% of the time, respectively. Multivariate logistic regression analysis of the risk factors with age and gender showed that all risk factors were highly associated with each other. The strongest relationship was found with obesity; it was associated with four-fold increase in the odds of having central obesity [adjusted OR 4.70 (95% CI (4.04–5.46)], and almost three-fold increase odds of having abnormal glycemic status [AOR 2.98 (95% (CI 2.49–3.55))], hypertension (AOR 3.03 (95% CI (2.61–3.52))] and dyslipidemia [AOR 2.71 (95% CI (2.32–3.15)]. Forty percent of the population accumulated more than 2 risk factors, and the burden increased with age.

Conclusion: In this young population, cardiometabolic risk factors are highly prevalent and are associated with each other, therefore creating a heavy burden of risk factors. This forecasts an increase in the burden of CVD in the UAE. The robust longitudinal design of the UAEHFS will enable researchers to understand how risk factors cluster before disease develops. This knowledge will offer a novel approach to design group-specific preventive measures for CVD development.

Keywords: cardiometabolic risk factors; cardiovascular disease; central obesity; dysglycemia; dyslipidemia; hypertension; metabolic syndrome; obesity

The influence of snuff and smoking on bone accretion in late adolescence. The Tromsø study, Fit Futures

Authors: Nilsen, O.A; Emaus, N; Christoffersen, T; Winther, A; Evensen, E; Thrane, G; Furberg, A.-S; Grimnes, G; **Ahmed, L.A.**

Journal: Archives of Osteoporosis | **Year**: 2021 | **DOI**: https://doi.org/10.1007/s11657-021-01003-7

Abstract

Summary: Areal bone mineral density (aBMD) predicts future fracture risk. This study explores associations between use of tobacco and bone accretion in Norwegian adolescents. Our results indicate that use of snuff is negatively associated with accretion of aBMD in adolescence and may be a signal of increased future fracture risk. Purpose: Bone mineral accrual in childhood and adolescence is a long-term primary preventive strategy of osteoporosis. Areal bone mineral density (aBMD) is a surrogate measure of bone strength and a predictor of fracture risk. The aim of this population-based 2-year follow-up cohort study was to explore associations between use of snuff and smoking and changes (Δ) in aBMD in Norwegian girls and boys aged 15–17 years at baseline. Methods: The first wave of the Tromsø study, Fit Futures was conducted from 2010 to 2011. Femoral neck (FN), total hip (TH), and total body (TB) bone mineral content (BMC) and aBMD were measured by dual-energy X-ray absorptiometry. Information on use of snuff, smoking habits, and other lifestyle related variables were collected through self-administered questionnaires. Two years later, during 2012–2013, the measurements were repeated in the second wave. The present study included 349 girls and 281 boys and compared "non-users" (n = 243 girls, 184 boys) with "users" (n = 105 girls, 96 boys) of snuff and "non-smokers" (n = 327 girls, 249 boys) with "smokers" (n = 21 girls, 31 boys) using linear regression adjusted for age, baseline height and weight, change in height and weight, pubertal maturation, physical activity, ethnicity, alcohol consumption, diagnosis known to affect bone, and medication known to affect bone. The influence of "double use" on bone accretion was also explored. Results: In girls, no associations between use of snuff and ΔaBMD were found. In boys, use of snuff was associated with reduced bone accretion in all ΔaBMD models. Sensitivity analysis with exclusion of "sometimes" users of snuff strengthened associations at femoral sites in girls and attenuated all associations in boys. In girls, no associations between smoking and ΔaBMD were found. In boys, only the association with TB ΔaBMD was significant in the fully adjusted models. In girls, "double users" analyses showed similar association to smoking. In boys, nearly all models showed statistically significant associations with a difference of ~ 1–2% in ΔaBMD between "non-users" and "double users" during 2 years of follow-up. Conclusions: Our results indicate that tobacco use in late adolescence could be detrimental to bone accretion and may be a signal of increased fracture risk in adult life.

Keywords: adolescence; bone mineral density; DXA; osteoporosis; smoking; snuff use

Psychological distress and anxiety levels among health care workers at the height of the COVID-19 pandemic in the United Arab Emirates

Authors: Saddik, B; **Elbarazi, I;** Temsah, M.-H; Saheb Sharif-Askari, F; Kheder, W; Hussein, A; Najim, H; Bendardaf, R; Hamid, Q; Halwani, R.

Journal: Int J Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3389/ijph.2021.1604369

Abstract

Objectives: Providing medical care during a global pandemic exposes healthcare workers (HCW) to a high level of risk, causing anxiety and stress. This study aimed to assess the prevalence of anxiety and psychological distress among HCWs during COVID-19.

Methods: We invited HCWs from 3 hospitals across the United Arab Emirates (UAE) to participate in an anonymous online survey between April 19–May 3, 2020. The GAD-7 and K10 measures were used to assess anxiety and psychological distress. Logistic regression models assessed associations between knowledge, attitude, worry, and levels of anxiety and psychological distress.

Results: A total of 481 HCWs participated in this study. The majority of HCWs were female (73.6%) and aged 25–34 years (52.6%). More than half were nurses (55.7%) and had good knowledge of COVID-19 (86.3%). Over a third (37%) of HCWs reported moderate/severe psychological distress in the K10 measure and moderate/severe anxiety (32.3%) in the GAD-7, with frontline workers significantly reporting higher levels of anxiety (36%). Knowledge of COVID-19 did not predict anxiety and psychological distress, however, HCWs who believed COVID-19 was difficult to treat and those who perceived they were at high risk of infection had worse mental health outcomes. Worry about spreading COVID-19 to family, being isolated, contracting COVID-19 and feeling stigmatized had 1.8- to 2.5-fold increased odds of symptoms of mental health problems. Additionally, HCWs who felt the need for psychological support through their workplace showed increased odds of psychological distress.

Conclusion: HCWs in the UAE reported a high prevalence of psychological distress and anxiety while responding to the challenges of COVID-19. The findings from this study emphasize the public, emotional and mental health burden of COVID-19 and highlight the importance for health systems to implement, monitor, and update preventive policies to protect HCWs from contracting the virus while also providing psychological support in the workplace.

Keywords: anxiety disorders; COVID-19; healthcare workers; mental health; psychological distress

Effects of a workplace exercise intervention on cardiometabolic health: Study protocol for a randomised controlled trial

Authors: **Alrahma, A.M;** Habib, M.A; **Oulhaj, A;** Loney, T; Boillat, T; **Shah, S.M; Ahmed, L.A; Nauman, J.**

Journal: BMJ Open | **Year**: 2021 | **DOI**: https://doi.org/10.1136/bmjopen-2021-051070

Abstract

Introduction: The worldwide rising levels of physical inactivity especially in the United Arab Emirates (ARE) and the Eastern Mediterranean region are alarming. The ARE reports one of the highest rates of non-communicable disease mortality and insufficient physical activity (PA) is a major underlying cause. Therefore, action is required to reduce physical inactivity using evidence-based strategies. This study aimed to evaluate the efficacy of a worksite exercise intervention on cardiometabolic health in the ARE.

Methods: and analysis This is a protocol for a pragmatic parallel randomised controlled trial with a 1:1 allocation ratio to the intervention group and delayed intervention group. A total of 150 participants will be recruited from a semigovernment telecommunications company in Dubai (ARE) after meeting the eligibility criteria. The intervention group will receive 2 hours of exercise per week during working hours for 12 weeks (maximum 1 hour/day). The intervention group will be assigned to attend personal trainer sessions in the workplace gym throughout the intervention period. After the intervention is completed, the delayed intervention group will also receive 2 hours of exercise time per week from working hours for 4 weeks. The main outcome measure is the change in the cardiometabolic risk components, that is, systolic or diastolic blood pressure, waist circumference, glycated haemoglobin, fasting plasma glucose, low-density lipoprotein cholesterol from baseline to the end of the intervention. The secondary outcome is to examine whether the workplace exercise intervention improves PA levels 4 weeks postintervention.

Ethics and dissemination: The study has been approved by the Dubai Scientific Research Ethics Committee (DSREC-SR-08/2019_02). The results will be disseminated as follows: At various national and international scientific conferences; as part of a PhD thesis in Public Health at the College of Medicine and Health Sciences, ARE University; and in a manuscript submitted to a peer-reviewed journal.

Keywords: diabetes & endocrinology; hypertension; occupational & industrial medicine; preventive medicine; public health

Medication adherence and treatment-resistant hypertension in newly treated hypertensive patients in the United Arab Emirates

Authors: **Bhagavathula, A.S; Shah, S.M;** Aburawi, E.H.

Journal: Journal of Clinical Medicine | **Year**: 2021 | **DOI**: https://doi.org/10.3390/jcm10215036

Abstract

Background: The present study aimed to analyze medication adherence and its effect on blood pressure (BP) control and assess the prevalence of treatment-resistant hypertension (TRH) among newly treated hypertensive patients in the United Arab Emirates (UAE).

Methods: A retrospective chart review was conducted to evaluate 5308 naïve hypertensive adults registered for the treatment across Abu Dhabi Health Services (SEHA) clinics in Abu Dhabi in 2017. After collecting data regarding basic details and BP measurements, patients were followed up for six months. Patients who did not reach BP targets despite taking three or more antihypertensive medications were defined as TRH.

Results: The overall adherence to antihypertensive treatment was 42%. At 6-month, a significant reduction in BP was observed in patients adherent to medications (systolic: −4.5 mm Hg and diastolic: −5.9 mm Hg) than those who were nonadherent to antihypertensive therapy (1.15 mm Hg and 3.59 mm Hg). Among 189 patients using three or more antihypertensive medications for six months, only 34% (n = 64) were adherent to the treatment, and only 13.7% (n = 26) reached the BP target. The prevalence of TRH was 20.1%.

Conclusions: Medication adherence and BP control among the participants were suboptimal. The study shows a high prevalence of TRH among newly treated hypertensives in the UAE. More extraordinary efforts toward improving adherence to antihypertensive therapy and more focus toward BP control and TRH are urgently needed.

Keywords: blood pressure; control; hypertension; medication adherence; treatment-resistant hypertension; United Arab Emirates

Patterns of tobacco smoking and nicotine vaping among university students in the United Arab Emirates: A cross-sectional study

Ahmed, L.A; Verlinden, M; Alobeidli, M.A; Alahbabi, R.H; Alkatheeri, R; Saddik, B; **Oulhaj, A; Al-Rifai, R.H.**

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph18147652

Abstract

Background: Various forms of tobacco smoking and nicotine vaping tools are available on the market. This study quantified the prevalence of and identified factors associated with patterns of smoking and nicotine vaping among university students in the United Arab Emirates (UAE).

Methods: A cross-sectional sample of students enrolled in three public universities was surveyed. Self-reported current smoking and nicotine vaping were recorded.

Results: Of 1123 students, 81.7% completed the online survey (mean age, 20.7 ± 3.4 (SD) years; 70.7% females). The prevalence of current smoking was 15.1% while the prevalence of current nicotine vaping was nearly 4.0%. Among current smokers, 54.7% reported conventional smoking only, 15.1% reported nicotine vaping only, and 28.8% were poly-users. Conventional midwakh (47.5%), followed by conventional shisha/waterpipe (36.7%), conventional cigarettes (36.7%), electronic shisha/waterpipe (25.2%), and electronic cigarettes (24.5%), were most commonly reported by students. Students aged 20–25 years (adjusted odds ratios (aOR): 2.08, 95% confidence interval (CI): 1.18–3.67) or >25 years (aOR: 4.24, 95% CI: 1.41–12.80) had higher odds of being current smokers compared to those aged 17–19 years. The male gender was also independently associated with higher odds of being a current smoker (aOR: 5.45, 95% CI: 3.31–8.97) as well as higher odds of smoking cigarettes, shisha, and midwakh, or nicotine vaping compared to being female. Of nicotine vaping users, 36.1% reported using nicotine vaping because they enjoyed the flavor and vaporizing experience and 34.4% used it to help them to quit smoking.

Conclusion: A relatively high prevalence of self-reported smoking was reported among university students in the UAE. The findings also suggest that nicotine vaping use is relatively widespread, but still less common than traditional smoking. Vigilant and tailored university-based smoking control and preventive measures are warranted.

Keywords: e-cigarettes; electronic nicotine delivery system; midwakh; smoking; United Arab Emirates

Association between Personal Activity Intelligence (PAI) and body weight in a population free from cardiovascular disease – The HUNT study

Authors: Kieffer, S.K; **Nauman, J;** Syverud, K; Selboskar, H; Lydersen, S; Ekelund, U; Wisløff, U.

Journal: The Lancet Regional Health – Europe | **Year**: 2021 |

DOI: https://doi.org/10.1016/j.lanepe.2021.100091

Abstract

Background: Personal Activity Intelligence (PAI) is a new metric for physical activity tracking, and is associated with reduced risk of all-cause and cardiovascular mortality. We prospectively investigated whether PAI is associated with lower body weight gain in a healthy population.

Methods: We included 85,243 participants (40,037 men and 45,206 women) who participated in at least one of three waves of the Trøndelag Health Study (HUNT1: 1984-86, HUNT2: 1995-97, and HUNT3: 2006-08). We used questionnaires to estimate PAI, and linear mixed models to examine body weight according to PAI levels at three study waves. We also conducted regression analyses to assess separate relationships between change in PAI and the combined changes in PAI and physical activity recommendations, according to body weight from HUNT1 to HUNT3.

Findings: Compared with HUNT1, body weight was 8.6 and 6.7 kg higher at HUNT3 for men and women, respectively, but was lower among those with ≥200 PAI at HUNT3. For both sexes, a change from inactive (0 PAI) at HUNT1 to ≥100 weekly PAI-score at HUNT2 and HUNT3, and a ≥100 PAI-score at all three occasions were associated with lower body weight gain, compared with the reference group (0 PAI at all three waves). Importantly, among both sexes, obtaining ≥100 weekly PAI at HUNT1 and HUNT3 was associated with lower body weight gain regardless of adhering to physical activity guidelines.

Interpretation: Adhering to a high PAI over time may be a useful tool to attenuate excessive body weight gain in a population free from cardiovascular disease.

Keywords: personal activity intelligence; body weight gain; physical activity tracking; cardiovascular health

Diabetes prevalence and mortality in COVID-19 patients: a systematic review, meta-analysis, and meta-regression

Authors: Saha, S; **Al-Rifai, R.H;** Saha, S.

Journal: Journal of Diabetes and Metabolic Disorders | **Year**: 2021 |

DOI: https://doi.org/10.1007/s40200-021-00779-2

Abstract

Background: The coronavirus disease 2019 (COVID-19) patients with diabetes mellitus (DM) are at high risk of fatal outcomes. This meta-analysis quantifies the prevalence of mortality among (1) diabetic and (2) non-diabetic, and (3) the prevalence of DM, in hospitalized COVID-19 patients.

Methods: Published studies were retrieved from four electronic databases (PubMed, Embase, Scopus, and medRxiv) and appraised critically utilizing the National Heart, Lung, and Blood Institute's tool. Meta-analyses were performed using the random-effects model. The measures of heterogeneity were ascertained by I-squared (I2) and Chi-squared (Chi2) tests statistics. Predictors of heterogeneity were quantified using meta-regression models.

Results: Of the reviewed 475 publications, 22 studies (chiefly case series (59.09 %)), sourcing data of 45,775 hospitalized COVID-19 patients, were deemed eligible. The weighted prevalence of mortality in hospitlized COVID-19 patients with DM (20.0 %, 95 % CI: 15.0–26.0; I2, 96.8 %) was 82 % (1.82-time) higher than that in non-DM patients (11.0 %, 95 % CI: 5.0–16.0; I2, 99.3 %). The prevalence of mortality among DM patients was highest in Europe (28.0 %; 95 % CI: 14.0–44.0) followed by the United States (20.0 %, 95 % CI: 11.0–32.0) and Asia (17.0 %, 95 % CI: 8.0–28.0). Sample size and severity of the COVID-19 were associated ($p < 0.05$) with variability in the prevalence of mortality. The weighted prevalence of DM among hospitalized COVID-19 patients was 20 % (95 % confidence interval [CI]: 15–25, I2, 99.3 %). Overall, the quality of the studies was fair.

Conclusions: Hospitalized COVID-19 patients were appreciably burdened with a high prevalence of DM. DM contributed to the increased risk of mortality among hospitalized COVID-19 patients compared to non-DM patients, particularly among critically ill patients. Registration: PROSPERO (registration no. CRD42020196589).

Keywords: coronavirus infection; diabetes mellitus; diabetes mellitus, type 1; diabetes mellitus, type 2

Breast cancer survival and its prognostic factors in the United Arab Emirates: A retrospective study

Authors: Elobaid, Y; Aamir, M; **Grivna, M; Suliman, A;** Attoub, S; Mousa, H; **Ahmed, L.A; Oulhaj, A.**

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0251118

Abstract

Background: Data on breast cancer survival and its prognostic factors are lacking in the United Arab Emirates (UAE). Sociodemographic and pathologic factors have been studied widely in western populations but are very limited in this region. This study is the first to report breast cancer survival and investigate prognostic factors associated with its survival in the UAE.

Methods: This is a retrospective cohort study involving 988 patients who were diagnosed and histologically confirmed with breast cancer between January 2008 and December 2012 at Tawam hospital, Al Ain, UAE. Patient were followed from the date of initial diagnosis until the date of death from any cause, lost-to-follow up or the end of December 2018. The primary outcome is overall survival (OS). The Kaplan-Meier method was used to estimate the survival curve along with the 2- and 5-year survivals. Different group of patients categorized according to prognostic factors were compared using the log-rank test. Multiple Cox proportional hazards models was used to examine the impact of several prognostic factors on the overall survival.

Results: The median study follow-up was 35 months. Of the 988 patients, 62 had died during their follow-up, 56 were lost to follow-up and 870 were still alive at the end of the study. The average age of patients was 48 years. The majority of patients presented to the hospital with grade II or III, 24% with at least stage 3 and 9.2% had metastasis. The 2-year and 5-year survivals were estimated to 97% and 89% respectively. Results of the multiple Cox proportional hazard model show that tumor grade, and stage of cancer at presentation are jointly significantly associated with survival.

Conclusion: The 2- and 5-year survival are within the norms compared to other countries. Significant clinical and pathological prognostic factors associated with survival were tumor grade, and the stage of cancer at presentation.

Keywords: breast cancer; overall survival; prognostic factors; United Arab Emirates

Impact of cardiac rehabilitation on mortality and morbidity in diabetic versus non-diabetic patients: Protocol for a systematic review and meta-analysis

Authors: **Dababneh, E.H;** Saha, S; Östlundh, L; **Al-Rifai, R.H; Oulhaj, A.**

Journal: BMJ Open | **Year**: 2021 | **DOI**: https://doi.org/10.1136/bmjopen-2020-047134

Abstract

Background: Cardiac rehabilitation (CR) decreases the morbidity and mortality risk among patients with cardiac diseases; however, the impact of CR on patients with diabetes remains underexplored. This is a protocol for a systematic review and meta-analysis methodology to explore if the effect of CR on mortality and morbidity is the same in patients with type 2 diabetes compared with patients without diabetes.

Methods: Interventional and non-interventional studies comparing the effect of CR, for at least 1 month, on all-cause mortality and cardiovascular outcomes including fatal and non-fatal myocardial infarction, revascularisation and rehospitalisation in adults with cardiac diseases will be deemed eligible for inclusion. Studies published between 1990 and 2020 will be searched in PubMed, Embase, Cochrane, CINAHL, Scopus and in registries for randomised controlled trials. Eligible studies will be selected using the Covidence software, and their salient details regarding the design, population, tested interventions and outcomes of interest will be gathered. The quality of studies to be deemed eligible and reviewed will be assessed using the Cochrane Collaboration and National Heart, Lung, and Blood Institute's tools. The appraisal process will be based on the study design (interventional and non-interventional). In the meta-analysis step, the pooled effect of CR on the outcomes will be estimated. All meta-analyses will be done using the random-effects model approach (inverse-variance method). I2 and p value of $\chi 2$ statistics will guide the heterogeneity assessment. Subgroup analyses will also be performed. The small study effect will be investigated by generating the funnel plots. The symmetry of the latter will be tested by performing Egger's test.

Ethics and dissemination: The systematic review will use data from published literature; hence, no ethical approval will be required. Findings of the systematic review and meta-analysis will be published in peer-reviewed international journals and will be disseminated in local and international scientific meetings. PROSPERO registration number CRD42020148832.

Keywords: cardiology; coronary heart disease; coronary intervention; myocardial infarction

Association of variants in PTPN22, CTLA-4, IL2-RA, and INS genes with type 1 diabetes in Emiratis

Authors: Sharma, C; R. Ali, B; Osman, W; Afandi, B; Aburawi, E.H; Beshyah, S.A; Al-Mahayri, Z; Al-**Rifai, R.H;** Al Yafei, Z; ElGhazali, G; Alkaabi, J.

Journal: Annals of Human Genetics | **Year**: 2021 | **DOI**: https://doi.org/10.1111/ahg.12406

Abstract

Background: Type 1 diabetes (T1D) is a chronic autoimmune disease with a complex interrelation of genetic and environmental factors. Genetic studies have reported HLA and non-HLA loci as significant contributors to T1D. However, the genetic basis of T1D among Emiratis is unexplored. This study aims to determine the contribution of four genes PTPN22, CTLA-4, IL2-RA, and INS to T1D risk among Emiratis.

Methods: The association between variants in PTPN22 (rs2476601, rs1310182), CTLA-4 (rs11571316, rs231775, rs3087243, rs1427676, and rs231727), IL2-RA (rs7090530), and INS (rs7111341) with T1D was tested in 310 Emiratis (139 T1D patients and 171 controls).

Results: A significant association was found at rs1310182, and rs2476601 both in PTPN22, rs3087243, and rs231775 both in CTLA-4, and rs12251307 in IL2-RA. Moreover, a haplotype constituted from GG and AG genotypes at rs231727 and rs231775, respectively, in CTLA-4 was significantly associated with an increased T1D risk. The cumulative effects of risk alleles for all significantly associated SNPs showed 11.8 higher relative risk for T1D for those who carry 5–6 compared to 0–1 risk alleles.

Conclusion: This study illustrated that PTPN22, CTLA-4, and IL2-RA gene variants could confer risk alleles for T1D among the Emirati population.

Keywords: CTLA-4; Emirati; genetic polymorphism; IL2-RA; INS; PTPN22; type 1 diabetes

Effects of diabetes prevention education program for overweight and obese subjects with a family history of type 2 diabetes mellitus: A pilot study from the United Arab Emirates

Authors: Alkaabi, J.M; **Al-Maskari, F;** Afandi, B; Yousef, S; **Shah, S.M;** Heideman, W.H; Papadimitropoulos, E.A; Zoubeidi, T; Souid, A.-K; **Paulo, M.S;** Snoek, F.J.

Journal: Oman Medical Journal | **Year**: 2021 | **DOI**: https://doi.org/10.5001/omj.2021.67

Abstract

Background: The association of obesity and family history of type 2 diabetes mellitus (T2DM) provides an opportunity for risk stratification and prevention, as these two conditions are the most well-known risk factors for T2DM. We aimed to test the feasibility and effects of a diabetes mellitus prevention education program designed for overweight and obese Emirati people with at least one parent with T2DM.

Methods: We conducted a pilot study using a pre-post design without a control arm at the Diabetes Center at Tawam Hospital in Al Ain, UAE. Overweight and obese subjects with at least one parent with T2DM were invited to participate. Three study assessments were conducted at baseline, three months, and six months including a questionnaire, anthropometry, and laboratory assessments. Interventions included three individualized or family-engaged counseling sessions based on the DiAlert protocol. The study outcomes included awareness of risks and prevention opportunities to T2DM, behavior changes in nutrition and exercise, decreased waist-circumference, and clinical/metabolic/inflammatory markers. Pre-post changes were analyzed using repeated-measures analysis of variance.

Results: One hundred twenty-two overweight or obese individuals were approached. Forty-four individuals met the eligibility criteria, and 32 individuals (35.0±9.0 years; 75.0% female) completed the study. At six months, there were significant improvements in the glycated hemoglobin levels ($p = 0.007$), high-density lipoprotein ($p < 0.049$), serum creatinine ($p < 0.025$), estimated glomerular filtration rate ($p = 0.009$), and adiponectin levels ($p < 0.024$). Sixteen of 32 participants had ≥ 2 cm reduction in waist circumference. They demonstrated notable physical and laboratory improvements in moderate-vigorous activity, average activity counts per day, tumor necrosis factor-alpha, and interleukin-6 total cholesterol, triglyceride, and low-density lipoprotein.

Conclusions: Offering family-oriented diabetes education to people at risk for T2DM is well received and has favorable effects on relevant risk factors. Better testing with large-scale randomized controlled studies is needed, and implementing similar educational programs for the Emirati population seems warranted.

Keywords: diabetes mellitus, type 2; health education; obesity; overweight; United Arab Emirates

Child maltreatment and neglect in the United Arab Emirates and relationship with low self-esteem and symptoms of depression

Authors: **Shah, S.M;** Nowshad, G; Dhaheri, F.A; Al-Shamsi, M.H; Al-Ketbi, A.M; Galadari, A; Joshi, P; Bendak, H; **Grivna, M;** Arnone, D.

Journal: International Review of Psychiatry | **Year**: 2021 |

DOI: https://doi.org/10.1080/09540261.2021.1895086

Abstract

Background: To our knowledge, this study is the first in the United Arab Emirates (UAE) to investigate the prevalence of child maltreatment in relation to depressive symptoms and self-esteem.

Methods: Exposure to physical maltreatment, emotional abuse and neglect was evaluated in 518 adolescents (86% response rate) randomly selected from schools in Al Ain in the Emirate of Abu Dhabi. The Rosenberg self-esteem scale and the Beck Depression Inventory were used to measure self-esteem and depressive symptoms by using multivariate logistic regression analyses.

Results: The mean age of study participants was 14.3 years. Emotional abuse was the most frequent form of maltreatment (33.9%), physical abuse (12.6%) and neglect (12.1%) followed. Male sex was a positive predictor of physical abuse (OR = 2.12; 95% CI 1.18–3.77), whilst higher maternal level of education was protective (OR = 0.40; 95% CI 0.19–0.86). Daily screen time (OR = 2.77; 95% CI 1.17–6.56) and tobacco smoking (OR = 1.86; 95% CI 1.09–3.18) positively predicted emotional abuse. Emotionally maltreated and neglected participants were less likely to report high level of self-esteem and more likely to report symptoms of depression.

Conclusions: Child maltreatment in the UAE is of a similar magnitude to what reported in other countries around the world and significantly associated with low self-esteem and depressive symptoms.

Keywords: adolescents; Al Ain; children; depression; maltreatment; self-esteem; UAE

Temporal changes in personal activity intelligence and mortality: Data from the aerobics center longitudinal study

Authors: **Nauman, J;** Arena, R; Zisko, N; Sui, X; Lavie, C.J; Laukkanen, J.A; Blair, S.N; Dunn, P; Nes, B.M; Tari, A.R; Stensvold, D; Whitsel, L.P; Wisløff, U.

Journal: Progress in Cardiovascular Diseases | **Year**: 2021 | **DOI**: https://doi.org/10.1016/j.pcad.2020.12.001

Abstract

Background: Personal activity intelligence (PAI) is a metric developed to simplify a physically active lifestyle for the participants. Regardless of following today's advice for physical activity, a PAI score ≥100 per week at baseline, an increase in PAI score, and a sustained high PAI score over time were found to delay premature cardiovascular disease (CVD) and all-cause mortality in a large population of Norwegians. However, the association between long-term temporal change in PAI and mortality in other populations have not been investigated. Objective: To test whether temporal change in PAI is associated with CVD and all-cause mortality in a large population from the United States.

Methods: We studied 17,613 relatively healthy participants who received at least two medical examinations in the Aerobics Center Longitudinal Study between 1974 and 2002. The participant's weekly PAI scores were estimated twice, and adjusted hazard ratios (AHR) and 95% confidence intervals (CI) for CVD and all-cause mortality related to changes in PAI between baseline and last examination were assessed using Cox proportional hazard regression analyses.

Results: During a median follow-up time of 9.3 years [interquartile range, 2.6–16.6; 181,765 person-years], there were 1144 deaths, including 400 CVD deaths. We observed an inverse linear association between change in PAI and risk of CVD mortality (P=0.007 for linear trend, and P=0.35 for quadratic trend). Compared to participants with zero PAI at both examinations, multivariable-adjusted analyses demonstrated that participants who maintained high PAI scores (≥100 PAI at both examinations) had a 51% reduced risk of CVD mortality [AHR, 0.49: 95% CI, 0.26–0.95)], and 42% reduced risk of all-cause mortality [AHR, 0.58: 95% CI, 0.41–0.83)]. For participants who increased their PAI scores over time (PAI score of zero at first examination and ≥100 at last examination), the AHRs were 0.75 (95% CI, 0.55–1.02) for CVD mortality, and 0.82 (95% CI, 0.69–0.99) for all-cause mortality. Participants who maintained high PAI score had 4.8 (95% CI, 3.3–6.4) years of life gained. For those who increased their PAI score over time, the corresponding years gained were 1.8 years (95% CI, 0.1–3.5).

Conclusion: Among relatively healthy participants, an increase in PAI and maintaining a high PAI score over time was associated with reduced risk of CVD and all-cause mortality. Condensed abstract: Our objective was to investigate the association between temporal changes in PAI and mortality in a large population from the United States. In this prospective cohort study of 17,613 relatively healthy participants at baseline, maintaining a high PAI score and an increase in PAI score over an average period of 6.3 years was associated with a significant reduction in CVD and all-cause mortality. Based on our results, clinicians can easily recommend that patients obtain at least 100 PAI for most favourable protection against CVD- and all-cause mortality, but can also mention that significant benefits also occur at maintaining low-to-moderate PAI levels.

Keywords: activity metric; cardiovascular disease; exercise; mortality; physical activity

Personal activity intelligence and mortality – Data from the Aerobics Center Longitudinal Study

Authors: **Nauman, J;** Sui, X; Lavie, C.J; Wen, C.P; Laukkanen, J.A; Blair, S.N; Dunn, P; Arena, R; Wisløff, U.

Journal: Progress in Cardiovascular Diseases | **Year**: 2021 | **DOI**: https://doi.org/10.1016/j.pcad.2020.05.005

Abstract

Background: Personal activity intelligence (PAI) is a novel activity metric that can be integrated into self-assessment heart rate devices, and translates heart rate variations during exercise into a weekly score. Previous studies relating to PAI have been conducted in the same populations from Norway where the PAI metric has been derived, limiting generalizability of the results. To test whether PAI is associated with total and cause-specific mortality in a large cohort from the United States.

Methods: Aerobics Center Longitudinal Study (ACLS) – a prospective cohort between January 1974 and December 2002 with a mean follow-up of 14.5 years. Setting: Population-based. Participants: 56,175 relatively healthy participants (26.5% women) who underwent extensive preventive medical examinations at Cooper Clinic (Dallas, TX). Exposure: Personal activity intelligence (PAI) score per week was estimated and divided into 4 groups (PAI scores of 0, ≤50, 51–99, and ≥100). Main outcomes and measures: Total and cause-specific mortality.

Results: During a median follow-up time of 14.9 (interquartile range, 6.7–21.4) years, there were 3434 total deaths including 1258 cardiovascular (CVD) deaths. Compared with the inactive (0 PAI) group, participants with a baseline weekly ≥100 PAI had lower risk of mortality: adjusted hazard ratio (AHR), 0.79: 95% CI, 0.71–0.87 for all-cause mortality, and AHR, 0.72: 95% CI, 0.60–0.87 for CVD mortality among men; AHR, 0.85: 95% CI, 0.64–1.12 for all-cause mortality, and AHR, 0.48: 95% CI, 0.26–0.91 for CVD mortality among women. For deaths from ischemic heart disease (IHD), PAI score ≥100 was associated with lower risk in both men and women (AHR, 0.70: 95% CI, 0.55–0.88). Obtaining ≥100 weekly PAI was also associated with significantly lower risk of CVD mortality in pre-specified age groups, and in participants with known CVD risk factors. Participants with ≥100 weekly PAI gained 4.2 (95% CI, 3.5–4.6) years of life when compared with those who were inactive at baseline. Conclusions and relevance: PAI is associated with long-term all-cause, CVD, and IHD, mortality. Clinicians and the general population can incorporate PAI recommendations and thresholds in their physical activity prescriptions and weekly physical activity assessments, respectively, to maximize health outcomes. Key points: Question: What is the association between personal activity intelligence (PAI), a novel activity metric, and mortality in a large cohort from the United States? Findings: In this prospective study of 56,175 healthy participants at baseline, followed-up for a mean of 14.5 years, ≥100 PAI score/week was associated with significant 21% lower risk of all-cause and 30% lower risk of CVD mortality in comparison with inactive people. Participants with ≥100 PAI/week lived on average 4.2 years longer compared with inactive.

Conclusion: PAI is associated with long-term all-cause and CVD mortality. Clinicians and general population may incorporate PAI recommendations into weekly physical activity assessments to maximize CVD prevention.

Keywords: activity metric; cardiovascular disease; exercise; mortality; physical activity

The prevalence and correlates of depression among patients with chronic diseases in the United Arab Emirates

Authors: Alkaabi, A.J; Alkous, A; Mahmoud, K; AlMansoori, A; **Elbarazi, I; Suliman, A; Alam, Z;** AlAwadi, F; **Al-Maskari, F.**

Journal: PLoS ONE | **Year**: 2022 | **DOI**: https://doi.org/10.1371/journal.pone.0278818

Abstract

Background: Chronic diseases constitute a major public health problem in the United Arab Emirates (UAE) and are the leading cause of mortality and morbidity. Chronic diseases have been found to be associated with an increased prevalence of depression and depressive symptoms. Depression can have detrimental effect on the prognosis of the disease and quality of life in patients. This study aimed to estimate the prevalence and correlates of depression in a sample of patients suffering from chronic disease in Al-Ain city, UAE.

Methods: A cross-sectional survey-based study was conducted with 417 participants recruited from seven primary health care centers of Al-Ain city. Men and women aged 18 years and above suffering from chronic disease filled the Patient Health Questionnaire (PHQ-9). Univariate and multivariable logistic regressions were performed on the collected data to investigate correlates of different factors with depression. Data was analyzed using SPSS (version 26). The study was approved by Ambulatory Healthcare Services (AHS) Human Ethics Research Committee.

Results: The majority 62.41% (n = 254) of the sample were females, 57.97% (n = 240) aged above 55 years and with a median (Q25, Q75) duration of chronic disease of 8 (4, 15) years. The prevalence of depression was 21.1% (95% CI: 17.5%–25.3%). With severe depression was in 1.7% and mild-moderate in 34.7% of the participants. Depression severity was statistically significantly associated with increasing age (p = 0.006), low level of education (p<0.001), presence of asthma (p = 0.007) and heart disease (p = 0.013). Unadjusted logistic regression reported that presence of depression was significantly associated with female gender (cOR = 1.8, [95% CI; 1.1–3.1], p = 0.025), and presence of chronic kidney disease (cOR = 4.9, [95% CI; 1.3–20.2], p = 0.020) and heart disease (cOR = 2.9, [95% CI; 1.6–5.4], p = 0.001) longer duration of disease in years (cOR = 1.04, [95% CI; 1.01–1.07], p = 0.003). However, in the adjusted logistic regression analysis, participants with heart disease (aOR = 2.8, [95% CI; 1.4–5.5], p = 0.004), and with longer duration of disease (aOR = 1.04, [1.01–1.07], p = 0.014) remained significantly associated statistically with higher chance of having depression.

Conclusion: The prevalence of depression was quite high and the study highlights for health care professionals and policy makers, the importance of mental health support as part of a comprehensive management plan for patients with chronic diseases. A multidisciplinary comprehensive program will improve the long-term outcomes of these patients. Patients with chronic diseases may need more support and counseling at primary health care levels.

Keywords: chronic disease; depression; PHQ-9; United Arab Emirates

Are pro-inflammatory markers associated with psychological distress in a cross-sectional study of healthy adolescents 15–17 years of age? The Fit Futures Study

Authors: Linkas, J; **Ahmed, L.A;** Csifcsak, G; Emaus, N; Furberg, A.-S; Grimnes, G; Pettersen, G; Rognmo, K; Christoffersen, T.=

Journal: BMC Psychology | **Year**: 2022 | **DOI**: https://doi.org/10.1186/s40359-022-00779-8

Abstract

Background: Inflammatory markers have been associated with depression and anxiety disorder in adolescents. Less is known about the association between inflammation and subclinical symptoms in the form of psychological distress. We investigated prevalence of psychological distress and examined the associations between common pro-inflammatory markers and psychological distress in an adolescent population sample.

Methods: The study was based on data from 458 girls and 473 boys aged 15–17 years from the Fit Futures Study, a large-scale study on adolescent health, conducted in Northern Norway. Psychological distress was measured with the Hopkins Symptom Checklist (HSCL-10). Serum-levels of the following low-grade inflammatory markers were measured: C-reactive protein (CRP), interleukin 6 (IL-6), transforming growth factor-alpha (TGF-α), tumor necrosis factor alpha variant 1 (TRANCE) and tumor necrosis factor alpha variant 2 (TWEAK). Associations between quartiles of inflammatory markers and HSCL-10 were examined by logistic regression and adjusted for potential confounders in sex-stratified analyses.

Results: The proportion of psychological distress above cutoff were 26.9% and 10.8% among girls and boys, respectively. In both girls and boys, crude analysis showed positive associations between all inflammatory markers and HSCL-10, except for TWEAK and TRANCE in boys. However, none of these associations were statistically significant. Further, there were no significant findings in the adjusted analyses.

Conclusion: There was a higher prevalence of psychological distress in girls compared to boys. Pro-inflammatory markers were not significantly associated with psychological distress in data from healthy adolescents aged 15–17 years.

Keywords: adolescence; anxiety symptoms; depressive symptoms; inflammatory markers; psychological distress

Personal activity intelligence and ischemic heart disease in a healthy population: China Kadoorie Biobank Study

Author: Hammer, P; Tari, A.R; Franklin, B.A; Wen, C.-P; Wisløff, U; **Nauman, J.**

Journal: Journal of Clinical Medicine | **Year**: 2022 | **DOI**: https://doi.org/10.3390/jcm11216552

Abstract

Background: Personal Activity Intelligence (PAI) is a physical activity metric that translates heart rate during physical activity into a simple score, where a weekly score of 100 or greater is associated with a lower risk of cardiovascular disease and mortality. Here, we prospectively investigated the association between PAI and ischemic heart disease (IHD) mortality in a large healthy population from China.

Methods: Using data from the China Kadoorie Biobank, we studied 443,792 healthy adults (60% women). The weekly PAI score of each participant was estimated based on the questionnaire data and divided into four groups (PAI scores of 0, ≤50, 51–99, or ≥100). Adjusted hazard ratios (aHRs) and 95% confidence intervals (CIs) for fatal IHD and nonfatal myocardial infraction (MI) related to PAI were estimated using Cox proportional hazard regression analyses.

Results: There were 3050 IHD deaths and 1808 MI events during a median follow-up of 8.2 years (interquartile range, 7.3–9.1; 3.6 million person-years). After adjustments for multiple confounders, a weekly PAI score ≥ 100 was associated with a lower risk of IHD (aHR: 0.91 (95% CI: 0.83–1.00)), compared with the inactive group (0 PAI). The corresponding aHR for MI was 0.94 (95% CI: 0.83–1.05). In participants aged 60 years or older at baseline, the aHR associated with a weekly PAI score ≥ 100 was 0.84 (95% CI, 0.75–0.93) for IHD and 0.84 (95% CI, 0.73–0.98) for MI.

Conclusion: Among healthy Chinese adults, a weekly PAI score of 100 or greater was associated with a lower risk of IHD mortality across all age groups; moreover, a high PAI score significantly lowered the risk of MI but only in those 60 years and older at baseline. The present findings extend the scientific evidence that PAI may have prognostic significance in diverse settings for IHD outcomes and suggest that the PAI metric may be useful in delineating the magnitude of weekly physical activity needed to reduce the risk of IHD mortality.

Keywords: personal activity intelligence; ischemic heart disease; myocardial infarction; physical activity metric; cardiovascular health

Metabolic syndrome in fasting and non-fasting participants: The UAE Healthy Future Study

Authors: Mezhal, F; Ahmad, A; Abdulle, A; Leinberger-Jabari, A; Oulhaj, A; AlJunaibi, A; Alnaeemi, A; Al Dhaheri, A.S; AlZaabi, E; Al-Maskari, F; AlAnouti, F; Alsafar, H; Alkaabi, J; Wareth, L.A; Aljaber, M; Kazim, M; Alblooshi, M; Al-Houqani, M; Hag Ali, M; Oumeziane, N; El-Shahawy, O; **Al-Rifai, R.H;** Sherman, S; **Shah, S.M;** Loney, T; Almahmeed, W; Idaghdour, Y; Ahmed, L.A; Ali, R.

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph192113757

Abstract

Background: Metabolic syndrome (MetS) is a multiplex of risk factors that predispose people to the development of diabetes and cardiovascular disease (CVD), two of the major non-communicable diseases that contribute to mortality in the United Arab Emirates (UAE). MetS guidelines require the testing of fasting samples, but there are evidence-based suggestions that non-fasting samples are also reliable for CVD-related screening measures. In this study, we aimed to estimate MetS and its components in a sample of young Emiratis using HbA1c as another glycemic marker. We also aimed to estimate the associations of some known CVD risk factors with MetS in our population.

Methods: The study was based on a cross-sectional analysis of baseline data of 5161 participants from the UAE Healthy Future Study (UAEHFS). MetS was identified using the NCEP ATP III criteria, with the addition of HbA1c as another glycemic indicator. Fasting blood glucose (FBG) and HbA1c were used either individually or combined to identify the glycemic component of MetS, based on the fasting status. Multivariate regression analysis was used to test for associations of selected social and behavioral factors with MetS.

Results: Our sample included 3196 men and 1965 women below the age of 40 years. Only about 21% of the sample were fasting at the time of recruitment. The age-adjusted prevalence of MetS was estimated as 22.7% in males and 12.5% in females. MetS prevalence was not statistically different after substituting FBG by HbA1c in the fasting groups ($p > 0.05$). Age, increased body mass index (BMI), and family history of any metabolic abnormality and/or heart disease were consistently strongly associated with MetS.

Conclusion: MetS is highly prevalent in our sample of young Emirati adults. Our data showed that HbA1c may be an acceptable tool to test for the glycemic component of MetS in non-fasting samples. We found that the most relevant risk factors for predicting the prevalence of MetS were age, BMI, and family history.

Keywords: central obesity; diabetes; dyslipidemia; hypertension; metabolic syndrome; United Arab Emirates

Associations between serum 25-hydroxyvitamin D, body mass index and body fat composition among Emirati population: Results from the UAE Healthy Future Study

Authors: AlAnouti, F; Ahmad, A.S; Wareth, L.A; Dhaheri, A.A; Oulhaj, A; Junaibi, A.A; Naeemi, A.A; Hamiz, A.A; Hosani, A.A; Zaabi, E.A; Mezhal, F; **Maskari, F.A;** et al.

Journal: Frontiers in Endocrinology | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fendo.2022.954300

Abstract

Background: Vitamin D deficiency and insufficiency are highly prevalent among several populations across the globe. Numerous studies have shown a significant correlation between body-mass-index (BMI) and Vitamin D status, however, some results differed according to ethnicity. Despite the abundance of sunshine throughout the year, vitamin D deficiency is prominent in the United Arab Emirates (UAE). In this study, we analyzed the UAE Healthy Future Study (UAEHFS) pilot data to investigate the association between serum 25-hydroxyvitamin D (25(OH)D) and % body fat (BF) composition as well as BMI.

Methods: Data from a total of 399 Emirati men and women aged ≥ 18 years were analyzed. Serum 25(OH)D and standard measures of weight and height were included in the analyses. Vitamin D deficiency was defined as serum 25(OH)D concentration<20 ng/ml. Multivariate quantile regression models were performed to explore the relationship between serum 25(OH)D levels and % BF composition and BMI correspondingly.

Results: There were 281 (70.4%) males and 118 (29.6%) females included in this study. More than half of the study participants had vitamin D insufficiency (52.4%), and nearly a third had vitamin D deficiency (30.3%); while only 17.3% had optimal levels. A statistically significant negative association between serum 25(OH) D levels and % BF composition was observed at intermediate percentiles while a statistically significant negative association between serum 25(OH)D and BMI was only observed at the median (50th percentile). Conclusion: The study findings support the association between low serum 25(OH) D levels (low vitamin D status) and high % BF composition and high BMI among adult Emiratis. Further longitudinal data from the prospective UAEHFS could better elucidate the relationship between serum 25(OH) D levels, % BF composition, and BMI in the context of various health outcomes among this population.

Keywords: body fat; body mass index; quantile regression; serum 25 hydroxyvitamin D; vitamin D

Temporal changes in personal activity intelligence and the risk of incident dementia and dementia related mortality: A prospective cohort study (HUNT)

Authors: Tari, A.R; Selbæk, G; Franklin, B.A; Bergh, S; Skjellegrind, H; Sallis, R.E; Bosnes, I; Stordal, E; Ziaei, M; Lydersen, S; Kobro-Flatmoen, A; Huuha, A.M; **Nauman, J;** Wisløff, U.

Journal: eClinicalMedicine | **Year**: 2022 | **DOI**: https://doi.org/10.1016/j.eclinm.2022.101607

Abstract

Background: The Personal Activity Intelligence (PAI) translates heart rate during daily activity into a weekly score. Obtaining a weekly PAI score ≥100 is associated with reduced risk of premature morbidity and mortality from cardiovascular diseases. Here, we determined whether changes in PAI score are associated with changes in risk of incident dementia and dementia-related mortality.

Methods: We conducted a prospective cohort study of 29,826 healthy individuals. Using data from the Trøndelag Health-Study (HUNT), PAI was estimated 10 years apart (HUNT1 1984–86 and HUNT2 1995–97). Adjusted hazard-ratios (aHR) and 95%-confidence intervals (CI) for incidence of and death from dementia were related to changes in PAI using Cox regression analyses.

Findings: During a median follow-up time of 24.5 years (interquartile range [IQR]: 24.1-25.0) for dementia incidence and 23.6 years (IQR: 20.8–24.2) for dementia-related mortality, there were 1998 incident cases and 1033 dementia-related deaths. Individuals who increased their PAI score over time or maintained a high PAI score at both assessments had reduced risk of dementia incidence and dementia-related mortality. Compared with persistently inactive individuals (0 weekly PAI) at both time points, the aHRs for those with a PAI score ≥100 at both occasions were 0.75 (95% CI: 0.58–0.97) for incident dementia, and 0.62 (95% CI: 0.43–0.91) for dementia-related mortality. Using PAI score <100 at both assessments as the reference cohort, those who increased from <100 at HUNT1 to ≥100 at HUNT2 had aHR of 0.83 (95% CI: 0.72–0.96) for incident dementia, and gained 2.8 (95% CI: 1.3–4.2, P<0.0001) dementia-free years. For dementia-related mortality, the corresponding aHR was 0.74 (95% CI: 0.59–0.92) and years of life gained were 2.4 (95% CI: 1.0–3.8, P=0.001).

Interpretation: Maintaining a high weekly PAI score and increases in PAI scores over time were associated with a reduced risk of incident dementia and dementia-related mortality. Our findings extend the scientific evidence regarding the protective role of PA for dementia prevention, and suggest that PAI may be a valuable tool in guiding research-based PA recommendations. Funding: The Norwegian Research Council, the Liaison Committee between the Central Norway Regional Health Authority and Norwegian University of Science and Technology (NTNU), Trondheim, Norway.

Keywords: cardiorespiratory fitness and dementia; dementia and personal activity intelligence; exercise recommendation; HUNT; physical activity recommendations

Intimate-partner violence and its association with symptoms of depression, perceived health, and quality of life in the Himalayan Mountain Villages of Gilgit Baltistan

Authors: Nowshad, G; Jahan, N; Shah, N.Z; Ali, N; Ali, T; Alam, S; Khan, A; Mahmood, M.A; Saba, M; Arnone, D; **Shah, S.M.**

Journal: PLoS ONE | **Year**: 2022 | **DOI**: https://doi.org/10.1371/journal.pone.0268735

Abstract

Objectives: We aimed to estimate the prevalence of intimate partner violence (IPV) and associated risk factors in married women in rural villages of Gilgit Baltistan in Pakistan.

Methods: A cross-sectional design to assess the magnitude and factors associated with IPV in a random sample of 789 married women aged 18–49 years. A World Health Organization screening instrument was used to assess the presence of IPV in the previous 12 months. A locally validated instrument was adopted to identify self-reported symptoms of major depression according to the DSM IV. Trained nurses obtained socio-demographic and reproductive history through structured interviews. Bivariate and multivariable logistic regression analyses were used to estimate prevalence and identify significant predictors of IPV.

Results: The mean age of the participants was 38.3 years (SD: ±12.8). The prevalence of IPV in women was 22.8% (95% Confidence Interval: 20.0–25.9), 18.5% in pregnant women (95% CI: 11.7–27.9) and significantly associated with depression in 55.1% of IPV cases. Husband education level (college/higher) (Adjusted Odds Ratio: 0.40; 95%CI: 0.22–0.70) and high household income (AOR: 0.44; 95% CI: 0.29–0.68) were protective against IPV. Increase in age (AOR;1.02; 95% CI: 1.01–1.02) and poor relationship with mother-in-law increased the risk of IPV (AOR = 2.85; 95% CI: 1.90–4.28). IPV was positively associated with symptoms of depression (AOR = 1.97; 95% CI:1.39–2.77), poor perceived quality of life (AOR = 3.54; 95% CI: 1.90–6.58) and poor health (AOR = 2.74; 95% CI: 1.92–3.92).

Conclusion: IPV is substantial public health burden significantly associated with depressive symptoms, poor perceived health and the quality of life.

Keywords: intimate partner violence; married women; depression; Gilgit Baltistan; reproductive health

Continuous subcutaneous insulin infusion is associated with a better glycemic control than multiple daily insulin injections without difference in diabetic ketoacidosis and hypoglycemia admissions among Emiratis with type 1 diabetes

Authors: Almazrouei, R; Sharma, C; Afandi, B; Aldahmani, K.M; Aburawi, E.H; Beshyah, S.A; ElGhazali, G; Al Yafei, Z; **Al-Rifai, R.H;** Alkaabi, J.

Journal: PLoS ONE | **Year**: 2022 | **DOI**: https://doi.org/10.1371/journal.pone.0264545

Abstract

Aims: To characterizes Emirati patients with Type 1 diabetes (T1D) and compares outcomes between continuous subcutaneous insulin infusion (CSII) versus multiple daily insulin injections (MDI) users. The WHO-Five Well-Being Index (WHO-5) score was used to screen for depression.

Methods: In this cross-sectional study; sociodemographic, clinical characteristics and insulin replacement regimens were collected on patients with T1D between 2015–2018.

Results: 134 patients with mean age of 20.9±7.5 years were included. Females constitute 56.7% and 50.7% had diabetes duration of >10 years. Diabetic ketoacidosis (DKA) at presentation was reported in 46.3%. Average glycemic control over preceding 12months was satisfactory (less than 7.5%), suboptimal (7.5–9%), and poor (more than 9%) in 26.6%, 42.7% & 30.6% of the patients, respectively. Higher proportion of patients using CSII achieved satisfactory or suboptimal glycemic control compared to patients with MDI (P = 0.003). The latest median /IQR HbA1c was significantly lower (P = 0.041) in patients using CSII (8.2 /1.93%) compared to MDI (8.5/2.45%). There was no significant difference between two groups in DKA, severe hypoglycemia or total WHO-5 score.

Conclusions: CSII usage was associated with better glycemic control than MDI, although no difference in DKA and severe hypoglycemia. The overall glycemic control among Emiratis subjects with T1D is unsatisfactory and needs more rigorous patient counseling and education.

Keywords: type 1 diabetes; insulin injections; glycemic control; diabetic ketoacidosis

Tobacco use and exposure to environmental tobacco smoke amongst pregnant women in the United Arab Emirates: The Mutaba'ah Study

Authors: Taha, M.N; Al-ghumgham, Z; **Ali, N; Al-rifai, R.H; Elbarazi, I; Al-maskari, F;** El-shahawy, O; **Ahmed, L.A;** Loney, T.

Journal: Int J Environ Res Public Health | **Year**: 2022 | DOI: https://doi.org/10.3390/ijerph19127498

Abstract

Background: Self-reported tobacco use is high in the male adult Emirati population (males ~36% vs. females ~3%); however, there are minimal data on tobacco use or exposure to environmental tobacco smoke (ETS) during pregnancy in the United Arab Emirates (UAE). This study investigated the prevalence of, and factors associated with, tobacco use and exposure to environmental tobacco smoke (ETS) amongst pregnant women in the UAE.

Methods: Baseline cross-sectional data were analysed from the Mutaba'ah Study. Expectant mothers completed a self-administered questionnaire collecting sociodemographic information, maternal tobacco use, and ETS exposure during antenatal visits at three hospitals in Al Ain (UAE; May 2017–February 2021).

Results: Amongst 8586 women included in the study, self-reported tobacco use during pregnancy was low (0.7%), paternal tobacco use was high (37.9%), and a third (34.8%) of expectant mothers were exposed to ETS (28.0% at home only). Pregnant women who were employed (adjusted odds ratio (aOR): 1.35, 95% confidence interval (CI): 1.19–1.52), with childbirth anxiety (aOR 1.21, 95% CI 1.08–1.36), and with an increased number of adults living in the same household (aOR 1.02 95% CI 1.01–1.03) were independently more likely to be exposed to ETS. Pregnant women with higher education levels (aOR 0.84, 95% CI 0.75–0.94) and higher gravidity (aOR 0.95, 95% CI 0.92–0.99) were less likely to be exposed to ETS.

Conclusion: Public health efforts targeting smoking cessation amongst husbands and promoting smoke-free homes are warranted to help reduce prenatal ETS exposure in the UAE.

Keywords: birth; cohort; early-life exposures; indoor air pollution; mother; pregnancy; tobacco smoke pollution; tobacco use; United Arab Emirates

Burden of non-communicable disease studies in Europe: a systematic review of data sources and methodological choices

Authors: Charalampous, P; Gorasso, V; Plass, D; Pires, S.M; Von Der Lippe, E; Mereke, A; Idavain, J; Kissimova-Skarbek, K; Morgado, J.N; Ngwa, C.H; Noguer, I; Padron-Monedero, A; Santi-Cano, M.J; Sarmiento, R; Devleesschauwer, B; Haagsma, J.A; **Ádám, B;** et al.

Journal: European Journal of Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.1093/eurpub/ckab218

Abstract

Background: Assessment of disability-adjusted life years (DALYs) resulting from non-communicable diseases (NCDs) requires specific calculation methods and input data. The aims of this study were to (i) identify existing NCD burden of disease (BoD) activities in Europe; (ii) collate information on data sources for mortality and morbidity; and (iii) provide an overview of NCD-specific methods for calculating NCD DALYs.

Methods: NCD BoD studies were systematically searched in international electronic literature databases and in grey literature. We included all BoD studies that used the DALY metric to quantify the health impact of one or more NCDs in countries belonging to the European Region.

Results: A total of 163 BoD studies were retained: 96 (59%) were single-country or sub-national studies and 67 (41%) considered more than one country. Of the single-country studies, 29 (30%) consisted of secondary analyses using existing Global Burden of Disease (GBD) results. Mortality data were mainly derived (49%) from vital statistics. Morbidity data were frequently (40%) drawn from routine administrative and survey datasets, including disease registries and hospital discharge databases. The majority (60%) of national BoD studies reported mortality corrections. Multimorbidity adjustments were performed in 18% of national BoD studies.

Conclusion: The number of national NCD BoD assessments across Europe increased over time, driven by an increase in BoD studies that consisted of secondary data analysis of GBD study findings. Ambiguity in reporting the use of NCD-specific BoD methods underlines the need for reporting guidelines of BoD studies to enhance the transparency of NCD BoD estimates across Europe.

Keywords: disability-adjusted life years; non-communicable diseases; global burden of disease; multimorbidity adjustments

Association between personal activity intelligence and mortality: Population-based China Kadoorie Biobank Study

Authors: Nauman, J; Franklin, B.A; Nes, B.M; Sallis, R.E; Sawada, S.S; Marinović, J; Stensvold, D; Lavie, C.J; Tari, A.R; Wisløff, U.

Journal: Mayo Clinic Proceedings | **Year**: 2022 | **DOI**: https://doi.org/10.1016/j.mayocp.2021.10.022

Abstract

Objective: To prospectively investigate the association between personal activity intelligence (PAI) — a novel metabolic metric which translates heart rate during physical activity into a simple weekly score — and mortality in relatively healthy participants in China whose levels and patterns of physical activity in addition to other lifestyle factors are different from those in high-income countries. Patients and

Methods: From the population-based China Kadoorie Biobank study, 443,792 healthy adults were recruited between June 2004 and July 2008. Participant's weekly PAI score was estimated and divided into four groups (PAI scores of 0, ≤50, 51–99, or ≥100). Using Cox proportional hazard analyses, we calculated adjusted hazard ratios (AHRs) for cardiovascular disease (CVD) and all-cause mortality related to PAI scores.

Results: During a median follow-up of 8.2 (interquartile range, 7.3 to 9.1) years, there were 21,901 deaths, including 9466 CVD deaths. Compared with the inactive group (0 PAI score), a baseline weekly PAI score greater than or equal to 100 was associated with a lower risk of CVD mortality, an AHR of 0.87 (95% CI, 0.81 to 0.94) in men, and an AHR of 0.84 (95% CI, 0.78 to 0.92) in women, after adjusting for multiple confounders. Participants with a weekly PAI score greater than or equal to 100 also had a lower risk of all-cause mortality (AHR, 0.93; 95% CI, 0.89 to 0.97 in men, and AHR, 0.93; 95%, 0.88 to 0.98 in women). Moreover, this subgroup gained 2.7 (95% CI, 2.4 to 3.0) years of life, compared with the inactive cohort.

Conclusion: Among relatively healthy Chinese adults, the PAI metric was inversely associated with CVD and all-cause mortality, highlighting the generalizability of the score in different races, ethnicities, and socioeconomic strata.

Keywords: personal activity intelligence; cardiovascular disease mortality; all-cause mortality; physical activity tracking; metabolic metric

Effect of pharmacological interventions on lipid profiles and C-reactive protein in polycystic ovary syndrome: A systematic review and meta-analysis

Authors: Abdalla, M.A; Shah, N; Deshmukh, H; Sahebkar, A; Östlundh, L; **Al-Rifai, R.H;** Atkin, S.L; Sathyapalan, T.

Journal: Clinical Endocrinology | **Year**: 2022 | **DOI**: https://doi.org/10.1111/cen.14636

Abstract

Background: Polycystic ovary syndrome (PCOS) is a heterogeneous condition affecting women of reproductive age. It is associated with dyslipidaemia and elevated plasma C-reactive protein (CRP), which increase the risks of cardiovascular disease (CVD). Objective: To review the existing evidence on the effects of different pharmacological interventions on lipid profiles and CRP of women with PCOS.

Methods: Data Sources: We searched PubMed, MEDLINE, Scopus, Embase, Cochrane Library, and Web of Science in April 2020 and updated the results in March 2021. Study Selection: The study included randomized controlled trials (RCTs) and follows the 2020 Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA). Data Extraction: Two independent researchers extracted data and assessed for risk of bias using the Cochrane risk of bias tool. Covidence systematic review software were used for blinded screening and study selection.

Results: In 29 RCTs, there were significant reductions in triglycerides with atorvastatin versus placebo [mean difference (MD): −0.21 mmol/L; 95% confidence interval (CI): −0.39, −0.03, I2 = 0%, moderate grade evidence]. Significant reductions were seen for low-density lipoprotein cholesterol (LDL-C) with metformin versus placebo [standardized mean difference (SMD): −0.41; 95% CI: −0.85, 0.02, I2 = 59%, low grade evidence]. Significant reductions were also seen for total cholesterol with saxagliptin versus metformin (MD: −0.15 mmol/L; 95% CI: −0.23, −0.08, I2 = 0%, very low grade evidence). Significant reductions in C-reactive protein (CRP) were seen for atorvastatin versus placebo (MD: −1.51 mmol/L; 95% CI: −3.26 to 0.24, I2 = 75%, very low-grade evidence).

Conclusion: There were significant reductions in the lipid parameters when metformin, atorvastatin, saxagliptin, rosiglitazone and pioglitazone were compared with placebo or other agents. There was also a significant reduction of CRP with atorvastatin.

Keywords: HDL; LDL; pharmacological therapy; polycystic ovary syndrome (PCOS); therapeutic agents; total cholesterol; triglycerides

C-reactive protein and TGF-α predict psychological distress at two years of follow-up in healthy adolescent boys: The Fit Futures Study

Authors: Linkas, J; **Ahmed, L.A;** Csifcsak, G; Emaus, N; Furberg, A.-S; Grimnes, G; Pettersen, G; Rognmo, K; Christoffersen, T.

Journal: Frontiers in Psychology | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fpsyg.2022.823420

Abstract

Background: The scarcity of research on associations between inflammatory markers and symptoms of depression and anxiety during adolescence has yielded inconsistent results. Further, not all studies have controlled for potential confounders. We explored the associations between baseline inflammatory markers and psychological distress including moderators at follow-up in a Norwegian adolescent population sample.

Methods: Data was derived from 373 girls and 294 boys aged 15–18 years at baseline, in the Fit Futures Study, a large-scale 2-year follow-up study on adolescent health. Baseline data was gathered from 2010 to 2011 and follow-up data from 2012 to 2013. Psychological distress was measured with Hopkins Symptom Checklist (HSCL-10). Serum levels of the following inflammatory markers were measured: C-reactive protein (CRP), Interleukin 6 (IL-6), Transforming growth factor alpha (TGF-α), Tumor necrosis factor alpha variant 1 (TRANCE), and variant 2 (TWEAK). Independent associations between baseline inflammatory markers and HSCL-10 at follow-up were explored by linear regressions, in sex-stratified analyses.

Results: In girls, analyses showed positive associations between all inflammatory markers and HSCL-10, except for TRANCE. However, all associations were non-significant in crude as well as in adjusted analyses. In boys, CRP ($p = 0.03$) and TGF-α ($p < 0.01$) showed significant associations with HSCL-10, that remained significant after adjustment. Additionally, moderators were found. In boys, CRP was associated with HSCL-10 in those with high body fat and those being physical inactive, and the association between TWEAK and HSCL-10 was dependent upon sleep duration. Conclusion: There were significant prospective associations between CRP, TFG-α, and HSCL-10 in boys aged 15–18 years at baseline.

Keywords: adolescence; anxiety symptoms; depressive symptoms; inflammatory markers; psychological distress

Impact of pharmacological interventions on insulin resistance in women with polycystic ovary syndrome: A systematic review and meta-analysis of randomized controlled trials

Authors: Abdalla, M.A; Shah, N; Deshmukh, H; Sahebkar, A; Östlundh, L; **Al-Rifai, R.H;** Atkin, S.L; Sathyapalan, T.

Journal: Clinical Endocrinology | **Year**: 2022 | **DOI**: https://doi.org/10.1111/cen.14623

Abstract

Background: Polycystic ovary syndrome (PCOS) is a complex endocrine condition affecting women of reproductive age. It is characterized by insulin resistance and is a major risk factor for type 2 diabetes mellitus (T2DM). The objective was to review the literature on the effect of different pharmacological interventions on insulin resistance in women with PCOS.

Methods: We searched PubMed, MEDLINE, Scopus, Embase, Cochrane library and the Web of Science in April 2020 and updated in March 2021. The study follows the 2020 Preferred Reporting Items for Systematic reviews and Meta-ana. Reviewers extracted data and assessed the risk of bias using the Cochrane risk of bias tool.

Results: In 58 randomized controlled trials there were significant reductions in the fasting blood glucose (FBG) with metformin versus placebo (standardized mean difference [SMD]: −0.23; 95% confidence interval [CI]: −0.40, −0.06; I^2 = 0%, low-grade evidence), and acarbose versus metformin (mean difference [MD]: −10.50 mg/dl; 95% CI: −15.76, −5.24; I^2 = 0%, low-grade evidence). Significant reductions in fasting insulin (FI) with pioglitazone versus placebo (SMD: −0.55; 95% CI: −1.03, −0.07; I^2 = 37%; p =.02, very-low-grade evidence). A significant reduction in homoeostatic model assessment of insulin resistance (HOMA-IR) was seen with exenatide versus metformin (MD: −0.34; 95% CI: −0.65, −0.03; I^2 = 0%, low-grade evidence). No effect on homoeostatic model assessment of beta cells (HOMA-B) was observed.

Conclusions: Pharmacological interventions, including metformin, acarbose, pioglitazone and exenatide have significant effects on FBG, FI, HOMA-IR but not on HOMA-B.

Keywords: FBG; FI; HOMA-B; HOMA-IR; PCOS; pharmacological therapy; polycystic ovary syndrome

Systematic review of the effects of pandemic confinements on body weight and their determinants

Authors: Khan, M.A.B; **Menon, P;** Govender, R; Abu Samra, A.M.B; Allaham, K.K; **Nauman, J;** Östlundh, L; Mustafa, H; Smith, J.E.M; Alkaabi, J.M.

Journal: British Journal of Nutrition | **Year**: 2022 | **DOI**: https://doi.org/10.1017/s0007114521000921

Abstract

Background: Pandemics and subsequent lifestyle restrictions such as 'lockdowns' may have unintended consequences, including alterations in body weight. This systematic review assesses the impact of pandemic confinement on body weight and identifies contributory factors.

Methods: A comprehensive literature search was performed in seven electronic databases and in grey sources from their inception until 1 July 2020 with an update in PubMed and Scopus on 1 February 2021.

Results: In total, 2361 unique records were retrieved, of which forty-one studies were identified eligible: one case-control study, fourteen cohort and twenty-six cross-sectional studies (469, 362 total participants). The participants ranged in age from 6 to 86 years. The proportion of female participants ranged from 37 % to 100 %. Pandemic confinements were associated with weight gain in 7·2-72·4 % of participants and weight loss in 11·1-32·0 % of participants. Weight gain ranged from 0·6 (sd 1·3) to 3·0 (sd 2·4) kg, and weight loss ranged from 2·0 (sd 1·4) to 2·9 (sd 1·5) kg. Weight gain occurred predominantly in participants who were already overweight or obese. Associated factors included increased consumption of unhealthy food with changes in physical activity and altered sleep patterns.

Conclusion: Weight loss during the pandemic was observed in individuals with previous low weight, and those who ate less and were more physically active before lockdown. Maintaining a stable weight was more difficult in populations with reduced income, particularly in individuals with lower educational attainment. The findings of this systematic review highlight the short-term effects of pandemic confinements.

Keywords: body weight; lockdown; obesity; pandemic; quarantine; weight determinants

Two-year changes in sleep duration are associated with changes in psychological distress in adolescent girls and boys: the Fit Futures Study

Authors: Linkas, J; **Ahmed, L.A;** Csifcsak, G; Emaus, N; Furberg, A.-S; Pettersen, G; Rognmo, K; Christoffersen, T.

Journal: Health Psychol Behav Med | **Year**: 2022 | **DOI**: https://doi.org/10.1080/21642850.2022.2147936

Abstract

Background: Studies indicate an inverse association between sleep duration and psychological distress. We aimed to explore associations between changes in sleep duration and changes in psychological distress in girls and boys.

Methods: The Fit Futures Study is a broad adolescent study providing data from 373 girls and 294 boys aged 15–18 years collected in 2010/2011 (FF1) and 2012/2013 (FF2). Psychological distress was measured by the Hopkins Symptom Checklist (HSCL-10) and sleep duration was self-reported. Change score variables were calculated as the change between baseline and follow-up for sleep duration and HSCL-10, respectively. Associations between changes in sleep duration and changes in HSCL-10 were explored by linear regressions, in gender-stratified analyses.

Results: At FF1, girls and boys slept on average 6.93 (SD = 1.08) and 7.05 (SD = 1.20) hours per night respectively, and correspondingly, 6.83 (SD = 1.19) and 6.85 (SD = 1.21) at FF2. At FF1, 22.8% of the girls and 25.8% of the boys slept ≤ 6 h per night, and correspondingly 28.0% and 28.2% at FF2. In girls and boys, one unit increase (30 min) in sleep duration was associated with a decrease in HSCL-10 score of B [95% CI] = −0.090 [−0.131, −0.048], $p < 0.001$, and −0.054 [−0.091, −0.017], $p < 0.001$, respectively. The associations remained significant after adjusting for confounders.

Conclusion: Our findings show that increased sleep duration was associated with decreased psychological distress during adolescence. Future studies should examine the causality between sleep duration and psychological distress.

Keywords: adolescence; anxiety symptoms; depressive symptoms; psychological distress; sleep duration

Impact of metformin on the clinical and metabolic parameters of women with polycystic ovary syndrome: a systematic review and meta-analysis of randomised controlled trials

Author: Abdalla, M.A; Shah, N; Deshmukh, H; Sahebkar, A; Östlundh, L; **Al-Rifai, R.H;** Atkin, S.L; Sathyapalan, T.

Journal: Ther Adv Endocrinol Metab | **Year**: 2022 | **DOI**: https://doi.org/10.1177/20420188221127142

Abstract

Background: Polycystic ovary syndrome (PCOS) is one of the commonest endocrine disorders affecting women of reproductive age, and metformin is a widely used medication in managing this condition. **Aim**: To review the available literature comprehensively on the therapeutic impact of metformin on the clinical and metabolic parameters of women with PCOS.

Methods: We searched PubMed, MEDLINE, Scopus, Embase, Cochrane Library and the Web of Science and selected sources for grey literature from their inception to April 2020. An updated search in PubMed was performed in June 2022. Two reviewers selected eligible studies and extracted data, and the review is reported following the 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Results: In 24 eligible randomised controlled trials (RCTs) involving 564 participants who received metformin therapy, metformin was associated with significant reduction in body weight by 3.13 kg (95% CI: −5.33, −0.93), body mass index (BMI) by 0.82 kg/m² (95% CI: −1.22, −0.41), fasting blood glucose [standardised mean difference (SMD): −0.23; 95% CI: −0.40, −0.06], low-density lipoprotein cholesterol (LDL-C) (SMD: −0.41; 95% CI: −0.85, 0.03), total testosterone (SMD: −0.33; 95% CI: −0.49, −0.17), androstenedione (SMD: −0.45; 95% CI: −0.70, −0.20), 17-hydroxyprogesterone (17-OHP) (SMD: −0.58; 95% CI: −1.16, 0.00) and increase the likelihood of clinical pregnancy rate [odds ratio (OR): 3.00; 95% CI: 1.95, 4.59] compared with placebo.

Conclusion: In women with PCOS, metformin use has shown a positive impact in reducing body weight, BMI, total testosterone, androstenedione, 17-OHP, LDL-C, fasting blood glucose and increasing the likelihood of pregnancy in women with PCOS.

Keywords: DHEAS; FAI; FSH; LH; metformin; PCOS; pharmacological therapy; polycystic ovary syndrome

The association of conflict-related trauma with markers of mental health among Syrian refugee women: the role of social support and post-traumatic growth

Authors: Kheirallah, K.A; Al-Zureikat, S.H; Al-Mistarehi, A.-H; Alsulaiman, J.W; Alqudah, M; Khassawneh, A.H; Lorettu, L; Bellizzi, S; Mzayek, F; **Elbarazi, I;** Serlin, I.A.

Journal: International Journal of Women's Health | **Year**: 2022 | **DOI**: https://doi.org/10.2147/ijwh.s360465

Abstract

Background: Syrian refugee women not only suffered the refuging journey but also faced the burden of being the heads of their households in a new community. We aimed to investigate the mental health status, traumatic history, social support, and post-traumatic growth (PTG) of Syrian refugee women.

Methods: A cross-sectional study was conducted using a structured interviewer-administered survey between August and November 2019. Syrian refugee women who head their households and live outside camps were eligible. The survey included items investigating socio-demographic characteristics and conflict-related physical trauma history. The Refugee Health Screener-15 (RHS-15) scale was used to screen for emotional distress symptoms of depression, anxiety, and post-traumatic stress disorder (PTSD), with a score range of 0−4 and higher scores indicating emotional distress. The Multidimensional Scale of Perceived Social Support (MSPSS) was utilized to assess the perceived support from family, friends, and significant others (score range 1−7), with scores of 3−5 and 5.1−7.0 representing moderate and high support, respectively. The PTG Inventory (PTGI) scale investigated the positive transformation following trauma; the score range was 0−5, and the cutoff point of ≥3 defined moderate-to-high growth levels.

Results: Out of 140 invited refugee women, 95 were included, with a response rate of 67.9%. Their mean (SD) age was 41.30 (11.75) years, 50.5% were widowed, and 17.9% reported their husbands as missing persons. High levels of conflict-related traumatic exposure were found, including threats of personal death (94.7%), physical injury (92.6%), or both (92.6%); and a history of family member death (92.6%), missing (71.6%), or injury (53.7%). The mean (SD) RHS-15 score was above average (2.08 (0.46)), and most women (90.5%) were at high risk for depression, anxiety, and PTSD symptoms. The mean (SD) MSPSS score was 5.08 (0.71), representing moderate social support, with friends' support being the highest (5.23 (0.85)). The mean (SD) PTGI score was 2.44 (0.48), indicating low growth, with only 12.6% of women experiencing moderate-to-high growth levels. Spiritual change and personal strength had the highest sub-scores, with moderate-to-high growth levels experienced by 97.9% and 84.2%, respectively. Most women were more optimistic and religious, had feelings of self-reliance and better difficulties adapting, and were stronger than they thought. Statistically significant correlations of MSPSS and its subscales with RHS-15 and PTGI were detected.

Conclusion: Significant but unspoken mental health problems were highly prevalent among Syrian refugee women and an imminent need for psychological support to overcome traumatic exposure. The role of social support seems to be prominent and needs further investigation.

Keywords: Jordan; mental health; MSPSS; PTGI; refugee; RHS-15; social support; Syrian; trauma growth; women

Hypertension prevalence, awareness, and control among parents of school-aged children in the United Arab Emirates

Authors: **Shah, S.M;** Almarzouqi, L.M; Govender, R.D; **Nauman, J;** Khan, M.A.B.

Journal: Patient Preference and Adherence | **Year**: 2022 | **DOI**: https://doi.org/10.2147/ppa.s357046

Abstract

Background: Increased blood pressure (BP) is a major cardiovascular disease risk factor. The study aimed to determine the prevalence and predictors of hypertension and its awareness and control among parents of school-aged children in the United Arab Emirates (UAE).

Methods: A total of 605 parents participated in this cross-sectional study. Information on socio-demographics, lifestyle factors, and history of chronic disease were collected through an adapted version of the World Health Organization STEPS questionnaire. Fasting blood glucose samples, BP measurements, body mass index (BMI), and waist and hip circumference were obtained using standard measurement protocols. Prevalence of hypertension was identified in the cohorts by defining hypertension using the 2017 American College of Cardiology (ACC) and the American Heart Association (AHA) guidelines (BP≥130/80 mmHg) and the World Health Organization-International Society of Hypertension Guidelines Orchid (BP≥140/90 mmHg) in association with antihypertensive medication use.

Results: The mean age of participants was 42.9±7.9 years. The prevalence of hypertension was 37.2% (95% CI: 33.5–41.2) and 18.0% (95% CI: 15.2–21.3), using the 2017 and the previous WHO definitions, respectively. Little over half of the sample (51.5%) who were aware of having hypertension reported using antihypertensive medications. Of those reporting the use of antihypertensive medications in the past two days, 13 of 33 patients (39.4%) had their hypertension under control (<140/90 mmHg). The independent correlates of hypertension included age [(adjusted odds ratio (AOR): 1.09 (1.05–1.13], male sex [AOR: 2.48 (1.41–4.34], college or higher education [AOR: 0.22 (0.09–0.56)], family history of hypertension [AOR: 2.03 (1.17–3.53)], obesity [AOR: 3.15 (1.24–7.12)], and moderate or vigorous physical activity [AOR: 0.50 (0.26–0.98)].

Conclusion: Hypertension is prevalent among parents of school-going children. Improving lifestyle, health literacy, and introducing innovative models to raise awareness and education about hypertension are essential to achieve sustainable development goals (SDGs).

Keywords: Arabs; blood pressure; medication adherence; native population; parents; primary care; sustainable development goals; United Arab Emirates

Hypertension control and guideline-recommended target blood pressure goal achievement at an early stage of hypertension in the UAE

Author: **Bhagavathula, A.S; Shah, S.M; Suliman, A;** Oulhaj, A; Aburawi, E.H.
Author: Journal of Clinical Medicine | **Year**: 2022 | **DOI**: https://doi.org/10.3390/jcm11010047

Abstract

Background: The present study aimed to assess the changes in blood pressure (BP) within the first 6 months of treatment initiation in a newly treated hypertensive cohort and to identify the factors that are associated with achieving the target BP recommended by the American (ACC/AHA, 2017), European (ESC/ESH, 2018), United Kingdom (NICE, 2019), and International Society of Hypertension (ISH, 2020) guidelines.

Methods: We analyzed 5308 incident hypertensive outpatients across Abu Dhabi, United Arab Emirates (UAE), in 2017; each patient was followed up for 6 months. Hypertension was defined as a BP of 130/80 mmHg according to the ACC/AHA guidelines and 140/90 mmHg according to the ESC/ESH, NICE, and ISH guidelines. Multiple logistic regression was used to identify factors associated with achieving the guideline-recommended BP targets.

Results: At baseline, the mean BP was 133.9 ± 72.9 mmHg and 132.7 ± 72.5 mmHg at 6 months. The guideline-recommended BP targets were 39.5%, 43%, 65.6%, and 40.8%, according to the ACC/AHA, ESC/ESH, NICE, and ISH guidelines, respectively. A BMI of <25 kg/m2 was associated with better BP control according to the ACC/AHA (odds ratio (OR) = 1.26; 95% confidence interval (CI) = 1.07–1.49), ESC/ESH (OR = 1.27; 95% CI = 1.08–1.50), and ISH guidelines (OR = 1.22; 95% CI = 1.03–1.44). Hypertension treated in secondary care settings was more likely to achieve the BP targets recommended by the ACC/AHA (1.31 times), ESC/ESH (1.32 times), NICE (1.41 times), and ISH (1.34 times) guidelines.

Conclusions: BP goal achievement was suboptimal. BP control efforts should prioritize improving cardiometabolic goals and lifestyle modifications.

Keywords: Arabian Gulf; blood pressure; cardiovascular; goals; guidelines; hypertension; incident hypertension; Middle East; targets; United Arab Emirates

The Arabic version of the adult eating behavior questionnaire among Saudi population: Translation and validation

Authors: Alruwaitaa, M.A; Alshathri, A; Alajllan, L; Alshahrani, N; Alotaibi, W; **Elbarazi, I;** Aldhwayan, M.M.

Journal: Nutrients | **Year**: 2022 | **DOI**: https://doi.org/10.3390/nu14214705

Abstract

Background: Inherited individual differences in eating behaviors known as "appetitive traits" can be measured using the Adult Eating Behavior Questionnaire (AEBQ). The AEBQ can be used to assess individuals that require intervention regarding their weight, eating habits, and for the identification of eating disorders. Arabic eating behavior assessment tools are few. This study, therefore, aimed to translate and validate the AEBQ in Arabic language (AEBQ-Ar) and to confirm the factor structure while assessing the internal consistency of all subscales.

Methods: Participants completed the AEBQ-Ar and reported their sociodemographic data online. Exploratory factor analysis (EFA) was used and internal reliability was assessed using Cronbach's α. Correlations between AEBQ-Ar subscales and body mass index (BMI) were done using Pearson's correlation.

Results: A sample of 596 adults, mean age of 35.61 ± 12.85 years, was recruited from Saudi Arabia. The 6-factor structure was the best model, excluding emotional under- eating subscale and merging enjoyment of food and food responsiveness subscales. Internal consistency was acceptable for all subscales (Cronbach's α = 0.89–0.66). Emotional over- eating was positively associated with BMI, and slowness in eating was negatively associated with BMI.

Conclusion: The AEBQ-Ar with 6-subscales appears to be a valid and reliable psychometric questionnaire to assess appetitive traits in Arabic speakers.

Keywords: Adult; AEBQ; appetite; appetitive traits; Arabic; eating behavior; eating habit; questionnaire; validation

Cardiac phase detection in echocardiography using convolutional neural networks

Authors: Farhad, M; Masud, M.M; Beg, A; Ahmad, A; **Ahmed, L;** Memon, S.
Journal: Scientific Reports | **Year**: 2023 | **DOI**: https://doi.org/10.1038/s41598-023-36047-x

Abstract

Echocardiography is a commonly used and cost-effective test to assess heart conditions. During the test, cardiologists and technicians observe two cardiac phases—end-systolic (ES) and end-diastolic (ED)—which are critical for calculating heart chamber size and ejection fraction. However, non-essential frames called non-ESED frames may appear between these phases. Currently, technicians or cardiologists manually detect these phases, which is time-consuming and prone to errors. To address this, an automated and efficient technique is needed to accurately detect cardiac phases and minimize diagnostic errors. In this paper, we propose a deep learning model called DeepPhase to assist cardiology personnel. Our convolutional neural network (CNN) learns from echocardiography images to identify the ES, ED, and Non-ESED phases without the need for left ventricle segmentation or electrocardiograms. We evaluate our model on three echocardiography image datasets, including the CAMUS dataset, the EchoNet Dynamic dataset, and a new dataset we collected from a cardiac hospital (CardiacPhase). Our model outperforms existing techniques, achieving 0.96 and 0.82 area under the curve (AUC) on the CAMUS and CardiacPhase datasets, respectively. We also propose a novel cropping technique to enhance the model's performance and ensure its relevance to real-world scenarios for ES, ED, and Non-ES-ED classification.

Keywords: echocardiography; deep learning; convolutional neural network; cardiac phases; end-systolic; end-diastolic; heart condition analysis

High prevalence of cardiometabolic risk factors amongst young adults in the United Arab Emirates: the UAE Healthy Future Study

Authors: Mezhal, F; Oulhaj, A; Abdulle, A; AlJunaibi, A; Alnaeemi, A; Ahmad, A; Leinberger-Jabari, A; Al Dhaheri, A.S; AlZaabi, E; **Al-Maskari, F;** Alanouti, F; Alameri, F; Alsafar, H; Alblooshi, H; Alkaabi, J; Wareth, L.A; Aljaber, M; Kazim, M; Weitzman, M; Al-Houqani, M; Ali, M.H; Tuzcu, E.M; Oumeziane, N; El-Shahawy, O; **Al-Rifai, R.H;** Sherman, S; **Shah, S.M;** Alzaabi, T; Loney, T; Almahmeed, W; Idaghdour, Y; **Ahmed, L.A;** Ali, R.
Journal: BMC Cardiovascular Disorders | **Year**: 2023 | **DOI**: https://doi.org/10.1186/s12872-023-03165-3

Abstract

Background: Cardiovascular disease (CVD) is the leading cause of death in the world. In the United Arab Emirates (UAE), it accounts for 40% of mortality. CVD is caused by multiple cardiometabolic risk factors (CRFs) including obesity, dysglycemia, dyslipidemia, hypertension and central obesity. However, there are limited studies focusing on the CVD risk burden among young Emirati adults. This study investigates the burden of CRFs in a sample of young Emiratis, and estimates the distribution in relation to sociodemographic and behavioral determinants.

Methods: Data was used from the baseline data of the UAE Healthy Future Study volunteers. The study participants were aged 18 to 40 years. The study analysis was based on self-reported questionnaires, anthropometric and blood pressure measurements, as well as blood analysis.

Results: A total of 5167 participants were included in the analysis; 62% were males and the mean age of the sample was 25.7 years. The age-adjusted prevalence was 26.5% for obesity, 11.7% for dysglycemia, 62.7% for dyslipidemia, 22.4% for hypertension and 22.5% for central obesity. The CRFs were distributed differently when compared within social and behavioral groups. For example, obesity, dyslipidemia and central obesity in men were found higher among smokers than non-smokers ($p < 0.05$). And among women with lower education, all CRFs were reported significantly higher than those with higher education, except for hypertension. Most CRFs were significantly higher among men and women with positive family history of common non-communicable diseases.

Conclusions: CRFs are highly prevalent in the young Emirati adults of the UAE Healthy Future Study. The difference in CRF distribution among social and behavioral groups can be taken into account to target group-specific prevention measures.

Keywords: cardiometabolic risk factors; cardiovascular disease; central obesity; dysglycemia; dyslipidemia; hypertension; non-communicable disease; obesity

A data-efficient zero-shot and few-shot Siamese approach for automated diagnosis of left ventricular hypertrophy

Authors: Farhad, M; Masud, M.M; Beg, A; Ahmad, A; **Ahmed, L.A;** Memon, S.
Journal: Computers in Biology and Medicine | **Year**: 2023 |
DOI: https://doi.org/10.1016/j.compbiomed.2023.107129

Abstract

Left ventricular hypertrophy (LVH) is a life-threatening condition in which the muscle of the left ventricle thickens and enlarges. Echocardiography is a test performed by cardiologists and echocardiographers to diagnose this condition. The manual interpretation of echocardiography tests is time-consuming and prone to errors. To address this issue, we have developed an automated LVH diagnosis technique using deep learning. However, the availability of medical data is a significant challenge due to varying industry standards, privacy laws, and legal constraints. To overcome this challenge, we have proposed a data-efficient technique for automated LVH classification using echocardiography. Firstly, we collected our own dataset of normal and LVH echocardiograms from 70 patients in collaboration with a clinical facility. Secondly, we introduced novel zero-shot and few-shot algorithms based on a modified Siamese network to classify LVH and normal images. Unlike traditional zero-shot learning approaches, our proposed method does not require text vectors, and classification is based on a cutoff distance. Our model demonstrates superior performance compared to state-of-the-art techniques, achieving up to 8% precision improvement for zero-shot learning and up to 11% precision improvement for few-shot learning approaches. Additionally, we assessed the inter-observer and intra-observer reliability scores of our proposed approach against two expert echocardiographers. The results revealed that our approach achieved better inter-observer and intra-observer reliability scores compared to the experts.

Keywords: echocardiography; left ventricular hypertrophy; siamese network

Joint longitudinal and time-to-event modelling compared with standard Cox modelling in patients with type 2 diabetes with and without established cardiovascular disease: An analysis of the EXSCEL Trial

Authors: Oulhaj, A; Aziz, F; **Suliman, A;** Iqbal, N; Coleman, R.L; Holman, R.R; Sourij, H.
Journal: Diabetes, Obesity and Metabolism | **Year**: 2023 | **DOI**: https://doi.org/10.1111/dom.14975

Abstract

Aim: To demonstrate the gain in predictive performance when cardiovascular disease (CVD) risk prediction tools (RPTs) incorporate repeated rather than only single measurements of risk factors.

Methods: We used data from the Exenatide Study of Cardiovascular Event Lowering (EXSCEL) trial to compare the quality of predictions of future major adverse cardiovascular events (MACE) with the Cox proportional hazards model (using single values of risk factors) compared to the Bayesian joint model (using repeated measures of risk factors). The risk of MACE was calculated in patients with type 2 diabetes with and without established CVD. We assessed the predictive ability of the following cardiovascular risk factors: glycated haemoglobin, high-density lipoprotein cholesterol (HDL-C), non-HDL-C, triglycerides, estimated glomerular filtration rate, low-density lipoprotein cholesterol (LDL-C), total cholesterol, and systolic blood pressure (SBP) using the time-dependent area under the receiver-operating characteristic curve (aROC) for discrimination and the time-dependent Brier score for calibration.

Results: In participants without history of CVD, the aROC of SBP increased from 0.62 to 0.69 when repeated rather than only single measurements of SBP were incorporated into the predictive model. Similarly, the aROC increased from 0.67 to 0.80 when repeated rather than only single measurements of both SBP and LDL-C were incorporated into the predictive model. For all other investigated cardiovascular risk factors, the measures of discrimination and calibration both improved when using the joint model as compared to the Cox proportional hazards model. The improvement was evident in participants with and without history of CVD but was more pronounced in the latter group.

Conclusions: The analysis demonstrates that the joint modelling approach, considering trajectories of cardiovascular risk factors, provides superior predictive performance compared to standard RPTs that use only a single timepoint.

Keywords: cardiovascular disease; joint longitudinal modelling; major adverse cardiovascular events; type 2 diabetes

Emirates Heart Health Project (EHHP): A protocol for a stepped-wedge family-cluster randomized-controlled trial of a health-coach guided diet and exercise intervention to reduce weight and cardiovascular risk in overweight and obese UAE nationals

Authors: King, J.K; **Sheek-Hussein, M;** Nagelkerke, N.J.D; Kieu, A; Al-Shamsi, S; Nauman, J; Hoque, N; Govender, R.D; ElBarazi, I; Crawford, K.
Journal: PLoS ONE | **Year**: 2023 | **DOI**: https://doi.org/10.1371/journal.pone.0282502

Abstract

Background: Cardiovascular disease (CVD) is the most common cause of death both globally and in the United Arab Emirates. Despite public health measures and health education, the rates of death from CVD remain stable. Barriers previously identified to lifestyle changes include cultural reasons, boredom, and lack of family support. The Emirates Heart Health Project (EHHP) seeks to support healthy lifestyle changes through a family-based intervention using a health coach and fitness tracker.

Methods: The EHHP is a stepped-wedge cluster-randomized trial with each cluster comprised of members of an extended family. Eligible participants will be ≥ 18 years of age, with BMI ≥ 25, have Emirati citizenship and be able to give informed consent for study participation. The cluster will have 16 weekly teaching sessions in the participants' family home by a health coach who will review individual weight, diet and exercise (monitored by a wearable fitness tracker). The clusters will have pre-intervention assessments of their weight and CVD risk profile and enter the intervention in randomized order. Each cluster will have a post-intervention assessment of the same measures. The primary outcome is weight reduction from baseline. Secondary outcomes will include change in CVD risk factors such as systolic and diastolic blood pressure, hemoglobin A1c, total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides, waist circumference, and BMI. A mixed linear model will be used for analysis, where the parameters measured at the end of each 16-week episode will be the outcome values. These will be analyzed such that baseline values (measured just prior to the start of an episode) will be fixed covariables. Random effects are the family units. This trial has been registered with the NIH at clinicaltrials.gov (NCT04688684) and is being reported using the SPIRIT (Standard Protocol Items: Recommendations for Interventional Trials) and TIDieR (Template for intervention description and replication) framework.

Keywords: cardiovascular disease; family-based intervention; health coach; fitness tracker; lifestyle changes; weight reduction; CVD risk factors

Results from the United Arab Emirates 2022 report card on physical activity for children and adolescents

Authors: Alrahma, A.M; Al Suwaidi, H; AlGurg, R; Farah, Z; Khansaheb, H; Ajja, R; Alzaabi, M; Al Hamiz, A; Aljunaibi, A; Abdulle, A; Al Dhaheri, A; Shah, S.M; Nauman, J; Loney, T.
Journal: Journal of Exercise Science and Fitness | **Year**: 2023 |
DOI: https://doi.org/10.1016/j.jesf.2023.02.002

Abstract

Background: The United Arab Emirates (UAE) 2022 Report Card provides a systematic evaluation of the physical activity (PA) levels of children and adolescents in the UAE.

Methods: The 2022 Report Card utilized data from 2017 to 2021 to inform 10 core PA indicators that were common to the Global Matrix 4.0.

Results: One in five (19%) UAE school children achieved the recommended amount of moderate-to-vigorous PA (i.e. ≥60 min/d; Total Physical Activity Grade F). Less than 1% of school children used active transport to and from school (Active Transportation Grade F). One in four (26%) secondary school children achieved the recreational screen time recommendations (i.e. ≤2 h/d; Sedentary Behaviours Grade D-). A quarter of adults reported achieving the recommended PA level (i.e. ≥150 min of moderate-intensity PA per week, or equivalent) (Family and Peers Grade D-). All school children are taught physical education (PE) by a specialist with at least a bachelor's degree in PE; however, the duration of weekly PE classes varied between schools (School Grade A-). The UAE Government has invested significant funds and resources into developing and implementing strategies and facilities that will increase PA across the entire population (Government Grade B+). Organised Sport and Physical Activity, Active Play, Physical Fitness, and Community and Environment indicators were graded 'Incomplete' (INC) due to a lack of available data.

Conclusions: Overall, PA levels remain low and sedentary behaviours remain high amongst UAE children and adolescents. The UAE Government has sustained investment in further developing PA opportunities for all children and adults which should translate to increased PA and health improvements at a population level.

Keywords: adolescent; environment design; motor activity; sedentary lifestyle; social environment; youth sports

Translation and validation of the Arabic version of the Eating Behavior After Bariatric Surgery (EBBS) Questionnaire

Authors: Alsehemi, N.H; Alharbi, A.A; Alamri, R.S; Fatani, B.A; Alsenan, S.H; **Elbarazi, I;** Aldhwayan, M.M.
Journal: Obesity Surgery | **Year**: 2023 | **DOI**: https://doi.org/10.1007/s11695-023-06480-y

Abstract

Purpose: Complications after metabolic and bariatric surgery are common due to the patient's poor commitment to postoperative lifestyle changes. Therefore, intensive follow-up from a multidisciplinary team might improve outcomes. The present study aimed to translate and validate the Eating Behavior after Bariatric Surgery (EBBS) questionnaire into Arabic for use in clinical and research settings.

Materials and Methods: The study followed World Health Organization guidelines for translation and questionnaire adaptation, including forward translation, back translation, pilot testing, and the creation of the final version of the tool. A total of 390 patients who had undergone metabolic and bariatric surgery 3 years ago or more were involved in testing the questionnaire's validity and reliability.

Results: The mean age of participants was 36 years (range: 20 to 70 years), 56% were females, 94.1% were Saudis, and 56% had bachelor's degrees. The internal consistency of the questionnaire was tested using Cronbach's alpha. One item (alcohol consumption) was excluded during the reliability analysis due to low variance. The reliability analysis results showed that the 10 items were internally consistent, with a Cronbach's α of 0.851.

Conclusion: The validation and reliability of the Arabic-language version of the EBBS questionnaire were found to be satisfactory. The presence of a validated Arabic version of this instrument may help practitioners estimate patients' adherence to dietary and lifestyle recommendations after metabolic and bariatric surgery. Furthermore, the questionnaire may aid in identifying factors that influence the efficacy of these procedures.

Keywords: Arabic; bariatric surgery; compliance; dietary recommendations; EBBS; lifestyle change; obesity; questionnaire; translation; validation

Correlation analysis between cytokines' profile, autoimmune antibodies and the duration of type 1 diabetes: A case control study in a specialized children's centre in Riyadh

Authors: Al-Dubayee, M; Babiker, A; Alkewaibeen, A; Alkhalifah, A; Alanazi, T; Nogoud, M; Alotaibi, A; Alotaibi, F; Almetairi, F; Alrowaily, M.A; **Masuadi, E;** Nasr, A.
Journal: Int J Immunopathol Pharmacol | **Year**: 2023 | **DOI**: https://doi.org/10.1177/03946320231209821

Abstract

Objective: The aim of this study was to investigate the role of cytokines in children with T1D living in Saudi Arabia and their correlation with disease duration and autoimmune antibody markers.

Methods: A case-control study was conducted in the endocrine clinic of King Abdullah Specialized Children's Hospital in Riyadh. A total of 274 T1D and healthy control children were enrolled in the study. 5 mL of venous blood samples were collected in the morning after 9 to 12 h of fasting in BD Vacutainer® EDTA tubes and centrifuged at 250g for 15 min at. Plasma was then stored at −20°C for detection of anti-islet, anti-GAD antibodies (Abs), and C-peptide using commercial ELISA kits from Thermo Fisher Scientific. The levels of cytokines were measured using commercial sandwich ELISA kits from Abcam.

Results: Median differences in cytokine levels (IFN-γ, TNF-α, IL-1β, IL-2, IL-4, IL-6, IL-10, IL-13, IL-18, IL-21, IL-35, and IL-37) were significantly higher in T1D patients compared with healthy controls (p-value <.001). Spearman's Rho correlation indicated that TNFα, IL-1β, IL-4, IL-10, IL-13, and IL-21 correlated significantly with T1D Abs (p-value =.01). HbA1C correlated negatively with IL-35 and IL-37, and positively with IL-18 (p-value =.01). Linear regression analysis showed a significant increase in anti-glutamic acid antibodies (GAD) in patients with >3 years of T1D duration.

Conclusion: Autoantibodies remained positive at high levels in our patients over a 3-year duration of the disease and correlated with specific cytokines. The clear correlations with disease duration and profile of specific cytokines could be targets for future therapeutic interventions.

Keywords: autoimmune biomarkers; cytokines; Saudi children; T1D markers; type 1 diabetes mellitus

Knowledge, attitudes and practices of women in the UAE towards breast and cervical cancer prevention: A cross-sectional study

Authors: **Elbarazi, I; Alam, Z; Abdullahi, A.S;** Al Alawi, S; AlKhanbashi, M; Rabaa, A; Al Aryani, A; **Ahmed, L; Al-Maskari, F.**
Journal: Cancer Control | **Year**: 2023 | **DOI**: https://doi.org/10.1177/10732748231211459

Abstract

Introduction: Breast and cervical cancers represent two important causes of cancer-associated deaths in females. Uptake in prevention towards these cancers remains low in the United Arab Emirates.

Objectives: This study aimed to understand the knowledge, attitudes and practices of females residing in the Al Ain city, UAE, towards cervical and breast cancer prevention.

Methods: This cross-sectional survey was conducted with 300 women, aged 30 years and above. The primary outcome measure was cervical and breast cancer prevention knowledge. The knowledge was queried through a number of items, with the resulting aggregate scores categorized into good and low knowledge. Chi-square test was conducted to investigate the association between prevention knowledge and sociodemographic factors. Additional outcomes included attitude towards and uptake of cervical and breast cancer screening.

Results: Of the participants surveyed, 36.7% had good knowledge on breast cancer prevention, while 5.3% on cervical cancer prevention. Although the majority of the participants believed that prevention methods could save lives, they reported negative attitudes, considering screening unnecessary and painful. The self-reported screening uptake was 23% and 31.3% for mammography and Pap smear, respectively.

Conclusions: The study reported that the knowledge and uptake of women was low for both breast and cervical cancer prevention. Targeted campaigns not only to increase knowledge but also to resolve misconceptions to change negative attitudes may lead to an increase in uptake.

Keywords: breast cancer; cervical cancer; human papilloma virus vaccination; screening; United Arab Emirates

Physicians' attitudes towards obesity management in the primary care clinics in Al-Ain, United Arab Emirates: A qualitative study

Authors: **Elbarazi, I;** Lootah, S; Al Shamsi, F; Al Marzouqi, N; Al Matrooshi, M; Al Awadi, F; **Alam, Z; Al-Maskari, F.**
Journal: Int J Healthcare Management | **Year**: 2023 |
DOI: https://doi.org/10.1080/20479700.2023.2256551

Abstract

Background: The global prevalence of obesity has almost tripled since 1975 and has become a major public health concern in the United Arab Emirates (UAE). Although physicians are considered as essential role players in the prevention and management of obesity, their perspectives towards obesity management still remain unknown in the UAE. Accordingly, this study aimed to assess physicians' attitudes and practices towards obesity management and prevention in the UAE using a qualitative research design.

Methods: Face-to-face interviews, with a convenience sample of 15 health care practitioners from primary care clinics in Al-Ain City, Abu Dhabi, were employed during January–March 2019. Inductive thematic analysis was performed to identify main emerging themes and subthemes.

Results: Three major themes, namely beliefs and knowledge about obesity and its management, attitudes toward weight control, and current practices in relation to obesity management in primary care clinics, emerged. The results revealed that weight management is considered essential for all those with high body mass index but is suboptimal in primary care settings. Cultural misconceptions among patients regarding weight and lack of appropriate follow-up constitute major barriers to its management.

Conclusion: As obesity is burdensome, its management is crucial and can be enhanced by multidisciplinary approach and unification of guidelines.

Keywords: ambulatory health services; obesity; obesity management; physicians' attitudes; primary health care

Incidence of thyroid cancer in Abu Dhabi, UAE: A registry-based study

Authors: Alseddeeqi, E; Altinoz, A; Oulhaj, A; **Suliman, A; Ahmed, L.A.**
Journal: Journal of Cancer Research and Therapeutics | **Year**: 2023 |
DOI: https://doi.org/10.4103/jcrt.jcrt_999_21

Abstract

Background: Thyroid cancer is the most common endocrine malignancy. It is ranked second among females of the Gulf Cooperation Council States and the sixth most common cancer among the United Arab Emirates population. Aims: We herein describe the incidence and distribution of different types of thyroid cancers and the demographic features of patients diagnosed with thyroid cancer in the Emirate of Abu Dhabi.

Methods: Settings and Design: The study design was Abu Dhabi cancer registry and retrospective chart review. Subjects and Methods: This is a retrospective cancer registry description of patients with the different types of thyroid cancers diagnosed between January 2012 and December 2015 in the Emirate of Abu Dhabi. The incidence of thyroid cancer throughout the study period was calculated. Gender, age, ethnicity, and type of thyroid cancer were described. Statistical Analysis Used: Descriptive statistics of patients' characteristics are reported as means (standard deviation) for continuous variables and total and relative frequencies (percentage) for categorical variables.

Results: The incidence of thyroid cancer was found to increase annually, reaching 7.9 cases per 100,000 population in 2015. A total of 603 patients were diagnosed with thyroid cancer in the Emirate of Abu Dhabi from 2012 to 2015. Of these, 431 (71.5%) were women and 172 (28.5%) were men. The overall mean age at diagnosis was 40.2 years. Over a third of the patients were between 30 and 39 years. The classical papillary thyroid cancer type was found in 67.7% of cases.

Conclusions: A substantial increase in thyroid cancer rates was found between 2012 and 2015. The majority of thyroid cancer cases were diagnosed in women between the ages of 30 and 39 years. Classical papillary thyroid cancer was the most common type.

Keywords: epidemiology; incidence; malignancy; thyroid; United Arab Emirates

Association between self-reported polycystic ovary syndrome with chronic diseases among Emiratis: A cross-sectional analysis from the UAE Healthy Future Study

Authors: Juber, N.F; Abdulle, A; Aljunaibi, A; Alnaeemi, A; Ahmad, A; Leinberger-Jabari, A; Al Dhaheri, A.S; Alzaabi, E; **Al-Maskari, F;** Alanouti, F; Alsafar, H; Alkaabi, J; Wareth, L.A; Aljaber, M; Kazim, M; Weitzman, M; Al-Houqani, M; Hag-Ali, M; Oumeziane, N; Sherman, S; **Shah, S.M;** Almahmeed, W; Idaghdour, Y; Loney, T; El-Shahawy, O; Ali, R.
Journal: International Journal of Women's Health | **Year**: 2023 |
DOI: https://doi.org/10.2147/ijwh.s398651

Abstract

Purpose: This study aimed to assess the prevalence of self-reported polycystic ovary syndrome (PCOS) among Emiratis and examine bi-directional associations of PCOS with self-reported chronic diseases, namely: diabetes, asthma, high cholesterol, and high blood pressure.

Patients and Methods: A cross-sectional analysis was performed using the UAE Healthy Future Study (UAEHFS) data collected from February 2016 to April 2022 involving 1040 Emirati women aged 25–67 years from recruitment centers in the United Arab Emirates (UAE). The bi-directional associations between self-reported PCOS and self-reported chronic diseases were evaluated by establishing temporality based on reported age-at-diagnoses. Firstly, the associations between PCOS (diagnosed at ≥25 years) and chronic diseases (diagnosed at <25 years) were examined, followed by PCOS (diagnosed at <25 years) and chronic diseases (diagnosed at ≥25 years). Finally, a Poisson regression under unadjusted and age-and-body mass index (BMI) adjusted models was performed to obtain the risk ratio (RR) and its 95% confidence interval (CI).

Results: The prevalence of PCOS in this study was 25.9%. Those with asthma and high cholesterol diagnosed at <25 years had increased risks of PCOS diagnosed at ≥25 years (RR = 1.79, 95% CI: 1.17–2.76 for asthma; and RR = 1.61, 95% CI: 1.01–2.59 for high cholesterol), compared to those respective healthier counterparts, after adjusting for age and BMI. No significant association was observed between PCOS diagnosed at <25 years and respective chronic diseases diagnosed at ≥25 years.

Conclusion: PCOS prevalence among Emirati women was high. Asthma and high cholesterol in earlier life were associated with PCOS in later life. Understanding how chronic disease conditions and PCOS are associated in bi-directional ways may improve the surveillance of chronic disease conditions among women with PCOS and may also contribute to more targeted PCOS prevention strategies.

Keywords: epidemiology; polycystic ovary syndrome; self-reported diagnosis; UAE Healthy Future Study; United Arab Emirates; women's health

Infant feeding practices and risk of preschool obesity in Al Ain, UAE: A cross-sectional study

Authors: AlTarrah, D.; Lanigan, J.; Feehan, J.; Al Dhaheri, A. S.; **Shah, S. M.**; Cheikh Ismail, L.; Singhal, A.

Journal: PLOS Global Public Health | **Year**: 2024 | **DOI**: https://doi.org/10.1371/journal.pgph.0002803

Abstract

Background: Early childhood obesity is serious public health problem, and poses a risk of obesity in later life. The study aimed to investigate whether infant feeding affects risk of overweight and obesity in preschool children in the United Arab Emirates (UAE).

Methods: A cross-sectional study was carried out. Data was collected in a kindergarten in Al Ain, UAE. One hundred and fifty parents and preschool children aged 2 to 6 years participated in the study. Univariate and multivariate linear regression were used to investigate associations.

Results: A longer duration of breastfeeding and later introduction of complementary foods were associated with a lower BMI z-score in preschool children. Each month of any breastfeeding was associated with a lower BMI z-score in the unadjusted model (β = -0.03; 95% CI -0.05, -0.01; p = 0.01), and each month increase in the age of introducing complementary foods was associated with a lower BMI z-score in the unadjusted model (β = -0.43; 95% CI: -0.60 to-0.027; p<0.001). These associations remained after adjustment for potential confounding factors (age, sex, maternal BMI, maternal education level, mother's age, social class, father's BMI) for duration of breastfeedinig (β = -0.02; 95% CI: -0.05 to 0.00; p<0.001) and age of complementary feeding (β = -0.39; 95% CI: -0.57 to-0.21; p<0.001).

Conclusion: Poor infant feeding practices (shorter duration of breastfeedinig and early introduction of complementary foods) were found to be associated with higher BMI in preschool children. Promoting appropriate proper infant feeding practices in line with recommendations could be one strategy to help prevent childhood obesity in the UAE.

Keywords: early childhood obesity; infant feeding; preschool children; BMI z-score; United Arab Emirates

Breast Cancer in Young Women: Is It Different? A Single-Center Retrospective Cohort Study.

Authors: Abulkhair, O.; Omair, A.; Makanjuola, D.; Al Zaid, M.; Al Riyees, L.; Abdelhafiez, N.; **Masuadi, E.**, Alamri, G.; Althan, F.; Alkushi, A.; Partridge, A.

Journal: Clinical Medicine Insights| **Year**: 2024 | **DOI**: https://doi.org/10.1177/11795549241228235

Abstract

Background: Breast cancer (BC) is one of the commonest cancers among women worldwide. Differences regarding tumor biology, presentation, genetics, and molecular subtypes may contribute to the relatively poorer prognosis among younger women. Limited information exists regarding pathologic characteristics and long-term outcomes among this group.

Methods: This retrospective cohort study included 695 BC patients diagnosed over a 10-year period and investigated the clinicopathological characteristics and long-term disease outcomes among patients diagnosed at age less than or equal to 40 years compared with older ones. Cox regression analysis was performed, and Kaplan-Meier curves were generated to assess overall survival (OS).

Results: Compared with the younger patients (⩽40 years) estrogen receptor (ER) and progesterone receptor (PR) expression was mainly positive in older patients (>40 years) (76.2% vs 61.3% and 64.2% vs 49.6%, respectively). The most common molecular subtype in both age groups was luminal B (44.1% in older and 40.3% in younger). A clinical complete remission after neoadjuvant therapy was observed more frequently in older patients (76.7%; N = 442) in comparison with the younger patients (66.4%; N = 79) (P = .018). Recurrence and disease progression were significantly more likely to occur among younger patients accounting for 12.6% and 29.4% of the cases, compared with 6.3% and 18.2% in older patients (P = .016 and P = .006, respectively). The overall mortality was 132 (19%) of 695, with 88% cancer-related deaths. Estrogen receptor and PR expression (P ⩽ .001 and P = .003, respectively), molecular subtype (P = .002), tumor grade (P = .002), and N stage (P = .038) were the variables that were found to be significantly influenced by age. The OS was not statistically different among 2 age groups, but younger patients with luminal A molecular subtype showed significantly poor outcome (P = .019).

Conclusion: Overall survival in women diagnosed with BC at age less than or equal to 40 years is not significantly worse than older patients. However, among patients with luminal A subtype, younger women had relatively poor survival. Further research is needed to understand this age-based disparity in outcomes.

Keywords: Breast cancer; clinicopathological characteristics; long-term outcomes; overall survival

Prevalence of psychological distress among health sciences students: a systematic review and meta-analysis

Authors: Almansoof, A.S; **Masuadi, E**; Al-Muallem, A; Agha, S.

Journal: Quality & Quantity | **Year**: 2024 | **DOI**: https://doi.org/10.1007/s11135-024-01829-6

Abstract

Background: Psychological distress (PD) is considered as an indicator of students' psychological well-being status in epidemiological studies. The study objectives were to systematically review articles to estimate the pooled prevalence of PD among Health Sciences undergraduate and to assess the effect of study characteristics on the pooled PD prevalence.

Methods: The protocol was developed using the Joanna Briggs Institute (JBI) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Different information sources included PUBMED, EMBASE, OVID, EBESCO (ERIC, CINIHAL, and PsycInfo), ISI, and Scopus were searched to identify peer-reviewed English-language studies published before September 2020 reporting different PD types including stress, burnout, anxiety, and depression among Health Sciences students. For each search term, related synonymous was used. In addition, study characteristics' variables included academic years, regions, specialties, study years, gender, and PD types were specified. Prevalence estimates were pooled using random-effect meta-analysis and for studies characteristics effects the subgroup analysis and Meta regression were used with significance threshold of $P < 0.05$.

Results: Literature search identified 28 high-quality-cross-sectional studies on PD with a total sample size of 11,761 Health Sciences students of both genders, from all study years, Saudi regions (except Northern), and Health Sciences colleges. Overall pooled PD prevalence was 51.0% [(CI 95% (44.0–58.0)]. Pooled prevalence estimates were significantly affected by gender and PD types ($P > 0.05$).

Conclusion: This systematic review and meta-analysis revealed a high prevalence of PD among Health Sciences undergraduate students. A significant association was found among gender, and PD types with the pooled prevalence.

Keywords: psychological distress; Health Sciences students; prevalence; meta-analysis; gender differences

Measurement properties of the Mental Health Literacy Scale (MHLS) validation studies: a systematic review protocol

Authors: **ElKhalil, R.**; AlMekkawi, M.; O'Connor, M.; **Sherif, M.**; **Masuadi, E.; Ahmed, L. A.; Al-Rifai, R. H.;** Belfakir, M.; Bayoumi, R.; **Elbarazi, I.**

Journal: BMJ Open | **Year**: 2024 | **DOI**: https://doi.org/10.1136/bmjopen-2023-081394

Abstract

Background: Mental Health Literacy (MHL) is important for improving mental health and reducing inequities in treatment. The Mental Health Literacy Scale (MHLS) is a valid and reliable assessment tool for MHL. This systematic review will examine and compare the measurement properties of the MHLS in different languages, enabling academics, clinicians and policymakers to make informed judgements regarding its use in assessments.

Methods: The review will adhere to the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) methodology for systematic reviews of patient-reported outcome measures and the Joanna Briggs Institute (JBI) Manual for Evidence Synthesis and will be presented following the Preferred Reporting Items for Systematic reviews and Meta-Analysis 2020 checklist. The review will be conducted in four stages, including an initial search confined to PubMed, a search of electronic scientific databases PsycINFO, CINAHL, Scopus, MEDLINE, Embase (Elsevier), PubMed (NLM) and ERIC, an examination of the reference lists of all papers to locate relevant publications and finally contacting the MHLS original author to identify validation studies that the searches will not retrieve. These phases will assist us in locating studies that evaluate the measurement properties of MHLS across various populations, demographics and contexts. The search will focus on articles published in English between May 2015 and December 2023. The methodological quality of the studies will be evaluated using the COSMIN Risk of Bias checklist, and a comprehensive qualitative and quantitative data synthesis will be performed.

Keywords: health literacy; mental health; patient reported outcome measures; psychometrics; systematic review

Adolescents' use of online food delivery applications and perceptions of healthy food options and food safety: a cross-sectional study in the United Arab Emirates

Authors: Saleh, S. T.; Osaili, T. M.; Al-Jawaldeh, A.; Hasan, H. A.; Hashim, M.; Mohamad, M. N.; Qiyas, S. A.; Al Sabbah, H.; Al Daour, R.; Al Rajaby, R.; **Masuadi, E.**; Stojanovska, L.; Papandreou, D.; Zampelas, A.; Al Dhaheri, A. S.; Kassem, H.; Cheikh Ismail, L.

Journal: Frontiers in Nutrition | **Year**: 2024 | **DOI**: https://doi.org/10.3389/fnut.2024.1385554

Abstract

Background: This cross-sectional study aimed to assess Online food delivery applications (OFDA) usage trends among adolescent users in the United Arab Emirates (UAE), focusing on their perceptions of healthy food options and food safety (n = 532).

Methods: Sociodemographic information, frequency of OFDA use, factors affecting food choices, and perceptions of healthy food and food safety were investigated. A total perception score was calculated for each participant.

Results: Most participants used OFDAs weekly (65.4%), favoring fast food (85.7%). Factors like appearance and price drove food choices (65.0%), while taste and cost hindered healthy food orders (29.7 and 28.2%). Younger and frequent users had lower scores for perceiving healthy food, while seeking healthy options was associated with higher scores ($p < 0.05$). Females and those seeking healthy food showed higher food safety scores ($p < 0.05$).

Conclusion: The study suggests tailored interventions to promote healthier choices and improve food safety perceptions among adolescents using OFDAs in the UAE.

Keywords: adolescence; consumer perception of healthy food; digital food environment; food applications; food choices

Predictive performance of machine learning compared to statistical methods in time-to-event analysis of cardiovascular disease: a systematic review protocol

Authors: **Suliman, A.**, Masud, M., Serhani, M. A., **Abdullahi, A. S.**, & Oulhaj, A.

Journal: BMJ Open | **Year**: 2024 | **DOI**: https://doi.org/10.1136/bmjopen-2023-082654

Abstract

Background: Globally, cardiovascular disease (CVD) remains the leading cause of death, warranting effective management and prevention measures. Risk prediction tools are indispensable for directing primary and secondary prevention strategies for CVD and are critical for estimating CVD risk. Machine learning (ML) methodologies have experienced significant advancements across numerous practical domains in recent years. Several ML and statistical models predicting CVD time-to-event outcomes have been developed. However, it is not known as to which of the two model types-ML and statistical models-have higher discrimination and calibration in this regard. Hence, this planned work aims to systematically review studies that compare ML with statistical methods in terms of their predictive abilities in the case of time-to-event data with censoring.

Methods: Original research articles published as prognostic prediction studies, which involved the development and/or validation of a prognostic model, within a peer-reviewed journal, using cohort or experimental design with at least a 12-month follow-up period will be systematically reviewed. The review process will adhere to the Critical Appraisal and Data Extraction for Systematic Reviews of Prediction Modelling Studies checklist.

Keywords: cardiovascular disease; coronary heart disease; observational study; randomized controlled trial

Lipid profile, inflammatory biomarkers, endothelial dysfunction, and heart rate variability in adolescents with type 1 diabetes. A case-control study among UAE population

Authors: Sharma, C., **Suliman, A.**, Al Hamed, S., Yasin, J., AlKaabi, J., Aburawi, E. H.

Journal: Heliyon | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.heliyon.2024.e29623

Abstract

Background: Type 1 diabetes mellitus (T1DM) is an autoimmune disease characterized by the chronic inflammation and cause of endothelial dysfunction (ED). Heart rate variability (HRV) is a marker of sympathetic and parasympathetic autonomic nervous system dysfunction. We investigated the association of lipid profile, inflammatory biomarkers, endothelial dysfunction, and heart rate variability in adolescents with T1DM among UAE population.

Methods: In this case-control study we recruited 126 adolescents (13-22 years) from Abu Dhabi, UAE (United Arab Emirates). Demographic, anthropometric, blood and urine samples were collected after an overnight fasting. HRV measurements were determined per Task Force recommendations. Independent t-test or Mann-Whitney U test and Pearson's Chi-squared test were used to compare groups. Adjusted conditional logistic regression model was used to identify the determinants independently associated with T1DM.

Results: The mean ages in control (n = 47) and patient (n = 79) groups were 17.5 ± 4.6 and 18.6 ± 4.8 years, respectively. A family history of diabetes and waist and hip circumferences significantly differed between the groups (p = 0.030 and 0.010). The patients with T1DM exhibited significantly higher levels of atherogenic markers than control. Endothelial dysfunction biomarkers such as levels of sICAM-1 (p < 0.001), adiponectin (p < 0.001) and 25-hydroxyvitamin D (p < 0.001) were significantly different in the control group compared with those in the T1DM group. There was a significant difference in SDNN intervals, NN50, pNN50, and SD1/SD2 among the two groups. In adjusted analysis, total cholesterol (adjusted Odds Ratio (aOR): 2.78, 95 % CI:1.37-5.64; p = 0.005), LDL (2.66, 95%CI:1.19-5.92; p = 0.017), and triglycerides (5.51, 95%CI:1.57-19.41; p = 0.008) were significantly associated with developing T1DM. The HRV indicators were significantly associated with decrease odds of T1DM after controlling for SBP, BMI, and family history of DM.

Conclusion: In this study, adolescents with T1DM showed a significant association with lipid profile, ED, and HRV compared with controls. Thus, an early attention to diabetes control is required to reduce the risk of cardiac autonomic neuropathy leading to various cardiovascular diseases.

Keywords: cardiac autonomic neuropathy; endothelial dysfunction; heart rate variability; inflammatory; lipid profile; type 1 diabetes mellitus

Epigenetics of conotruncal congenital heart disease: Protocol for a systematic review and meta-analysis

Authors: Aburawi, E. H.; Östlundh, L.; Aburawi, H. E.; **Al Rifai, R. H.**; Bhagavathula, A.; Bellou, A.

Journal: PLoS One | **Year**: 2024 | **DOI**: https://doi.org/10.1371/journal.pone.0302642

Abstract

Background: Conotruncal congenital heart defects (CTD) are a subset of congenital heart diseases (CHD) that involve structural anomalies of the right, left, or both cardiac outflow tracts. CHD is caused by multifactorial inheritance and changes in the genes or chromosomes. Recently, CHD was found to be due to epigenetic alterations, which are a combination of genetic and other environmental factors. Epigenetics is the study of how a gene's function changes as a result of environmental and behavioral influences. These causative factors can indirectly cause CHD by altering the DNA through epigenetic modifications. This is a protocol for a systematic review and meta-analysis that aims to explore whether the strength of association between various epigenetic changes and CTD types varies by race. Furthermore, to determine and compare the changes in gene expression of each mutation.

Methods: Our protocol follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocol (PRISMA-P) guidelines. A comprehensive pre-search has been developed in PubMed and PubMed's Medical Subject Headings (MeSH). The final search will be performed in June 2023 in PubMed, Embase, Scopus, Web of Science, Cochrane Library, CIANHL, and PsycInfo, without restrictions on publication years. The Covidence systematic review software will be used for blinded screening and selection. Conflicts will be resolved by a third, independent reviewer. The risk of bias in selected studies will be assessed using the National Heart, Lung, and Blood Institute (NHLBI) Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. The data to be extracted will cover basic information on the included studies, study sample size, number of patients with various types of epigenetic changes, number of patients with various CTD types, measures of association and their 95% confidence interval between each epigenetic change and each CTD. The protocol has been registered with the International Prospero Register of Systematic Review (PROSPERO) [CRD42023377597].

Keywords: conotruncal congenital heart defects; epigenetics; gene expression; systematic review; meta-analysis

Estimated glomerular filtration rate slope and risk of primary and secondary major adverse cardiovascular events and heart failure hospitalization in people with type 2 diabetes: An analysis of the EXSCEL Trial

Authors: Oulhaj, A.; Aziz, F.; **Suliman, A.**; Eller, K.; Bentoumi, R.; Buse, J. B.; Al Mahmeed, W.; von Lewinski, D.; Coleman, R. L.; Holman, R. R.; Sourij, H.

Journal: Diabetes, Obesity & Metabolism | **Year**: 2024 | **DOI**: https://doi.org/10.1111/dom.15817

Abstract

Background: The decline in estimated glomerular filtration rate (eGFR), a significant predictor of cardiovascular disease (CVD), occurs heterogeneously in people with diabetes because of various risk factors. We investigated the role of eGFR decline in predicting CVD events in people with type 2 diabetes in both primary and secondary CVD prevention settings.

Methods: Bayesian joint modelling of repeated measures of eGFR and time to CVD event was applied to the Exenatide Study of Cardiovascular Event Lowering (EXSCEL) trial to examine the association between the eGFR slope and the incidence of major adverse CV event/hospitalization for heart failure (MACE/hHF) (non-fatal myocardial infarction, non-fatal stroke, CV death, or hospitalization for heart failure). The analysis was adjusted for age, sex, smoking, systolic blood pressure, baseline eGFR, antihypertensive and lipid-lowering medication, diabetes duration, atrial fibrillation, high-density cholesterol, total cholesterol, HbA1c and treatment allocation (once-weekly exenatide or placebo).

Results: Data from 11 101 trial participants with (n = 7942) and without (n = 3159) previous history of CVD were analysed. The mean ± SD eGFR slope per year in participants without and with previous CVD was -0.68 ± 1.67 and -1.03 ± 2.13 mL/min/1.73 m2, respectively. The 5-year MACE/hHF incidences were 7.5% (95% CI 6.2, 8.8) and 20% (95% CI 19, 22), respectively. The 1-SD decrease in the eGFR slope was associated with increased MACE/hHF risks of 48% (HR 1.48, 95% CI 1.12, 1.98, p = 0.007) and 33% (HR 1.33, 95% CI 1.18,1.51, p < 0.001) in participants without and with previous CVD, respectively.

Conclusion: eGFR trajectories over time significantly predict incident MACE/hHF events in people with type 2 diabetes with and without existing CVD, with a higher hazard ratio for MACE/hHF in the latter group.

Keywords: cardiovascular disease; estimated glomerular filtration rate; heart failure hospitalization; major adverse cardiovascular events; type 2 diabetes

Validity of measured vs. self-reported weight and height and practical considerations for enhancing reliability in clinical and epidemiological studies: a systematic review

Authors: Fayyaz, K.; Bataineh, M. F.; Ali, H. I.; Al-Nawaiseh, A. M.; **Al-Rifai', R. H.**; Shahbaz, H. M.

Journal: Nutrients | **Year**: 2024 | **DOI**: https://doi.org/10.3390/nu16111704

Abstract

Background: Self-reported measures of height and weight are often used in large epidemiological studies. However, concerns remain regarding the validity and reliability of these self-reported measures. The aim of this systematic review was to summarise and evaluate the comparative validity of measured and self-reported weight and height data and to recommend strategies to improve the reliability of self-reported-data collection across studies.

Methods: This systematic review adopted the PRISMA guidelines. Four online sources, including PubMed, Medline, Google Scholar, and CINAHL, were utilised.

Results: A total of 17,800 articles were screened, and 10 studies were eligible to be included in the SLR based on the defined inclusion and exclusion criteria. The findings from the studies revealed good agreement between measured and self-reported weight and height based on intra-class correlation coefficient and Bland-Altman plots. Overall, measured weight and height had higher validity and reliability (ICC > 0.9; LOA < 1 SD). However, due to biases such as social pressure and self-esteem issues, women underreported their weight, while men overreported their height.

Conclusion: In essence, self-reported measures remain valuable indicators to supplement the restricted direct anthropometric data, particularly in large-scale surveys. However, it is essential to address potential sources of bias.

Keywords: height; reliability; self-reported; systematic review; validity; weight

Sociodemographic predictors of the association between self-reported sleep duration and depression

Authors: **Al Balushi, M.**; Ahmad, A.; Al Balushi, S.; Javaid, S.; **Al-Maskari, F.**; Abdulle, A.; Ali, R.

Journal: PLOS Global Public Health | **Year**: 2024 | **DOI**: https://doi.org/10.1371/journal.pgph.0003255

Abstract

Background: A growing interest has been recently reported in exploring sleep duration within psychology context in particular to its relation to some mental chronic diseases such as depression. The aim of this study is to investigate the association between self-reported sleep hours as an outcome and self-perceived depression among Emirati adults, after adjusting for sociodemographic factors such as age, gender, marital status, and employment status.

Methods: We performed a cross-sectional analysis using 11,455 participants baseline data of the UAE Healthy Future Study (UAEHFS). Univariate and multivariate logistic regression models were performed with self-reported sleep hours as an outcome. The predictors were the self-reported depression by measuring the PHQ-8 score, sociodemographic factors (age, gender, marital status, and employment status) Odds ratios with 95% confidence intervals (CI) were reported. In a sensitivity analysis, a multivariate imputation by chained equations (MICE) procedure was applied with classification and Regression Trees (CART) to impute missing values.

Results: Overall, 11,455 participants were included in the final analysis of this study. Participants' median age was 32.0 years (Interquartile-Range: 24.0, 39.0). There were 6,217 (54.3%) males included in this study. In total, 4,488 (63.6%) of the participants reported sleep duration of more than 7 hours. Statistically significant negative association was observed between the total PHQ-8 score as a measure for depression and binarized self-reported sleep, OR = 0.961 (95% CI: 0.948, 0.974). For one unit increase in age and BMI, the odds ratio of reporting shorter sleep was 0.979 (95% CI: 0.969, 0.990) and 0.987 (95% CI: 0.977, 0.998), respectively.

Conclusion: The study findings indicate a correlation between self-reported depression and an increased probability of individuals reporting shorter self-perceived sleep durations especially when considering the sociodemographic factors as predictors.

Keywords: self-reported sleep duration; depression; sociodemographic factors; UAE Healthy Future Study; cross-sectional analysis

Association of biomarkers for dyslipidemia, inflammation, and oxidative stress with endothelial dysfunction in obese youths: a case-control study

Authors: Sharma, C.; **Suliman, A.**; Al Hamad, S. M.; Yasin, J.; Abuzakouk, M.; AlKaabi, J.; Aburawi, E. H.

Journal: Diabetes, Metabolic Syndrome and Obesity | **Year**: 2024 |
DOI: https://doi.org/10.2147/dmso.s458233

Abstract

Background: The United Arab Emirates (UAE), with its characteristic local population, geography, and history, presents several risk factors for cardiovascular diseases (CVDs) in obese individuals. Obesity and its associated complications, including diabetes, atherogenic dyslipidemia, and CVDs leading to significant health risks. In the present study, "Youths" defined as young people between 18 and 22 years. We assessed dyslipidemia, inflammation, and oxidative stress biomarker levels and their association with endothelial dysfunction (ED) in both overweight/obese and normal weight youths of UAE.

Methods: There were 160 youths with overweight/obese (BMI ≥ 25 kg/m2) patients and healthy age- and sex-matched normal weight (BMI ≤ 24.9 kg/m2) as controls participated in this study. The anthropometric data and blood samples were collected to assess the biomarkers for dyslipidemia, inflammation, oxidative stress, ED from all the youths.

Results: The overall mean age and male-to-female ratio were 20±1.5years and 1.0:1.2, respectively. There was statistically significant difference in HDL-C ($p<0.001$), triglycerides (TG) ($p<0.001$), ApoA ($p=0.002$), ApoB/ApoA ratio ($p=0.009$) between the overweight/obese and normal weight youths. Among, inflammatory markers: hs-CRP, IL-6, TNF-α also showed significant $p<0.001$ and oxidative stress markers: DNA/RNA Damage, catalase and nitric oxide (NO) showed significant $p<0.001$ between groups. Spearman correlation of ED markers with lipid profile markers showed Vitamin C levels positively correlated with HDL-C ($p<0.001$) and negatively correlated with glucose ($p<0.001$). ICAM-1showed significant negative correlation with HDL-C ($p<0.01$) and ApoA ($p<0.001$) but positive correlation with TG ($p<0.01$) and HbA1c ($p<0.001$) among groups. Spearman correlation of ED markers with inflammatory/oxidative stress biomarkers showed Vitamin C levels negatively correlated with ferritin ($p < 0.001$), NO ($p < 0.001$), GGT ($p < 0.001$), and ALT ($p < 0.001$) levels. The ICAM-1showed significant positive correlation with hs-CRP ($p < 0.01$), IL-6 ($p < 0.001$), TNF-α ($p < 0.01$), GGT ($p < 0.05$), and ALT ($p < 0.05$) in both groups.

Conclusion: This study revealed a strong link between the biomarkers of dyslipidemia, inflammation, and oxidative stress with ED in overweight/obese patients. This study might be used to predict future cardiovascular events in this population.

Keywords: dyslipidemia; endothelial dysfunction; inflammation; obesity; oxidative stress; youth

Normative values for body composition in 22,191 healthy Norwegian adults 20-99 years: The HUNT4 study

Authors: Berg, J.; **Nauman, J.**; Wisløff, U.

Journal: Progress in Cardiovascular Diseases | **Year**: 2024 |
DOI: https://doi.org/10.1016/j.pcad.2024.06.002

Abstract

Background: Body mass, body mass index (BMI), and body composition components are essential for health and longevity. Considering the influence of demographic factors on body composition, there is a need for tailored reference values based on age-, sex-, and geography. We aimed to construct a comprehensive reference material on body composition in healthy Norwegian adults.

Methods: In this cross-sectional study, we estimated age- and sex-specific reference values for body-, fat-, and muscle mass variables using multi-frequency bioelectrial impedance analysis (such as body fat percentage, skeletal muscle mass and visceral fat area) in 22,191 healthy adults aged 20-99 years participating in the Trøndelag Health Study 4 (HUNT4). We calculated the fat mass and skeletal muscle mass index as the total fat and muscle mass relative to height squared and used general linear models to explore the associations between physical activity (PA), BMI, and age.

Results: With a BMI (kg/m2) of 25.4 (SD 5.1) and 26.0 (4.5) for women and men, respectively, the youngest age group (20-39 yrs) had a lower BMI compared to their counterparts aged 40-59 years (26.3 [4.5] and 27.5 [3.8]) and ≥ 60 years (25.7 [4.1] and 26.5 [3.4]), respectively. Those aged 20-39 years also had the lowest values for the different body fat variables measured. Fat mass index (kg/m2) was 8.41 (4.00) and 5.81 (3.29) for women and men aged 20-39 years, respectively, compared to 9.25 (3.21) and 6.86 (2.46) for those aged ≥60 years. The oldest age group had the lowest values for the various muscle mass variables; women and men aged 60+ years had a skeletal muscle mass index (kg/m2) of 8.91 (0.85) and 10.96 (1.00), respectively. Corresponding values for those aged 20-39 years were 9.33 (0.97) and 11.49 (1.15). For all age groups and both sexes, regular physical activity was associated with lower levels of fat mass, whereas the association between muscle mass and PAwas less conclusive. When using body fat percentage as an obesity measure, we observed a much higher obesity prevalence (41.2%) in the study population compared to BMI (17.3%).

Conclusion: Our study offers a comprehensive reference for body composition among healthy adults in Norway, aiding the identification of abnormal fat and muscle mass values across age groups. We also highlight that BMI often misclassifies individuals with adiposity levels in the overweight or obese category as lean. Therefore, incorporating body composition when defining obesity could enable early intervention to prevent cardiometabolic diseases.

Keywords: bioelectrical impedance analysis; fat mass; reference values; skeletal muscle mass

The long shadow of accumulating adverse childhood experiences on mental health in the United Arab Emirates: implications for policy and practice

Authors: Murphy, A.; England, D.; **Elbarazi, I.**; Horen, N.; Long, T.; Ismail-Allouche, Z.; Arafat, C.

Journal: Frontiers in Public Health | **Year**: 2024 | **DOI**: https://doi.org/10.3389/fpubh.2024.1397012

Abstract

Background: This study investigates the cumulative effects of adverse childhood experiences (ACEs) on adult depression, anxiety, and stress in Abu Dhabi, controlling for demographic factors, lifestyle, and known health and mental health diagnoses.

Methods: Utilizing a cross-sectional design and self-report measures, the research aims to fill a critical gap in understanding the specific impacts of ACEs in the UAE. Based on a multi-site, cross-sectional community sample of 697 residents of Abu Dhabi.

Results: The findings reveal significant variances in current screening values for depression, anxiety, and stress attributable to ACEs after controlling for demographic factors, lifestyle risk factors, and adult diagnoses of health and mental health conditions.

Conclusion: The results underline the lifelong impact of ACEs and reinforce the importance of early identification and intervention. In particular, the implications for policy and practice in understanding and mitigating ACEs long-term effects on mental health are considered.

Keywords: United Arab Emirates; adult outcomes; adverse childhood experiences; child abuse; child neglect

Effect of structured diet with exercise education on anthropometry and lifestyle modification in patients with type 2 diabetes: A 12-month randomized clinical trial

Authors: El-Deyarbi, M.; **Ahmed, L. A.**; King, J.; Al Nuaimi H.; Al Juboori, A.; Mansour, N. A.; Jarab, A. S.; Abdel-Qader, D. H.; Aburuz, S.

Journal: Diabetes Research and Clinical Practice | **Year**: 2024 |
DOI: https://doi.org/10.1016/j.diabres.2024.111754

Abstract

Background: Lifestyle modification involving active engagement of specialised dietitian with diet and exercise education, can be effective as first-line treatment for diabetes.

Methods: 192 patients were enrolled with diabetes in a randomised controlled trial and followed up for one year. Ninety-four patients in the intervention group participated in a comprehensive structured diet and exercise education conducted by a specialised dietitian at ambulatory centre in the United Arab Emirates.

Results: The mean difference in the change in body mass index between study groups at study exit and baseline was statistically significant (BMI difference = -1.86, 95 % CI -2.68 - -1.04, P < 0.01). The intervention group reported significant decrease in total carbohydrate and daily energy intake compared to baseline (173.7 g vs 221.1 g and 1828.5 kcal vs 2177.9 kcal, respectively). Moreover, the mean metabolic equivalents (METs) in the intervention group increased significantly at study exit from baseline compared to control group METs, with mean difference between all between-group differences after baseline of 0.63 (95 % 0.29 - 0.97, P < 0.01).

Conclusion: Structured diet and exercise counselling by specialised dietitian in ambulatory settings significantly reduced carbohydrate and daily energy intake, with improved anthropometric measurements and physical activity.

Keywords: CR10; carbohydrate; energy; metabolic; SDSCA; UA

The association of social media with dietary behaviors among adults in the United Arab Emirates

Authors: Cheikh Ismail, L.; Osaili, T. M.; Naja, F.; Wartanian, M.; Elkabat, G.; Arnous, M.; Alkoukou, H.; Mohamad, M. N.; Saleh, S. T.; Al Daour, R.; **Masuadi, E.**; Ali, H. I.; Stojanovska, L.; Al Dhaheri, A. S.

Journal: Heliyon | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.heliyon.2024.e35574

Abstract

Background: Social media is an online community that offers a digital setting where people create, share, and access a wide range of information, knowledge, and viewpoints. This study assessed the association between social media use and eating behaviors and whether sociodemographic characteristics and lifestyle habits are correlated with this association. In addition, it assessed whether this effect is different according to changes in lifestyle habits due to the COVID-19 pandemic among adults in the United Arab Emirates (UAE).

Methods: A cross-sectional web-based study was conducted among 1056 adults living in the UAE. Information on sociodemographic characteristics, social media use, and dietary habits were collected. The Scale of Effects of Social Media on Eating Behavior (SESMEB) was used and a total score ranging from 18 to 90 was generated with higher scores corresponding to a greater effect. The general linear model analysis assessed associations of certain characteristics with the score. Independent T-test and one-way ANOVA test were used to investigate differences based on changes in lifestyle habits due to COVID-19.

Results: Most participants (80.3%) reported using social media >2 h/day. The mean score was 44.15 ± 12.68 (range 18-90). Increasing age, being a male, spending less time on social media, and not following influencers were associated with lower SESMEB scores. Not consuming breakfast and spending more time on screens for leisure were associated with higher scores ($p < 0.05$). Significantly higher scores were recorded for those previously infected with COVID-19 and who reported an increase in screen time, food intake, body weight, and meals/day ($p < 0.05$).

Conclusion: Social media appears to have an association with adults' dietary habits in the UAE. Spending more time on social media, being a female, and having more screen time were associated with a higher impact. Targeted programs are needed to increase awareness and advocate for a positive lifestyle with social media use.

Keywords: diet; eating habits; lifestyle; social media; social media platforms; social networking sites

Liraglutide effect on weight and a1c in patients with type 2 diabetes mellitus: Real-world data from a single tertiary care center in Saudi Arabia

Authors: AlRashidi, A.; AlArfaj, R.; Al Ruqaib A.; **Masuadi, E.**; AlFaraj, M.; Al-Saleh, Y.; AlEnezi, R.; Mahzari, M.M.; Aljulifi, M.Z.

Journal: Journal of Pharmacy and Bioallied Sciences | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.heliyon.2024.e35574

Abstract

Objective: This retrospective study aimed to determine the effect of liraglutide on weight and HbA1c levels in patients with type 2 diabetes mellitus (T2DM) in Saudi Arabia. The present investigation was carried out at a medical facility located in the Kingdom of Saudi Arabia.

Methods: A retrospective analysis was conducted on the clinical records of 290 patients who were diagnosed with T2DM and were above 18 years of age. These patients were administered liraglutide for a minimum of 6 months. The dataset comprised various parameters such as the duration of diabetes, duration of liraglutide therapy, weight, and multiple biochemical markers such as HbA1c and low-density lipoprotein cholesterol levels. These parameters were measured both before and after the administration of liraglutide therapy.

Results: The primary metrics evaluated in this study were alterations in body weight and levels of glycated hemoglobin (HbA1c). Over the 24-month observational period, significant reductions in body mass index (38.6 kg/m2 to 37 kg/m2), body weight (99.3 kg to 96 kg), and HbA1c levels (8.9% to 7.8%) (all $P < 0.01$) were seen.

Conclusion: Liraglutide reduced HbA1c levels and weight and affected multiple metabolic markers in patients with T2DM in a real-world setting in Saudi Arabia.

Keywords: hemoglobin A1c, liraglutide, Saudi Arabia, type 2 diabetes mellitus, weight

The association of social media with dietary behaviors among adults in the United Arab Emirates

Authors: Cheikh Ismail, L.; Osaili, T. M.; Naja, F.; Wartanian, M.; Elkabat, G.; Arnous, M.; Alkoukou, H.; Mohamad, M. N.; Saleh, S. T.; Al Daour, R.; **Masuadi, E.**; Ali, H. I.; Stojanovska, L.; Al Dhaheri, A. S.

Journal: Heliyon | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.heliyon.2024.e35574

Abstract

Background: Social media is an online community that offers a digital setting where people create, share, and access a wide range of information, knowledge, and viewpoints. This study assessed the association between social media use and eating behaviors and whether sociodemographic characteristics and lifestyle habits are correlated with this association. In addition, it assessed whether this effect is different according to changes in lifestyle habits due to the COVID-19 pandemic among adults in the United Arab Emirates (UAE).

Methods: A cross-sectional web-based study was conducted among 1056 adults living in the UAE. Information on sociodemographic characteristics, social media use, and dietary habits were collected. The Scale of Effects of Social Media on Eating Behavior (SESMEB) was used and a total score ranging from 18 to 90 was generated with higher scores corresponding to a greater effect. The general linear model analysis assessed associations of certain characteristics with the score. Independent T-test and one-way ANOVA test were used to investigate differences based on changes in lifestyle habits due to COVID-19.

Results: Most participants (80.3%) reported using social media >2 h/day. The mean score was 44.15 ± 12.68 (range 18-90). Increasing age, being a male, spending less time on social media, and not following influencers were associated with lower SESMEB scores. Not consuming breakfast and spending more time on screens for leisure were associated with higher scores ($p < 0.05$). Significantly higher scores were recorded for those previously infected with COVID-19 and who reported an increase in screen time, food intake, body weight, and meals/day ($p < 0.05$).

Conclusion: Social media appears to have an association with adults' dietary habits in the UAE. Spending more time on social media, being a female, and having more screen time were associated with a higher impact. Targeted programs are needed to increase awareness and advocate for a positive lifestyle with social media use.

Keywords: diet; eating habits; lifestyle; social media; social media platforms; social networking sites

Measurement properties of the Mental Health Literacy Scale (MHLS): A systematic review

Authors: **ElKhalil, R.**; AlMekkawi, M.; O'Connor, M.; Masuadi, E.; Sherif, M.; Belfakir, M.; Ahmed, L. A.; **Al-Rifai, R. H.**; Bayoumi, R.; **Elbarazi, I.**

Journal: Asian Journal of Psychiatry | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.ajp.2024.104214

Abstract

Background: Since its creation, the Mental Health Literacy Scale (MHLS) has been used worldwide in mental health literacy studies.

Methods: PsycINFO, CINAHL, ERIC, Scopus, Embase, MEDLINE, and PubMed databases were searched from May 30, 2015, to December 31, 2023. Peer-reviewed studies validating the MHLS and its measurement properties were included, irrespective of language, study population, and setting. Studies using the MHLS as an outcome measure, as a comparative instrument to validate another instrument, or using other MHL measures and grey literature was excluded.

Results: Of the 685 search results, 16 studies were deemed eligible. The COnsensus-based Standards for the selection of health status Measurement INstruments (COSMIN) RoB criteria showed 15/15 studies exhibited 'Very Good' or 'Adequate' internal consistency, 3/6 reliability, 1/8 content validity, 14/14 structural validity, 6/7 hypothesis testing for convergent validity, 2/7 hypothesis testing for known-group validity, and 0/1 error measurement. The Cronbach's alpha ranged from 0.720 to 0.890, and the Intra-class Correlation Coefficient ranged from 0.741 to 0.99, while content validity was limited regarding the quality of evidence rating. The four-factor and unidimensional structures were 35.7 % and 28.6 %, respectively, the most common models.

Conclusion: COSMIN; Consensus-based Standards for Selecting Health Measurement Instruments; MHLS; Mental Health Literacy Scale; PROM; Patient-reported outcome measures; Psychometrics.

Keywords: patient-reported outcome measures; PROM; Mental Health Literacy Scale; MHLS; psychometrics; consensus-based standards for selecting; health measurement instruments; COSMIN

Arabic validation and cross-cultural adaptation of climate anxiety scale

Authors: Abdu, S.M.M; Gebreal, A; Alsaleem, S.A; Aljohani, M.S; Abdel-Rahman, S; Hussein, M.F; Ibrahim, N; **Elbarazi, I**; Hussein, S; Shamma, O; Noureldin, A.E.

Journal: Clinical Epidemiology and Global Health | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.cegh.2024.101835

Abstract

Background: Climate change is an enduring global phenomenon that describes a long-lasting effect of change in weather and temperature of the earth. This study aimed to validate an Arabic version of the Climate Anxiety Scale (ACAS) to assess the anxiety associated with climate change.

Methods: A cross-sectional survey was conducted using both online via Google Forms and face-to-face via hard copies, in five Arab countries, Lebanon, Palestine, Egypt, Saudia Arabia, and the United Arab Emirates). The internal consistency of the scale was assessed using the Cronbach's alpha. Exploratory factor analysis (EFA) conducted over principal component analysis assessed the scale dimensionality. Then, confirmatory factor analysis was conducted to investigate the EFA hypothesis of ACAS on anxiety about climate change.

Results: Of the 350 participants, 54.9 % were female, 77.7% lived in urban areas, 15.4% were from North Africa, 46.6 % were from Arab Gulf countries, and 38.0 % were from Bilad Al-Sham. Nearly two-thirds (62.3%) were single, 72.3% had a university degree, 94.9% were aware of climate change, 38.3 % participated in environmental protection programs, and 62.3% reported climate-related anxiety. The item content validity index (CVI) was 0.82–1.00, and the scale CVI (S-CVI) was 0.95. Overall Cronbach's alpha was 0.925 with a 95% confidence interval (CI) [0.902–0.940]. The Kaiser-Mayer-Olkin (KMO) test was 0.93, and Bartlett's test was significant ($\chi 2 = 2762.6$ $p < 0.001$). Bifactor model indices showed high explained common variance (ECV) (0.78), ωH (0.85), relative omega (0.91), H index (0.93), and factor determinacy (FD) (0.96) for the general factor. The general factor explained 78% of the common variance, whereas the group factors shared 22.0%. Model reliability coefficient omega (omega/omega S) for general factor, functional domain, and cognitive domain were 0.94, 0.92, and 0.89, respectively, suggesting a satisfactory fit threshold.

Conclusion: The ACAS tool is valid and reliable for assessing anxiety-related climate change among the Arab Population.

Keywords: climate change; anxiety; Arabic validation; climate change anxiety scale; global warming

The effects of multifactorial pharmacist-led intervention protocol on medication optimisation and adherence among patients with type 2 diabetes: A randomised control trial

Authors: El-Deyarbi, M; **Ahmed, L**; King, J; Abubackar, S; Al Juboori, A; Mansour, N. A; Aburuz, S.

Journal: F1000Research | **Year**: 2024 | **DOI**: https://doi.org/10.12688/f1000research.146517.2

Abstract

Background: Patient-related factors and limited medication adherence in patients with chronic diseases, are associated with poor clinical outcomes, long-term complications, and increased overall disease costs. Many methods have been tested with mixed results, and innovative approaches are needed to encourage patients to adhere to their prescribed drug regimens.

Methods: This randomised controlled trial examined a new multifactorial pharmacist-led intervention protocol (MPIP), including a medication therapy management (MTM) program with face-to-face counselling, patient-specific medication booklets, and a mobile application, from July 2021 to September 2022 in the Oud Al Touba diagnostic and screening ambulatory centre in 192 patients with type 2 diabetes in the United Arab Emirates. Medication adherence was assessed using the fixed medication possession ratio of medication refills and the medication adherence questionnaire.

Results: At 12 months follow-up, participants in the MPIP showed significant improvement in overall medication adherence with total (composite) medication possession ratio (MPRt) of mean (±SD) 0.95 (±0.09) compared to 0.92 (± 0.09) in the control group with mean difference of 0.03 (95%, CI 0.01-0.06), P =0.02. In addition, improvement trend was evident in the MPIP group for all medication regimens with P value <0.01. Comparable results were noticeable in adherence questionnaire scores at the end of the study, with 66 participants in the intervention group scored zero on the questionnaire, suggesting high adherence to medication compared to the control group (48 participants only). The MTM program performed 41 clinical interventions on drug-related problems, compared to six interventions in the control group, and the use of mobile application and medication booklet have increased to 45.7% compared to 21.4% before study exit.

Conclusion: The pharmacy intervention protocol effectively improved medication adherence and optimised medication regimens in diabetic patients with chronic medication regimens in an ambulatory healthcare centre.

Keywords: diabetes; fixed medication possession ratio; medication adherence; medication therapy management; mobile application; pharmacist-led

Biopsychosocial predictors of postpartum depression: Protocol for systematic review and meta-analysis

Authors: **Alhaj Ahmad, M**; Al Awar, S; Sayed Sallam, G; Alkaabi, M; Smetanina, D; Statsenko, Y; Zaręba, K.

Journal: Healthcare | **Year**: 2024 | **DOI**: https://doi.org/10.3390/healthcare12060650

Abstract

Background: During the postpartum period, psychological disorders may emerge. Aims and objectives: With the current study, we aim to explore the biological determinants that act on women during labor and incur the risk for postpartum depression (PPD).

Methods: To reach the aim, we will perform the following tasks: (i) identify biological peripartum risk factors and calculate pooled prevalence of PPD for each of them; (ii) explore the strength of the relationship between peripartum risk factors and PPD; (iii) rank the predictors by their prevalence and magnitude of association with PPD. The knowledge obtained will support the development and implementation of early diagnostic and preventive strategies. Methods and analysis: We will systematically go through peer-reviewed publications available in the PubMed search engine and online databases: Scopus, Web of Science, EMBASE. The scope of the review will include articles published any time in English, Arabic, or Polish. We will deduplicate literature sources with the Covidence software, evaluate heterogeneity between the study results, and critically assess credibility of selected articles with the Joanna Briggs Institute's bias evaluation tool. The information to extract is the incidence rate, prevalence, and odds ratio between each risk factor and PPD. A comprehensive analysis of the extracted data will allow us to achieve the objectives. The study findings will contribute to risk stratification and more effective management of PPD in women.

Keywords: blues postpartum; depression postpartum; postpartum; psychosis review article; risk factors

Recognition of autism in subcortical brain volumetric images using autoencoding-based region selection method and Siamese Convolutional Neural Network

Authors: Abu-Doleh, A; Abu-Qasmieh, I. F; Al-Quran, H. H; Masad, I. S; Banyissa, L. R; **Ahmad, M. A.**

Journal: International Journal of Medical Informatics | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.ijmedinf.2024.105707

Abstract

Background: Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that affects social interactions and behavior. Accurate and early diagnosis of ASD is still challenging even with the improvements in neuroimaging technology and machine learning algorithms. It's challenging because of the wide range of symptoms, delayed appearance of symptoms, and the subjective nature of diagnosis. In this study, the aim is to enhance ASD recognition by focusing on brain subcortical regions, which are critical for understanding ASD pathology.

Methods: First, subcortical structures were extracted from a collection of brain MRI datasets using sophisticated processing steps. Next, a 3D autoencoder was trained on these 3D images to help identify brain regions related to ASD. Two distinct feature selection methods were then applied to the features extracted from the encoder. The highest-ranked features were iteratively selected and increased to reconstruct a specific percentage of the brain that represents the most relevant parts for ASD. Finally, a Siamese Convolutional Neural Network (SCNN) was employed as the classifier model.

Results: The 3D autoencoder stage helped in identifying and reconstructing the significant subcortical regions related to ASD. Based on the studied dataset, high agreement in regions like the Putamen and Pallidum indicated the critical nature of these structures in distinguishing Autism from controls cases. Subsequently, applying SCNN on these selected subcortical regions yielded promising results. For example, using the classifier on the output regions identified by the Mutual Information (MI) features selection method achieved the highest accuracy of 0.66.

Conclusion: This study shows that using a two-stage model involving autoencoder and SCNN can notably improve the classification of ASD from brain MRI volumetric images. Applying an iterative feature extraction approach allowed to achieve a more accurate identification of ASD-related brain areas. This two-stage approach not only improved classification performance but also enhanced the interpretability of the neuroimaging data.

Keywords: autism spectrum disorder; autoencoder; brain MRI; machine learning; Siamese convolutional neural network; subcortical regions

Descriptive analysis of incidence, demographic characteristics, and survival outcomes of soft-tissue sarcoma of the extremities in Saudi Arabia

Authors: Aljuhani, W; Alanazi, A; Alshehri, E; Alageel, M. K; **Masuadi, E**; Zolaly, M; Bobsait, A.

Journal: Scientific Reports | **Year**: 2024 | **DOI**: https://doi.org/10.1038/s41598-024-79716-1

Abstract

Background: Soft-tissue sarcomas are uncommon, aggressive, and histologically heterogeneous, malignant tumors. Soft-tissue tumor types have different age and anatomical site distributions. This study aimed to assess the prevalence and incidence of soft-tissue sarcomas of the extremities to facilitate early diagnosis and intervention in the Kingdom of Saudi Arabia.

Methods: This retrospective study included all patients diagnosed with primary soft-tissue sarcomas of the extremities and pelvis between January 2006 and December 2015. The data were obtained from the Saudi Cancer Registry. Means and confidence intervals were reported for numerical variables, whereas the frequencies and percentages were reported for categorical variables. The chi-squared test and analysis of variance were used to test the associations between categorical numerical variables. Cox regression analysis was used to determine the hazard ratios for each sarcoma type.

Results: Of the 659 patients, 145 (22%) were aged 19-30 years, 365 (55.4%) were men, and 411 (62.4%) had lower limb sarcoma. Most of the tumors (54.3%) were localized. The incidence of sarcoma ranged from 2 to 2.9 cases per one million (average, 2.4 cases per one million). Moreover, liposarcoma was the most commonly diagnosed (n = 135; 20.5%), followed by undifferentiated pleomorphic sarcoma (n = 87; 13.2%).

Conclusion: The incidence of soft-tissue sarcomas in the Kingdom of Saudi Arabia were lower than those in Western countries. However, the distribution of soft-tissue sarcoma subtypes was similar to those in other countries. The survival rates in this study highlight the need for continued research and targeted interventions to improve the outcomes of patients with soft-tissue sarcomas, especially those with more aggressive subtypes, such as sarcoma not otherwise specified and rhabdomyosarcoma.

Keywords: limb sarcoma; liposarcoma; malignant tumors; rhabdomyosarcoma; Saudi Cancer Registry; soft-tissue sarcomas

INFECTIOUS DISEASES

Prevalence of enteric non-typhoidal Salmonella in humans in the Middle East and North Africa: A systematic review and meta-analysis

Authors: **Al-Rifai, R.H;** Chaabna, K; Denagamage, T; Alali, W.Q.
Journal: Zoonoses and Public Health | **Year**: 2019 | **DOI**: https://doi.org/10.1111/zph.12631

Abstract

Background: To enhance efforts related to controlling foodborne pathogens in the Middle East and North Africa (MENA), information on epidemiology of non-typhoidal Salmonella enterica (hereafter termed "Salmonella") is limited.

Methods: We quantified the overall regional and country-specific Salmonella prevalence in different human populations and identified the most common serotypes. Published literature of Salmonella prevalence was systematically reviewed and reported following the Preferred Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Pooled Salmonella prevalence measures were estimated using a random-effects model.

Results: We identified 46 research reports that reported 84 Salmonella prevalence measures in 15 out of 24 countries in MENA. There were 252,831 tested humans with 6,356 Salmonella-positive cases. The pooled Salmonella prevalence in MENA was estimated at 6.6% (95% confidence interval (CI): 5.4%–7.9%). The highest pooled Salmonella prevalence measures were in Morocco (17.9%, 95% CI: 5.7%–34.8%, 1997–2012), Tunisia (10.2%, 95% CI: 4.3%–18.0%, 1988–2009) and Sudan (9.2%, 95% CI: 6.5%–12.2%, 2006–2008), while the lowest were in Jordan (1.1%, 95% CI: 0.1%–3.0%, 1993–2010), Oman (1.2%, 95% CI: 1.2%–1.3%, 1998–2002) and Palestine (1.2%, 95% CI: 0.4%–2.1%, 1999–2011). In MENA, Salmonella pooled prevalence in gastrointestinal symptomatic, gastrointestinal asymptomatic and food handlers population groups was 13.0% (95% CI: 7.6%–19.6%), 11.4% (95% CI: 2.2%–25.7%) and 3.8% (95% CI: 1.0%–8.0%), respectively. Salmonella prevalence was 14.5% (95% CI: 8.7%–26.1%) in studies tested <100 subjects, whereas 4.6% (95% CI: 3.6%–5.8%) in studies tested ≥100 subjects. Salmonella Enteritidis (29.8%) and Typhimurium (23.6%) were the most common serotypes.

Conclusion: Salmonella was a common foodborne pathogen in MENA countries, particularly in North African countries. Findings inform the scientific community, the public and the decision-makers with Salmonella prevalence and gaps in evidence in MENA to support control and prevention strategies and could leverage more research studies.

Keywords: human; MENA region; meta-analyses; Middle East and North Africa; non-typhoidal salmonella; prevalence; salmonella; systematic review

Prevalence of, and factors associated with intestinal parasites in multinational expatriate workers in Al Ain City, United Arab Emirates: An occupational cross-sectional study

Authors: **Al-Rifai, R.H;** Loney, T; **Sheek-Hussein, M;** Zoughbor, S; **Ajab, S;** Olanda, M; Al-Rasbi, Z.
Journal: J Immigr Minor Health | **Year**: 2020 | **DOI**: https://doi.org/10.1007/s10903-019-00903-8

Abstract

To estimate the prevalence of, and identify factors associated with intestinal parasites (IPs) in expatriate workers in the United Arab Emirates (UAE). All expatriate workers (N = 115) in a conveniently selected workplace in the industrial district of Al Ain city were invited to participate in a cross-sectional study. Consenting workers completed an interviewer-led questionnaire and self-collected stool samples. Stool samples were microscopically and molecularly screened for the presence of IPs. Univariate and multivariate analyses were conducted. Overall, 102 (88.7%) workers participated in the survey and 84.3% provided stool samples. Over three-quarters (79.4%) of workers were living in labour accommodation, 76.0% were sharing a bedroom with ≥ 4 workers, 80.2% were sharing a toilet with > 5 other people. Fifteen species of IPs were identified. Microscopically, 17.4% of the screened stool samples were positive for at least one parasite. Entamoeba species was the most common (8.1%) followed by Cryptosporidium species (3.5%). Thirty-six (41.8%) of the tested stool samples were positive for at least one parasite by molecular testing. The most prevalent parasite was Cryptosporidium species (16.3%) followed by Enterobius vermicularis (14.0%) and Ascaris lumbricoides (5.8%). Overall, 47.8% of the tested expatriate workers were positive for at least one IP, microscopically or molecularly. Educational attainment was negatively associated with being positive for at least one IP. IPs were very common amongst expatriate workers in Al Ain city. Efficacious and cost-effective public health interventions are required to reduce the burden of, and prevent the onward transmission of IPs in the UAE.

Keywords: communicable diseases; infectious disease transmission; one health; parasitic intestinal diseases; transients and migrants; United Arabia Emirates

Prevalence of non-typhoidal Salmonella enterica in food products in the Middle East and North Africa: A systematic review and meta-analysis

Authors: **Al-Rifai, R.H;** Chaabna, K; Denagamage, T; Alali, W.Q.
Journal: Food Control | **Year**: 2020 | **DOI**: https://doi.org/10.1016/j.foodcont.2019.106908

Abstract

Background: Food contamination with non-typhoidal Salmonella enterica (NTS) is common in the Middle East and North Africa (MENA) region.

Methods: Systematic review and meta-analysis were conducted to summarize available data on the overall regional and national-specific NTS prevalence in food products in this region. Published literature of NTS prevalence in food was systematically reviewed and reported following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The overall NTS prevalence was estimated regionally and nationally in MENA with stratification by food commodity, sample size, and period of data collection. Pooled NTS prevalence measures were estimated using a random-effects model.

Results: Out of 5,495 citations screened, 60 research reports published between 1996 and 2018 from 13 countries were eligible. A total of 154 NTS prevalence measures were reported (out of the 60 research reports) representing 24,023 tested food samples with 1,324 NTS-positive samples. The pooled NTS prevalence was estimated at 8.8% (95% confidence interval (CI): 7.0–10.8%). The pooled NTS prevalence in food from land animals was 9.0% (95% CI: 6.8–11.4) based on measures from 13 countries. Furthermore, the pooled NTS prevalence in aquatic food products (in four countries) and in plant foods (in six countries) was 22.9% (95% CI: 13.8–33.4%) and 0.4% (95% CI: 0.0–1.9%), respectively. The NTS prevalence was 13.4% (95% CI: 10.1–17.1%) in studies tested <100 food samples compared to 4.1% (95% CI: 2.7–5.8%) in studies tested ≥100 food samples. Country, food commodity, sample size, and period of the data collection were predictors associated with heterogeneity in the NTS prevalence measures. Salmonella Typhimurium (28.0%), S. Enteritidis (23.6%), and S. Kentucky (20.3%) were the most common serotypes in the tested food commodities.

Conclusion: The NTS was relatively common in food products consumed in MENA region. Implementation of risk-based food safety systems in the MENA region may reduce the burden of NTS in food, and therefore improve public health.

Keywords: food safety; MENA region; Middle East and North Africa; non-typhoidal salmonella; salmonella; systematic review

Vaccine hesitancy and its determinants among Arab parents: a cross-sectional survey in the United Arab Emirates

Authors: Alsuwaidi, A.R; **Elbarazi, I;** Al-Hamad, S; Aldhaheri, R; **Sheek-Hussein, M;** Narchi, H.
Journal: Hum Vaccin Immunother | **Year**: 2020 | **DOI**: https://doi.org/10.1080/21645515.2020.1753439

Abstract

Background: Vaccine hesitancy is a leading threat to public health. It has been studied extensively in North America and Europe but much less in Arab countries. The Parent Attitudes about Childhood Vaccines (PACV) survey is a validated tool for identifying vaccine-hesitant parents; however, Arabic version is not available. This study aimed to assess the reliability of the PACV survey in the Arabic language and to determine the prevalence of vaccine hesitancy among parents in the United Arab Emirates (UAE).

Methods: Forward and backward translation of the PACV in the Arabic language was carried out. The reliability of the Arabic-PACV survey was tested among parents with children. The same survey was used to study vaccine hesitancy among parents attending seven ambulatory health-care services in Al-Ain city, UAE. The associations between vaccine hesitancy and socio-demographic characteristics were explored.

Results: The Cronbach alpha for Arabic-PACV scores was 0.79. Three hundred participants answered the survey (response rate, 85.7%). The majority were Emirati mothers (77%) in the age group (30–49 years). Only 36 parents (12%, 95% CI 8.5,16.2) were found to be vaccine-hesitant. Parent's greatest concerns were mainly the side effects (35%), safety of vaccines (17% unsure and 28% concerned) and getting too many injections (28%). Divorced marital status was significantly associated with vaccine hesitancy ($p < .001$).

Conclusion: The Arabic-PACV survey could serve as a tool in the evaluation of vaccine hesitancy among parents in UAE and other Arabic-speaking countries. Many parents in our community were concerned about the vaccine safety. Targeted preventive measures are needed.

Keywords: PACV; UAE; vaccine hesitancy; vaccine safety

Chest CT performance and features of COVID-19 in the region of Abu Dhabi, UAE: a single institute study

Authors: Saeed, G.A; Helali, A.A.A; Shah, A; Almazrouei, S; **Ahmed, L.A.**
Journal: Chinese Journal of Academic Radiology | **Year**: 2021 | **DOI**: https://doi.org/10.1007/s42058-021-00075-1

Abstract

Objective: We aim to investigate high-resolution CT features of COVID-19 infection in Abu Dhabi, UAE, and to compare the diagnostic performance of CT scan with RT-PCR test.

Methods: Data of consecutive patients who were suspected to have COVID-19 infection and presented to our hospital were collected from March 2, 2020, until April 12, 2020. All patients underwent RT-PCR test; out of which 53.8% had chest CT scan done. Using RT-PCR as a standard reference, the sensitivity and specificity of the CT scan were calculated. We also analyzed the most common imaging findings in patients with positive RT-PCR results.

Results: The typical HRCT findings were seen in 50 scans (65.8%) out of total positive ones; 44 (77.2%) with positive RT-PCR results and 6 (31.6%) with negative results. The peripheral disease distribution was seen in 86%, multilobe involvement in 70%, bilateral in 82%, and posterior in 82% of the 50 scans. The ground glass opacities were seen in 50/74 (89.3%) of the positive RT-PCR group. The recognized GGO patterns in these scans were: rounded 50%, linear 38%, and crazy-paving 24%. Using RT-PCR as a standard of reference, chest HRCT scan revealed a sensitivity of 68.8% and specificity of 70%.

Conclusion: The commonest HRCT findings in patients with COVID-19 pneumonia were peripheral, posterior, bilateral, multilobe rounded ground-glass opacities. The performance of HRCT scan can vary depending on multiple factors.

Keywords: COVID-19; ground glass opacity; HRCT; RT-PCR

A bibliometric analysis and global trends in fascioliasis research: A neglected tropical disease

Authors: Ahmad, T; Imran, M; Ahmad, K; Khan, M; Baig, M; **Al-Rifai, R.H;** Al-Omari, B.
Journal: Animals | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ani11123385

Abstract

Background: Fascioliasis is a zoonotic neglected tropical disease caused by Fasciola hepatica and F. gigantica. In endemic regions, fascioliasis represents a huge problem in livestock production and significantly threatens public health. The present study was performed to assess the key bibliometric indicators, plot the global research outcome, and strive to find the research frontiers and trends in fascioliasis.

Methods: A descriptive bibliometric and visualized study was conducted. The data were extracted from the Web of Science Core Collection (WoSCC) database. The WoSCC was searched using key terms covering a wide range of synonyms related to the causative agent (Fasciola) and the disease (fascioliasis). The database search was performed for the period from the inception of WoSCC until 3 October 2021. The downloaded data were exported into VOSviewer software version 1.6.17 for Windows to construct co-authorship countries, keywords co-occurrence, bibliographic coupling sources, and citation and documents network visualization.

Results: A total of 4165 documents were included in this bibliometric analysis. The included documents were published between the years 1913 and 2021 from 116 countries, mainly from the United States of America (USA) (n = 482, 11.6%). The most prolific year was 2018 (n = 108). The journal that attracted the most publications was Veterinary Parasitology (n = 324), while the most productive author in this area was Rondelaud D (n = 156). In terms of total link strength (TLS), the most influential country was Spain (TLS = 236), followed by the USA (TLS = 178).

Conclusion: This study is of value for veterinarians, doctors, and researchers to explore insights into research frontiers and trends in research on fascioliasis. The number of publications on fascioliasis has increased over time. Above 35% of publications have been produced by the USA, France, England, and Spain. "Fasciola hepatica" and "cattle" were the most dominant and widely used keywords. Research collaboration should be established among the researchers from developing countries with developed countries to learn new advancements and effective control strategies for fascioliasis.

Keywords: bibliometric analysis; fascioliasis; research trend; VOSviewer software; Web of Science core collection

Impact of the COVID-19 Pandemic on road traffic collision injury patterns and severity in Al-Ain City, United Arab Emirates

Authors: **Yasin, Y.J;** Alao, D.O; **Grivna, M;** Abu-Zidan, F.M.

Journal: World Journal of Emergency Surgery | **Year**: 2021 | **DOI**: https://doi.org/10.1186/s13017-021-00401-z

Abstract

Background: The COVID-19 Pandemic lockdowns restricted human and traffic mobility impacting the patterns and severity of road traffic collisions (RTCs). We aimed to study the effects of the COVID-19 Pandemic on incidence, patterns, severity of the injury, and outcomes of hospitalized RTCs trauma patients in Al-Ain City, United Arab Emirates.

Methods: We compared the data of two cohorts of patients which were collected over two periods; the Pandemic period (28 March 2020 to 27 March 2021) and the pre-pandemic period (28 March 2019 to 27 March 2020). All RTCs trauma patients who were hospitalized in the two major trauma centers (Al-Ain and Tawam Hospitals) of Al-Ain City were studied.

Results: Overall, the incidence of hospitalized RTC trauma patients significantly reduced by 33.5% during the Pandemic compared with the pre-pandemic period. The mechanism of injury was significantly different between the two periods ($p < 0.0001$, Fisher's Exact test). MVCs were less during the Pandemic (60.5% compared with 72%), while motorcycle injuries were more (23.3% compared with 11.2%). The mortality of hospitalized RTC patients was significantly higher during the Pandemic (4.4% compared with 2.3%, $p = 0.045$, Fisher's Exact test). Logistic regression showed that the significant factors that predicted mortality were the low GCS ($p < 0.0001$), admission to the ICU ($p < 0.0001$), and the high ISS ($p = 0.045$). COVID-19 Pandemic had a very strong trend ($p = 0.058$) for increased mortality.

Conclusions: Our study has shown that the numbers of hospitalized RTC trauma patients reduced by 33.5% during the COVID-19 Pandemic compared with the pre-pandemic period in our setting. This was attributed to the reduced motor vehicle, pedestrian and bicycle injuries while motorcycle injuries increased. Mortality was significantly higher during the Pandemic, which was attributed to increased ISS and reduced GCS.

Keywords: COVID-19; death; injury; road safety; road traffic collision; United Arab Emirates

The psychological impact of the COVID-19 pandemic on adults and children in the United Arab Emirates: a nationwide cross-sectional study

Authors: Saddik, B; Hussein, A; Albanna, A; **Elbarazi, I;** Al-Shujairi, A; Temsah, M.-H; Saheb Sharif-Askari, F; Stip, E; Hamid, Q; Halwani, R.

Journal: BMC Psychiatry | **Year**: 2021 | **DOI**: https://doi.org/10.1186/s12888-021-03213-2

Abstract

Background: The psychosocial impact of previous infectious disease outbreaks in adults has been well documented, however, there is limited information on the mental health impact of the COVID-19 pandemic on adults and children in the United Arab Emirate (UAE) community. The aim of this study was to explore anxiety levels among adults and children in the UAE and to identify potential risk and protective factors for well-being during the COVID-19 pandemic.

Methods: Using a web-based cross-sectional survey we collected data from 2200 self-selected, assessed volunteers and their children. Demographic information, knowledge and beliefs about COVID-19, generalized anxiety disorder (GAD) using the (GAD-7) scale, emotional problems in children using the strengths and difficulties questionnaire (SDQ), worry and fear about COVID-19, coping mechanisms and general health information were collected. Descriptive analysis was carried out to summarize demographic and participant characteristics, Chi-square analysis to explore associations between categorical variables and anxiety levels and multivariable binary logistic regression analysis to determine predictors of anxiety levels in adults and emotional problems in children.

Results: The overall prevalence of GAD in the general population was 71% with younger people (59.8%) and females (51.7%) reporting highest levels of anxiety. Parents who were teachers reported the highest percentage of emotional problems in children (26.7%). Adjusted multivariable logistic regression for GAD-7 scores showed that being female, high levels of worry associated with COVID-19, intention to take the COVID-19 vaccine and smoking were associated with higher levels of anxiety. Adjusted multivariable logistic regression for SDQ showed that higher emotional problems were reported for children in lower and higher secondary education, and parents who had severe anxiety were seven times more likely to report emotional problems in their children.

Conclusions: This study reports the psychological impact of COVID-19 among adults and children in the UAE and highlights the significant association between parental and child anxiety. Findings suggest the urgency for policy makers to develop effective screening and coping strategies for parents and especially children.

Keywords: adult; anxiety; children; COVID-19; United Arab Emirates

The coronavirus disease 2019 (COVID-19) vaccination psychological antecedent assessment using the Arabic 5c validated tool: An online survey in 13 Arab countries

Authors: Abdou, M.S; Kheirallah, K.A; Aly, M.O; Ramadan, A; Elhadi, Y.A.M; **Elbarazi, I;** Deghidy, E.A; El Saeh, H.M; Salem, K.M; Ghazy, R.G.

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0260321

Abstract

Background: Following the emergency approval of the coronavirus disease 2019 (COVID-19) vaccines, research into its vaccination hesitancy saw a substantial increase. However, the psychological behaviors associated with this hesitancy are still not completely understood. This study assessed the psychological antecedents associated with COVID-19 vaccination in the Arab population.

Methodology: The validated Arabic version of the 5C questionnaire was distributed online across various social media platforms in Arabic-speaking countries. The questionnaire had three sections, namely, socio-demographics, COVID-19 related infection and vaccination, and the 5C scale of vaccine psychological antecedents of confidence, complacency, constraints, calculation, and collective responsibility.

Results: In total, 4,474 participants with a mean age of 32.48 ± 10.76 from 13 Arab countries made up the final sample, 40.8% of whom were male. Around 26.7% of the participants were found to be confident about the COVID-19 vaccination, 10.7% indicated complacency, 96.5% indicated they had no constraints, 48.8% had a preference for calculation and 40.4% indicated they had collective responsibility. The 5C antecedents varied across the studied countries with the confidence and collective responsibility being the highest in the United Arab Emirates (59.0% and 58.0%, respectively), complacency and constraints in Morocco (21.0% and 7.0%, respectively) and calculation in Sudan (60.0%). The regression analyses revealed that sex, age, educational degrees, being a health care professional, history of COVID-19 infection and having a relative infected or died from COVID-19 significantly predicted the 5C psychological antecedents by different degrees.

Conclusion: There are wide psychological antecedent variations between Arab countries, and different determinants can have a profound effect on the COVID-19 vaccine's psychological antecedents.

Keywords: COVID-19 vaccination; vaccine hesitancy; psychological antecedents; 5C scale; Arab population

COVID-19 health awareness among the United Arab Emirates population

Authors: Saeed, B.Q; **Elbarazi, I;** Barakat, M; Adrees, A.O; Fahady, K.S.

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0255408

Abstract

Background: In response to the global COVID-19 epidemic, the United Arab Emirates (UAE) government is taking precautionary action to mitigate the spread of the virus. The aim of this study was to evaluate the knowledge and practices toward COVID-19 among the general public in the UAE during the current outbreak.

Methods: A cross-sectional online survey of 1356 respondents in the UAE was conducted during the epidemic outbreak between 9th to 24th June-2020. The questionnaire consisted of three sections: Socio-demographic, knowledge, practices. Independent-samples t-test, one-way analysis of variance (ANOVA), chi-square and binary logistic regression was used. A p-value of ($p<0.05$) was considered statistically significant.

Results: The total correct score of knowledge and practice questions was high 85% and 90%, respectively. Male's sex, other marital status, and illiterate/primary educational levels had a lower level of knowledge and practices than others. Participants aged 18-29 had little higher knowledge than other ages but had a lower level in practices, people who live in Abu Dhabi had better knowledge and practices than other emirates, employed people had a lower level of knowledge but higher in practices. Binary logistic regression analysis presented that females, 18-29 years, and married participants significantly associated with a higher score of knowledge, while female, over 30 years old, the martial status of singles, college-level and higher, unemployed, were significantly associated with high mean practices score.

Conclusion: This study provided a full screening of the knowledge and practices among a sample of residents in The UAE toward COVID-19, continuing to implement the health education programs pursued by the UAE is highly important to maintain the appropriate level of awareness among the public.

Keywords: COVID-19; public health practices; public awareness; health education; United Arab Emirates

A clinical risk score to predict in-hospital mortality in critically ill patients with COVID-19: A retrospective cohort study

Authors: Alkaabi, S; Alnuaimi, A; Alharbi, M; Amari, M.A; Ganapathy, R; Iqbal, I; **Nauman, J; Oulhaj, A.**

Journal: BMJ Open | **Year**: 2021 | **DOI**: https://doi.org/10.1136/bmjopen-2021-048770

Abstract

Objectives: To identify factors influencing the mortality risk in critically ill patients with COVID-19, and to develop a risk prediction score to be used at admission to intensive care unit (ICU). Design A multicentre cohort study. Setting and participants 1542 patients with COVID-19 admitted to ICUs in public hospitals of Abu Dhabi, United Arab Emirates between 1 March 2020 and 22 July 2020.

Main outcomes and measures: The primary outcome was time from ICU admission until death. We used competing risk regression models and Least Absolute Shrinkage and Selection Operator to identify the factors, and to construct a risk score. Predictive ability of the score was assessed by the area under the receiver operating characteristic curve (AUC), and the Brier score using 500 bootstraps replications.

Results: Among patients admitted to ICU, 196 (12.7%) died, 1215 (78.8%) were discharged and 131 (8.5%) were right-censored. The cumulative mortality incidence was 14% (95% CI 12.17% to 15.82%). From 36 potential predictors, we identified seven factors associated with mortality, and included in the risk score: age (adjusted HR (AHR) 1.98; 95% CI 1.71 to 2.31), neutrophil percentage (AHR 1.71; 95% CI 1.27 to 2.31), lactate dehydrogenase (AHR 1.31; 95% CI 1.15 to 1.49), respiratory rate (AHR 1.31; 95% CI 1.15 to 1.49), creatinine (AHR 1.19; 95% CI 1.11 to 1.28), Glasgow Coma Scale (AHR 0.70; 95% CI 0.63 to 0.78) and oxygen saturation (SpO 2) (AHR 0.82; 95% CI 0.74 to 0.91). The mean AUC was 88.1 (95% CI 85.6 to 91.6), and the Brier score was 8.11 (95% CI 6.74 to 9.60). We developed a freely available web-based risk calculator (https://icumortalityrisk.shinyapps.io/ICUrisk/).

Conclusion: In critically ill patients with COVID-19, we identified factors associated with mortality, and developed a risk prediction tool that showed high predictive ability. This tool may have utility in clinical settings to guide decision-making, and may facilitate the identification of supportive therapies to improve outcomes.

Keywords: COVID-19; epidemiology; intensive & critical care; preventive medicine; public health

Arabic validation and cross-cultural adaptation of the 5C scale for assessment of COVID-19 vaccines psychological antecedents

Authors: ElHafeez, S.A; **Elbarazi, I;** Shaaban, R; ElMakhzangy, R; Aly, M.O; Alnagar, A; Yacoub, M; El Saeh, H.M; Eltaweel, N; Alqutub, S.T; Ghazy, R.M.

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0254595

Abstract

Background: In the Arab countries, there has not been yet a specific validated Arabic questionnaire that can assess the psychological antecedents of COVID-19 vaccine among the general population. This study, therefore, aimed to translate, culturally adapt, and validate the 5C scale into the Arabic language.

Methods: The 5C scale was translated into Arabic by two independent bilingual co-authors, and then translated back into English. After reconciling translation disparities, the final Arabic questionnaire was disseminated into four randomly selected Arabic countries (Egypt, Libya, United Arab Emirates (UAE), and Saudi Arabia). Data from 350 Arabic speaking adults (aged ≥18 years) were included in the final analysis. Internal consistency was assessed by Cronbach's alpha. Construct validity was determined by concurrent, convergent, discriminant, exploratory and confirmatory factor analyses.

Results: Age of participants ranged between 18 to 73 years; 57.14% were females, 37.43% from Egypt, 36.86%, from UAE, 30% were healthcare workers, and 42.8% had the intention to get COVID-19 vaccines. The 5 sub-scales of the questionnaire met the criterion of internal consistency (Cronbach's alpha ≥0.7). The predictors of intention to get COVID-19 vaccines (concurrent validity) were young age and the 5C sub-scales. Convergent validity was identified by the significant inter-item and item-mean score of the sub-scale correlation (P<0.001). Discriminant validity was reported as inter-factor correlation matrix (<0.7). Kaiser-Meyer-Olkin sampling adequacy measure was 0.80 and Bartlett's sphericity test was highly significant (P<0.001). Exploratory factor analysis indicated that the 15 items of the questionnaire could be summarized into five factors. Confirmatory factor analysis confirmed that the hypothesized five-factor model of the 15-item questionnaire was satisfied with adequate psychometric properties and fit with observed data (RMSEA = 0.060, GFI = 0.924, CFI = 0.957, TLI = 0.937, SRMR = 0.076 & NFI = 906).

Keywords: COVID-19 vaccine; 5C scale; Arabic translation; psychometric validation; cultural adaptation

Longitudinal changes in IgG levels among COVID-19 recovered patients: A prospective cohort study

Authors: Alzaabi, A.H; **Ahmed, L.A;** Rabooy, A.E; Zaabi, A.A; Alkaabi, M; AlMahmoud, F; Hamed, M.F; Bashaeb, K.O; Bakhsh, A.R; Adil, S; Elmajed, N; Abousalha, A.N; Uwaydah, A.K; Mazrouei, K.A.

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0251159

Abstract

Objectives: To quantify SARS-CoV2 IgG antibody titers over time and assess the longevity of the immune response in a multi-ethnic population setting.

Methods: Setting - This prospective study was conducted in a tertiary hospital in Abu Dhabi city, UAE, among COVID-19 confirmed patients. The virus-specific IgG were measured quantitatively in serum samples from the patients during three visits over a period of 6 months. Serum IgG levels 15 AU/ml was used to define a positive response. Participants - 113 patients were analyzed at first visit, with a mean (SD) age of participants of 45.9 (11.8) years 87.5% of the patients were men. 63 and 27 participants had data available for visits 2 and 3, respectively. Primary outcome - Change in SARS-CoV2 IgG antibody titers over the visits. Results No mortality or re-infection were reported.

Results: 69% of the patients developed positive IgG response within the first month after the onset of symptoms. The levels of IgG showed a consistent increase during the first three months with a peak level during the third month. Increasing trend in the levels of IgG were observed in 82.5%, 55.6% and 70.4% of patients between visit 1 to visit 2, visit 2 to visit 3, and from visit 1 to visit 3, respectively. Furthermore, about 64.3% of the patients showed sustained increase in IgG response for more than 120 days.

Conclusions: Our study indicates a sustained and prolonged positive immune response in COVID-19 recovered patients. The consistent rise in antibody and positive levels of IgG titers within the first 5 months suggest that immunization is possible, and the chances of reinfection minimal.

Keywords: SARS-CoV-2; immune response longevity; multi-ethnic population; COVID-19 ; antibody titers; antibody kinetics

Determining the cutoff points of the 5C Scale for assessment of COVID-19 vaccines psychological antecedents among the Arab population: A multinational study

Authors: Ghazy, R.M; Abd ElHafeez, S; Shaaban, R; **Elbarazi, I;** Abdou, M.S; Ramadan, A; Kheirallah, K.A.

Journal: J Prim Care Community Health | **Year**: 2021 | **DOI**: https://doi.org/10.1177/21501327211018568

Abstract

Background: One of the newly faced challenges during the COVID-19 is vaccine hesitancy (VH). The validated 5C scale, that assesses 5 psychological antecedents of vaccination, could be effective in exploring COVID-19 VH. This study aimed to determine a statistically valid cutoff points for the 5C sub-scales among the Arab population.

Methods: A cross-sectional study was conducted among 446 subjects from 3 Arab countries (Egypt, United Arab Emirates (UAE), and Jordan). Information regarding sociodemographics, clinical history, COVID-19 infection and vaccination history, and 5C scale were collected online. The 5C scores were analyzed to define the cutoff points using the receiver operating characteristic curve (ROC) and to verify the capability of the questionnaire to differentiate whether responders are hesitant or non-hesitant to accept vaccination. ROC curve analysis was conducted for previous vaccine administration as a response, with the predictors being the main 5 domains of the 5C questionnaire. The mean score of each sub-scale was compared with COVID-19 vaccine intake.

Results: The mean age of the studied population was 37 ± 11, 42.9% were males, 44.8% from Egypt, 21.1% from Jordan, and 33.6% from the UAE. Statistically significant differences between vaccinated and unvaccinated participants, respectively, were detected in the median score of confidence [6.0(1.3) versus 4.7(2.0)], complacency [(2.7(2.0) versus 3.0(2.0)], constraints [1.7(1.7) versus 3.7(2.3)], and collective responsibility [6.7(1.7) versus 5.7(1.7)]. The area under the curve of the 5 scales was 0.72, 0.60, 0.76, 0.66, 0.66 for confidence, complacency, constraints, calculation, and collective responsibility at cutoff values of 5.7, 4.7, 6.0, 6.3, and 6.2, respectively.

Conclusion: The Arabic validated version of the 5C scale has a good discriminatory power to predict COVID-19 vaccines antecedent.

Keywords: 5C; Arab; AUC; COVID-19; psychological antecedents; ROC; SARS-CoV-2; vaccine hesitancy

Admission levels of Soluble Urokinase Plasminogen Activator Receptor (suPAR) are associated with the development of severe complications in hospitalised COVID-19 patients: a prospective cohort study

Authors: **Oulhaj, A;** Alsuwaidi, A.R; **Suliman, A;** Gasmelseed, H; Khan, S; Alawi, S; Hukan, Y; George, J; Alshamsi, F; Sheikh, F; Babiker, Z.O.E; Prattes, J; Sourij, H.

Journal: International Journal of Infectious Diseases | **Year**: 2021 | **DOI**: https://doi.org/10.1016/j.ijid.2021.04.026

Abstract

Objective: To examine the association between plasma levels of the soluble urokinase plasminogen activator receptor (suPAR) and the incidence of severe complications of COVID-19.

Methods: 403 RT-PCR-confirmed COVID-19 patients were recruited and prospectively followed-up at a major hospital in the United Arab Emirates. The primary endpoint was time from admission until the development of a composite outcome, including acute respiratory distress syndrome (ARDS), intensive care unit (ICU) admission, or death from any cause. Patients discharged alive were considered as competing events to the primary outcome. Competing risk regression was used to quantify the association between suPAR and the incidence of the primary outcome.

Results: 6.2% of patients experienced ARDS or ICU admission, but none died. Taking into account competing risk, the incidence of the primary outcome was 11.5% (95% confidence interval [CI], 6.7–16.3) in patients with suPAR levels >3.91 ng/mL compared to 2.9% (95% CI, 0.4–5.5) in those with suPAR ≤3.91 ng/mL. Also, an increase by 1 ng/mL in baseline suPAR resulted in a 58% rise in the hazard of developing the primary outcome (hazard ratio 1.6, 95% CI, 1.2–2.1, p = 0.003).

Conclusion: suPAR has an excellent prognostic utility in predicting severe complications in hospitalised COVID-19 patients.

Keywords: acute respiratory distress syndrome; all-cause mortality; COVID-19; Intensive care admission; urokinase plasminogen activator

COVID-19 knowledge, attitudes, and practices of United Arab Emirates medical and health sciences students: A cross-sectional study

Authors: Baniyas, N; **Sheek-Hussein, M;** Kaabi, N.A; Shamsi, M.A; Neyadi, M.A; Khoori, R.A; **Ajab, S; Abid, M; Grivna, M;** Abu-Zidan, F.M.

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0246226

Abstract

Background: The COVID-19 pandemic is the largest viral pandemic of the 21st century. We aimed to study COVID-19 knowledge, attitudes, and practices (KAP) among medical and health sciences students in the United Arab Emirates (UAE).

Methods: We performed a cross-sectional study between 2 June and 19 August 2020. The survey was distributed online using Survey Monkey. It was conducted in English and comprised two parts: socio-demographic characteristics, and KAP towards COVID-19.

Results: 712 responses to the questionnaire were collected. 90% of respondents (n = 695) were undergraduate students, while 10% (n = 81) were postgraduates. The majority (87%, n = 647) stated that they obtained COVID-19 information from multiple reliable sources. They were highly knowledgeable about the COVID-19 pandemic, but 76% (n = 539) did not recognize its routes of transmission. Medical students were significantly more knowledgeable compared with allied health students (P 0.0001, Mann Whitney U test) but there was no difference in knowledge between undergraduate and postgraduate students (P = 0.14, Mann Whitney U test). Medical students thought that more could be done to mitigate the COVID-19 situation compared with the allied health students (66.2% compared with 51.6%, p = 0.002 Fisher s Exact test). 63% (n = 431) were worried about getting COVID-19 infection, while 92% (n = 633)) were worried that a family member could be infected with the virus. 97% (n = 655) took precautions when accepting home deliveries, 94% (n = 637) had been washing their hands more frequently, and 95% (n = 643) had been wearing face masks.

Conclusion: In conclusion, medical and health sciences students in the UAE showed high levels of knowledge and good attitudes and practices towards the COVID-19 pandemic. Nevertheless, they were worried about themselves or their family members becoming infected. Medical students had more knowledge about COVID-19 pandemic which was reflected in their opinion that more can be done to mitigate its effects.

Keywords: COVID-19 knowledge; medical students; pandemic awareness; public health education

Prevalence and genotype distribution of hepatitis C virus in Mongolia: Systematic review and meta-analysis

Authors: Chaabna, K; Dashzeveg, D; Shagdarsuren, T; **Al-Rifai, R.H.**

Journal: International Journal of Infectious Diseases | **Year**: 2021 |
DOI: https://doi.org/10.1016/j.ijid.2021.02.040

Abstract

Objective: To characterize hepatitis C virus (HCV) infection epidemiology in Mongolia.

Method: Publications on HCV antibody (Ab) and RNA prevalence, and/or genotypes/subtypes were systematically reviewed and reported following PRISMA guidelines. Random-effects meta-analyses and age adjustments were conducted to estimate the prevalence of Mongolians exposed to HCV (pooled HCV-Ab prevalence) by time period, sex, and at-risk populations; and to estimate the prevalence of chronically-infected HCV individuals.

Results: The national pooled HCV-Ab prevalence was 12.3% in 2000–2009 and 11.2% in 2013. Sex-specific pooled prevalence appeared higher among females than males (14.0% versus 6.8%). Age-specific pooled prevalence significantly increased from 3.7% among children (aged 0–10 years) to 34.1% among people aged ≥50 years ($p < 0.001$). Among the adult general population (low-risk population), the national age-adjusted prevalence was 8.1%. Age-adjusted chronic infection prevalence in adults was 6.0%. Among healthcare workers, pooled prevalence was 18.0%. Among patients with liver diseases, pooled prevalence was 53.7%. Among individuals engaging in risky sexual behaviors, pooled prevalence was 11.1%. The identified circulating genotypes/subtypes were 1b (58.0%), 2a (21.7%), and 1a (20.2%).

Conclusion: The national HCV prevalence in Mongolia appeared to be among the highest worldwide. Higher prevalence in the clinical setting indicated potential ongoing HCV iatrogenic and occupational transmission. Additionally, HCV transmission in community settings should be investigated.

Keywords: at-risk populations; epidemiology; HCV; incidence; RNA

Epidemiology of asymptomatic and symptomatic Coronavirus Disease 2019 confirmed cases in the Emirate of Abu Dhabi, United Arab Emirates: Observational study

Authors: Hosani, F.A; Aden, B; Memari, S.A; Mazrouei, S.A; **Ajab, S; Abid, M;** Alsuwaidi, A.R; **Grivna, M; Paulo, M.S; Sheek-Hussein, M.**
Journal: Medicine (United States) | **Year**: 2021 | **DOI**: https://doi.org/10.1097/md.0000000000025219

Abstract

Background: This study was conducted to describe demographics, clinical features, and outcomes of 3827 confirmed cases of Coronavirus Disease 2019 between March 12 and April 22, 2020 in the Emirates of Abu Dhabi, United Arab Emirates (UAE).

Methods: Data were extracted from the Infectious Diseases Notification Surveillance System of the Department of Health. The descriptive analysis was done using Statistical Package for Social Sciences v26 and reported according to Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.

Results: We analyzed 3827 cases; 82% were men, 18% women, 14% UAE citizens, and 86% were of other nationalities. Most cases (72%) had lower exposure to low-risk occupations of infectious disease as per the classification of the department of health while high exposure risk occupations, which included healthcare worker accounts only for 3%. While 43% of cases were asymptomatic, 57% displayed symptoms, which were mostly mild. Only 12% of patients had comorbidities, which were significantly higher in men (9%) than women (3%). Among those who have comorbid conditions; hypertension (27%) and diabetes (21%) were the most common comorbidities. Viral pneumonia (11%) was the most common sequela documented in records. Only 51 patients (4%) required admission to the intensive care units, and 4 patients died (0.1%).

Conclusion: The significant number of asymptomatic patients was identified by active case finding and contact tracing from the early period of the epidemic. A small percentage of severe, critical cases, and death reported in the Emirate of Abu Dhabi which may have been due to public health measures implemented for early detection, contact tracing, and treatment.

Keywords: Abu Dhabi; coronavirus disease 2019; epidemiology; pandemic; United Arab Emirates

Epidemiological characterization of symptomatic and asymptomatic COVID-19 cases and positivity in subsequent RT-PCR tests in the United Arab Emirates

Authors: **Al-Rifai, R.H;** Acuna, J; Al Hossany, F.I; Aden, B; Al Memari, S.A; Al Mazrouei, S.K; **Ahmed, L.A.**

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0246903

Abstract

Background: The coronavirus disease 2019 (COVID-19) cases could be symptomatic or asymptomatic.

Methods: We (1) characterized and analyzed data collected from the first cohort of reverse transcriptase polymerase chain reaction (RT-PCR)-confirmed COVID-19 cases reported in the Emirate of Abu Dhabi, United Arab Emirates, according to the symptomatic state, and (2) identified factors associated with the symptomatic state. The association between the symptomatic state and testing positive in three subsequent RT-PCR testing rounds was also quantified.

Results: Between February 28 and April 8, 2020, 1,249 cases were reported. Sociodemographic characteristics, working status, travel history, and chronic comorbidities of 791 cases were analyzed according to the symptomatic state (symptomatic or asymptomatic). After the first confirmatory test, the results of three subsequent tests were analyzed. The mean age of the 791 cases was 35.6 ± 12.7 years (range: 1–81). Nearly 57.0% of cases were symptomatic. The two most frequent symptoms were fever (58.0%) and cough (41.0%). Symptomatic cases (mean age 36.3 ± 12.6 years) were significantly older than asymptomatic cases (mean age 34.5 ± 12.7 years). Compared with nonworking populations, working in public places (adjusted odds ratio (aOR), 1.76, 95% confidence interval (95% CI): 1.11–2.80), healthcare settings (aOR, 2.09, 95% CI: 1.01–4.31), or in the aviation and tourism sectors (aOR, 2.24, 95% CI: 1.14–4.40) was independently associated with the symptomatic state. Reporting at least one chronic comorbidity was also associated with symptomatic cases (aOR, 1.76, 95% CI: 1.03–3.01). Compared with asymptomatic cases, symptomatic cases had a prolonged duration of viral shedding and consistent odds of ≥2 positive COVID-19 tests result out of the three subsequent testing rounds.

Conclusion: A substantial proportion of the diagnosed COVID-19 cases in the Emirate of Abu Dhabi were asymptomatic. Quarantining asymptomatic cases, implementing prevention measures, and raising awareness among populations working in high-risk settings are warranted.

Keywords: COVID-19; RT-PCR testing; Abu Dhabi; viral shedding; healthcare workers; high-risk settings; quarantine

How physical activity behavior affected well-being, anxiety and sleep quality during COVID-19 restrictions in Iran

Authors: Akbari, H.A; Pourabbas, M; Yoosefi, M; Briki, W; Attaran, S; Mansoor, H; Moalla, W; Damak, M; Dergaa, I; Teixeira, A.L; **Nauman, J;** Behm, D.G; Bragazzi, N.L; Ben Saad, H; Lavie, C.J; Ghram, A.

Journal: Eur Rev Med Pharmacol Sci | **Year**: 2021 | **DOI**: https://doi.org/10.26355/eurrev_202112_27632

Abstract

Background: The Islamic Republic of Iran has displayed one of the highest rates of COVID-19 infection in the world and the highest rate of mortality in the Middle East. Iran has used a stringent package of preventive health measures to mitigate the spread of infection, which however has negatively affected individuals' physical and psychological health. This study aimed at examining whether physical- activity (PA) behavior, anxiety, well-being, and sleep-quality changed in response to the COVID-19-related public health restrictions enforced in Iran.

Methods: An online questionnaire was disseminated to adults residing in Iran from November 17, 2020, to February 13, 2021 (~88 days), during Iran's strictest public health restrictions. Main outcome measures included Godin-Shephard Leisure-Time Exercise Questionnaire, General Anxiety Disorder-7, Mental Health Continuum-Short Form, and Pittsburgh Sleep Quality Index.

Results: A total of 3,323 adults (mean age 30±11 years, 54.3% female) participated in the survey. Firstly, the restrictions generally reduced PA behavior: (a) among inactive participants (IPs), 60.6% became less active vs. 5.1% who became more active; and (b) among active participants (APs), 49.9% became less active vs. 22.8% who became more active. Secondly, PA behavior was associated with higher well-being and sleep quality during the restrictions: (a) APs reported higher (or lower) levels of well-being and sleep quality (or anxiety) than did IPs; and (b) among IPs as well as among APs, the more active the participants, the greater (or lower) the levels of well-being and sleep quality (or anxiety).

Conclusions: This study showed the beneficial role of PA behavior for well-being, anxiety, and sleep quality during the COVID-19 restrictions, whereas such restrictions appeared to decrease PA participation. Active lifestyle should be then encouraged during the COVID-19 outbreak while taking precautions.

Keywords: coronavirus disease; Exercise; Lifestyle Behavior Change; Mental Health; Sedentary Behavior

Exploring vaccine hesitancy among healthcare providers in the United Arab Emirates: a qualitative study

Authors: **Elbarazi, I;** Al-Hamad, S; Alfalasi, S; Aldhaheri, R; Dubé, E; Alsuwaidi, A.R.

Journal: Hum Vaccin Immunother | **Year**: 2021 | **DOI**: https://doi.org/10.1080/21645515.2020.1855953

Abstract

Background: Healthcare providers (HCPs) are at the frontline to curb the spread of vaccine hesitancy in the community. However, HCPs themselves may delay or refuse vaccines. In light of the emerging vaccine hesitancy in the United Arab Emirates (UAE), we aimed to explore HCPs doubts and concerns regarding vaccination.

Methods: We conducted face-to-face interviews with 33 HCPs from 7 ambulatory healthcare services in the Al Ain region, UAE. An interview guide was developed based on the European Center for Disease Prevention and Control guide for vaccine hesitancy among HCPs. An inductive thematic framework was employed to explore the main and emerging themes conceptualizing the predisposing, reinforcing, and enabling factors that influence HCPs' hesitancy regarding vaccinations for themselves and while recommending, prescribing, or discussing vaccines with their patients. The sample included general practitioners, family physicians, nurses, pharmacists, and other administrative staff.

Results: The major themes included positive predisposing factors such as trust in the system and the government, previous education, and social responsibility. Positive enabling factors included affordability and availability of vaccination services. Many participants were hesitant to receive the mandatory influenza vaccination. Misinformation regarding vaccines on social media was a major concern. However, HCPs showed little interest in being active on social media.

Conclusion: Most participants reported never receiving any training on how to address vaccine hesitancy among patients. Because HCPs play an important role in influencing patients' decisions regarding undergoing vaccination, their confidence in addressing vaccine hesitancy must be improved.

Keywords: healthcare workers; influenza vaccine; social media; United Arab Emirates; vaccine hesitancy

Herpes simplex virus type 2 seroprevalence and associated factors in fertility-treatment-seeking population: A cross-sectional survey in the United Arab Emirates

Authors: **Abdo, N.M;** Aslam, I; Irfan, S; George, J.A; Alsuwaidi, A.R; **Ahmed, L.A; Al-Rifai, R.H.**

Journal: Frontiers in Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fpubh.2022.991040

Abstract

Background: Herpes simplex virus type 2 (HSV-2) is a common genitally-transmitted viral infection affecting more than 400 million individuals globally. In the United Arab Emirates (UAE), in specific at-risk population groups, the burden of HSV-2 has not been reported. This study investigated the prevalence of HSV-2 IgG antibodies in patients seeking fertility treatment and characterized patients with seropositivity to HSV-2 IgG antibodies.

Methods: A cross-sectional sample of patients seeking fertility treatment in a major fertility clinic in Abu Dhabi, UAE was surveyed from April to May 2021. Patients were consecutively invited to complete self-administered questionnaires and provide blood for HSV-2 testing. Information on sociodemographics, medical history, and infertility was collected. Serum specimens were screened using an enzyme-linked immunosorbent assay for HSV-2 IgG antibodies detection.

Results: Two hundred and ninety-nine patients were surveyed and provided blood samples. The mean age of the patients was 35.9 ± 6.8 [mean ± standard deviation (SD)] years with 89.3% being women. Sixty-six percent were overweight or obese, 25.0% had at least one chronic comorbidity, and 19.6% reported ever-had genital infection. More than two-thirds (68.3%) of the patients were infertile for ≥ 6 months. Of the 42 infertile males, 69.0% had an abnormal semen analysis. HSV-2 IgG antibodies was detected in 12.4% of patients. The HSV-2 IgG seropositive patients had a higher mean age (39.5 vs. 35.4 years; $p < 0.001$) compared to seronegative patients. HSV-2 IgG antibodies seropositivity was more common in males (15.6%) than females (12.0%), in patients with secondary (14.1%) vs. primary (9.2%) infertility, or in males with abnormal (10.3%) vs. normal (7.7%) semen.

Conclusion: Exposure to HSV-2 at any time in patients seeking fertility treatment in the UAE was found to be slightly common in more than one out of 10 patients. Tailored health campaigns on HSV-2 prevention are warranted.

Keywords: fertility; genital infections; herpes simplex virus type 2 (HSV-2); infertility; pregnancy; reproductive health

Exploring enablers and barriers toward COVID-19 vaccine acceptance among Arabs: A qualitative study

Authors: **Elbarazi, I;** Yacoub, M; Reyad, O.A; Abdou, M.S; Elhadi, Y.A.M; Kheirallah, K.A; Ababneh, B.F; **Hamada, B.A;** El Saeh, H.M; Ali, N; **Rahma, A.**T; Tahoun, M.M; Ghazy, R.M.

Journal: Int J Disaster Risk Reduct | **Year**: 2022 | **DOI**: https://doi.org/10.1016/j.ijdrr.2022.103304

Abstract

Background: With the emergence of the coronavirus disease 2019 (COVID-19) and rapid vaccine development, research interest in vaccine hesitancy (VH) has increased. Research usually focuses on quantitative estimates which largely neglected the qualitative underpinnings of this phenomenon. This study aimed to explore the beliefs and views towards COVID-19 vaccination among Arabs in different countries. Furthermore, we explored the effect of confidence in the healthcare system, misinformation, and scientific approaches adopted to mitigate COVID-19 on how individuals are following the recommended preventative actions including vaccination.

Methods: This study was based on the Strategic Advisory Group of Experts (SAGE)-VH Model: A qualitative design that utilized in-depth, online interviews. The study was conducted in seven Arab countries (Egypt, Qatar, Kingdom of Saudi Arabia, Libya, Sudan, United Arab Emirates and Jordan) from June 2020 to December 2021. Transcripts were analyzed using NVivo 12 Software.

Results: A total of 100 participants, 44 males and 56 females, of different age groups (37.1 ± 11.56 years) were interviewed. Findings revealed six themes as enablers and barriers to COVID-19 vaccination. Many participants indicated trusting the vaccines, the healthcare systems, and the vaccination policies were the main driver to get the vaccine. Participants showed concerns towards potential long-term vaccine effects. A consistent inclination towards collective responsibility, which is the willingness to protect others by own vaccination, was also reported.

Conclusion: Enablers and barriers of COVID-19 vaccination acceptance in the Arab region, from sociocultural and political perspectives, are critical to guide policymakers in designing target-oriented interventions that can improve vaccine acceptance.

Keywords: Arab countries; COVID-19; Qualitative; SAGE; SARS-CoV-2; vaccine acceptance; vaccine hesitancy

Acceptance of COVID-19 vaccine booster doses using the health belief model: A cross-sectional study in low-middle- and high-income countries of the East Mediterranean Region

Authors: Ghazy, R.M; Abdou, M.S; Awaidy, S; Sallam, M; **Elbarazi, I;** et al.

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph191912136

Abstract

Background: Coronavirus disease (COVID-19) booster doses decrease infection transmission and disease severity. This study aimed to assess the acceptance of COVID-19 vaccine booster doses in low, middle, and high-income countries of the East Mediterranean Region (EMR) and its determinants using the health belief model (HBM). In addition, we aimed to identify the causes of booster dose rejection and the main source of information about vaccination.

Methods: Using the snowball and convince sampling technique, a bilingual, self-administered, anonymous questionnaire was used to collect the data from 14 EMR countries through different social media platforms. Logistic regression analysis was used to estimate the key determinants that predict vaccination acceptance among respondents. Overall, 2327 participants responded to the questionnaire.

Results: In total, 1468 received compulsory doses of vaccination. Of them, 739 (50.3%) received booster doses and 387 (26.4%) were willing to get the COVID-19 vaccine booster doses. Vaccine booster dose acceptance rates in low, middle, and high-income countries were 73.4%, 67.9%, and 83.0%, respectively ($p < 0.001$). Participants who reported reliance on information about the COVID-19 vaccination from the Ministry of Health websites were more willing to accept booster doses (79.3% vs. 66.6%, $p < 0.001$). The leading causes behind booster dose rejection were the beliefs that booster doses have no benefit (48.35%) and have severe side effects (25.6%). Determinants of booster dose acceptance were age (odds ratio (OR) = 1.02, 95% confidence interval (CI): 1.01–1.03, $p = 0.002$), information provided by the Ministry of Health (OR = 3.40, 95% CI: 1.79–6.49, $p = 0.015$), perceived susceptibility to COVID-19 infection (OR = 1.88, 95% CI: 1.21–2.93, $p = 0.005$), perceived severity of COVID-19 (OR = 2.08, 95% CI: 137–3.16, $p = 0.001$), and perceived risk of side effects (OR = 0.25, 95% CI: 0.19–0.34, $p < 0.001$).

Conclusion: Booster dose acceptance in EMR is relatively high. Interventions based on HBM may provide useful directions for policymakers to enhance the population's acceptance of booster vaccination.

Keywords: booster dose acceptance; COVID-19 vaccine; East Mediterranean region; health belief model; vaccine hesitancy

Exploring the mental, social, and lifestyle effects of a positive COVID-19 infection on Syrian refugees in Jordan: A qualitative study

Author: Kheirallah, K.A; Ababneh, B.F; Bendak, H; Alsuwaidi, A.R; **Elbarazi, I.**

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph191912588

Abstract

Background: Migrants and refugees are among the vulnerable populations that suffered disproportionately from the COVID-19 crisis. However, their experiences with COVID-19 positivity status have not been investigated. This study explored the physical, mental, and psychosocial impacts of a positive COVID-19 diagnosis on Syrian refugees living in Jordan.

Methods: Using a qualitative approach, twenty phone interviews were conducted with ten adult Syrian refugees living within the camp and ten refugees living in non-camp (host community) settings in Jordan. Follow-up interviews with five health care providers at a refugee camp were conducted to explore the services and support provided to the refugees with COVID-19 infection. The findings were thematically analyzed and grouped into major themes, subthemes, and emerging themes.

Results: Refugees living within camp settings had better access to testing, healthcare, and disease management and did not experience fear of being deported. Refugees in both settings suffered mental and psychosocial health impacts, social isolation, fear of death, and disease complications.

Conclusion: COVID-19 infection has negatively impacted refugees' well-being with noticeable disparities across the different living conditions. Refugees living within host community settings may need more support for managing their condition, accessibility to free testing, as well as treatment and healthcare services.

Keywords: camps; community; COVID-19; healthcare; refugee; well-being

Parental perceptions and the 5C psychological antecedents of COVID-19 vaccination during the first month of omicron variant surge: A large-scale cross-sectional survey in Saudi Arabia

Authors: Alenezi, S; Alarabi, M; Al-Eyadhy, A; Aljamaan, F; **Elbarazi, I;** et al.

Journal: Frontiers in Pediatrics | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fped.2022.944165

Abstract

Background: With the rapid surge of SARS-CoV-2 Omicron variant, we aimed to assess parents' perceptions of the COVID-19 vaccines and the psychological antecedents of vaccinations during the first month of the Omicron spread.

Methods: A cross-sectional online survey in Saudi Arabia was conducted (December 20, 2021-January 7, 2022). Convenience sampling was used to invite participants through several social media platforms, including WhatsApp, Twitter, and email lists. We utilized the validated 5C Scale, which evaluates five psychological factors influencing vaccination intention and behavior: confidence, complacency, constraints, calculation, and collective responsibility.

Results: Of the 1,340 respondents, 61.3% received two doses of the COVID-19 vaccine, while 35% received an additional booster dose. Fifty-four percentage were unwilling to vaccinate their children aged 5–11, and 57.2% were unwilling to give the additional booster vaccine to children aged 12–18. Respondents had higher scores on the construct of collective responsibility, followed by calculation, confidence, complacency, and finally constraints. Confidence in vaccines was associated with willingness to vaccinate children and positively correlated with collective responsibility ($p < 0.010$). Complacency about COVID-19 was associated with unwillingness to vaccinate older children (12–18 years) and with increased constraints and calculation scores ($p < 0.010$). While increasing constraints scores did not correlate with decreased willingness to vaccinate children ($p = 0.140$), they did correlate negatively with confidence and collective responsibility ($p < 0.010$).

Conclusions: The findings demonstrate the relationship between the five antecedents of vaccination, the importance of confidence in vaccines, and a sense of collective responsibility in parents' intention to vaccinate their children. Campaigns addressing constraints and collective responsibility could help influence the public's vaccination behavior.

Keywords: 5C Scale; COVID-19; omicron variant worries; SARS-CoV-2 among general population; vaccination hesitancy

A review of the environmental implications of the COVID-19 pandemic in the United Arab Emirates

Authors: Alalawi, S; Issa, S.T; Takshe, A.A; **ElBarazi, I.**

Journal: Environmental Challenges | **Year**: 2022 | **DOI**: https://doi.org/10.1016/j.envc.2022.100561

Abstract

This paper reviews the environmental implications associated with the COVID-19 pandemic at the individual and community levels in the UAE.

The positive effects emanating from the pandemic include improved air quality and reduced contamination of public spaces with pollutants. On the other hand, far-reaching negative effects include poor disposal of medical plastic waste and facemasks and the rise in unhygienic health practices amongst residents of UAE. The long-term ecological implications of the pandemic are still not well understood.

The findings shed the light on the importance of addressing the consequences of the COVID-19 pandemic through preventative policies and strategies for better environmental health and readiness for future crises. Future research could assess the long-term environmental consequences of the pandemic on the UAE.

Keywords: COVID-19; environment; health; pandemic; sustainable behaviors

SARS-CoV-2 and COVID-19 research trend during the first two years of the pandemic in the United Arab Emirates: A PRISMA-compliant bibliometric analysis

Authors: Al-Omari, B; Ahmad, T; **Al-Rifai, R.H.**

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph19137753

Abstract

Background: Scientific research is an integral part of fighting the COVID-19 pandemic. This bibliometric analysis describes the COVID-19 research productivity of the United Arab Emirates (UAE)-affiliated researchers during the first two years of the pandemic, 2020 to 2022.

Methods: The Web of Science Core Collection (WoSCC) database was utilized to retrieve publications related to COVID-19 published by UAE-affiliated researcher(s).

Results: A total of 1008 publications met the inclusion criteria and were included in this bibliometric analysis. The most studied broad topics were general internal medicine (11.9%), public environmental occupational health (7.8%), pharmacology/pharmacy (6.3%), multidisciplinary sciences (5%), and infectious diseases (3.4%). About 67% were primary research articles, 16% were reviews, and the remaining were editorials letters (11.5%), meeting abstracts/proceedings papers (5%), and document corrections (0.4%). The University of Sharjah was the leading UAE-affiliated organization achieving 26.3% of the publications and funding 1.8% of the total 1008 published research.

Conclusion: This study features the research trends in COVID-19 research affiliated with the UAE and shows the future directions. There was an observable nationally and international collaboration of the UAE-affiliated authors, particularly with researchers from the USA and England. This study highlights the need for in-depth systematic reviews addressing the specific COVID-19 research-related questions and studied populations.

Keywords: Bibliometric analysis; COVID-19; SARS-CoV-2; UAE; United Arab Emirates

The Effect of COVID-19 diagnosis on the physical, social, and psychological well-being of people in the United Arab Emirates: An explorative qualitative study

Author: AlKuwaiti, M; Hamada, B.A; Aljneibi, N; **Paulo, M.S; Elbarazi, I.**

Journal: Frontiers in Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fpubh.2022.866078

Abstract

Background: A positive COVID-19 infection may impact physical, mental, and social health. Different factors may influence these impacts on different levels due to personal circumstances. This study aimed to explore the impact of a positive COVID-19 diagnosis on the physical, mental, social, psychological health, and lifestyle practices of an individual in the United Arab Emirates.

Methods: A sample of 28 participants was interviewed using online interviews. An interview guide was created based on the coping strategy model and conceptual framework of coping strategies. All interviews were recorded; then transcribed after obtaining written consent from participants. The NVivo software was used for thematic analysis based on both identified coping models.

Results: Major themes included the physical effects, social effects, psychological effects, spiritual effects, and lifestyle effects. Emerging themes include coping mechanisms, trust in authorities and the health care system, appreciation of the role of the government, conspiracy theories, and media roles.

Conclusion: This study indicates that people diagnosed with COVID-19 have perceived very good support in terms of their physical health from the government and health authorities, but require social, psychological, and educational support during the infection period and post-recovery.

Keywords: COVID-19; lifestyle changes; physical effects; qualitative study; social impact

COVID-19 vaccine acceptance among social media users: A content analysis, multi-continent study

Authors: Shaaban, R; Ghazy, R.M; Elsherif, F; Ali, N; Yakoub, Y; Aly, M; Elmakhzangy, R; Abdou, M.S; McKinna, B; Elzorkany, A.M; Abdullah, F; Alnagar, A; Eltaweel, N; Alharthi, M; Mohsin, A; Ordóñez-Cruickshank, A; Toniolo, B; Grafolin, T; Aye, T.T; Goh, Y.Z; Deghidy, E.A; Bahri, S; Sappayabanphot, J; Elhadi, Y.A.M; Mohammed, S; El-Deen, A.N; Ismail, I; Elhafeez, S.A; **Elbarazi, I;** et al.

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph19095737

Abstract

Background: Vaccine hesitancy is defined as a delayed in acceptance or refusal of vaccines despite availability of vaccination services. This multinational study examined user interaction with social media about COVID-19 vaccination.

Methods: The study analyzed social media comments in 24 countries from five continents.

Results: In total, 5856 responses were analyzed; 83.5% of comments were from Facebook, while 16.5% were from Twitter. In Facebook, the overall vaccine acceptance was 40.3%; the lowest acceptance rates were evident in Jordan (8.5%), Oman (15.0%), Senegal (20.0%) and Morocco (20.7%) and the continental acceptance rate was the lowest in North America 22.6%. In Twitter, the overall acceptance rate was (41.5%); the lowest acceptance rate was found in Oman (14.3%), followed by USA (20.5%), and UK (23.3%) and the continental acceptance rate was the lowest in North America (20.5%), and Europe (29.7%). The differences in vaccine acceptance across countries and continents in Facebook and Twitter were statistically significant. Regarding the tone of the comments, in Face-book, countries that had the highest number of serious tone comments were Sweden (90.9%), United States (61.3%), and Thailand (58.8%). At continent level, serious comments were the highest in Asia (58.4%), followed by Africa (46.2%) and South America (46.2%). In twitter, the highest serious tone was reported in Egypt (72.2%) while at continental level, the highest proportion of serious comments was observed in Asia (59.7%), followed by Europe (46.5%). The differences in tone across countries and continents in Facebook and Twitter were statistically significant. There was a significant association between the tone and the position of comments.

Conclusion: We concluded that the overall vaccine acceptance in social media is relatively low and varied across the studied countries and continents consequently, more in-depth studies are required to address causes of such VH and com-bat infodemics.

Keywords: comment tone and position; content analysis; COVID-19; COVID-19 vaccine; social media; vaccine hesitancy

Diagnostic performance of standard and inverted grey-scale CXR in detection of lung lesions in covid-19 patients: A single institute study in the Region of Abu Dhabi

Authors: Al Helali, A.A; Kukkady, M.A; Saeed, G.A; Elholiby, T.I; Al Mansoori, R.A; **Ahmed, L.A.**

Journal: New Emirates Medical Journal | **Year**: 2022 | **DOI**: https://doi.org/10.2174/1573405617666211213121839

Abstract

Purpose: This study aimed at evaluating the diagnostic performance of standard greyscale and inverted greyscale Chest X-ray (CXR) using Computed Tomography (CT) scan as a gold standard.

Methods: In this retrospective study, electronic medical records of 120 patients who had valid CXR and High-resolution CT (HRCT) within less than 24 hours after having a positive COVID-19 RT-PCR test during the period from May 19th to May 23rd, 2020, in a single tertiary care center were reviewed. PA chest radiographs were presented on 2 occasions to 5 radiologists to evaluate the role and appropriateness of standard greyscale and inverted greyscale chest radiographs (CXR) when images are viewed on high-specification viewing systems using a primary display monitor and compared to computed tomography (CT) findings for screening and management of suspected or confirmed COVID-19 patients.

Results: Ninety-six (80%) patients had positive CT findings, 81 (67.5%) had positive grey scale CXR lesions, and 25 (20.8%) had better detection in the inverted grey scale CXR. The CXR sensitivity for COVID-19 pneumonia was 93.8% (95% CI (86.2% - 98.0%) and the specificity was 48.7% (95% CI (32.4% - 65.2%). The CXR sensitivity of detecting lung lesions was slightly higher in male (95.1% (95% CI (86.3% - 99.0%)) than female (90.0% (95% CI (68.3% - 98.8%)), while the specificity was 48.0% (95% CI (27.8% - 68.7%) and 50.0% (95% CI (23.0% - 77.0%) in males and females, respectively. However, no significant difference was detected in ROC area between men and women.

Conclusion: The sensitivity of detecting lung lesions of CXR was relatively high, particularly in men. The results of the study support the idea of considering conventional radiographs as an important diagnostic tool in suspected COVID-19 patients, especially in healthcare facilities where there is no access to HRCT scans. CXR shows high sensitivity for detecting lung lesions in HRCT confirmed COVID-19 patients. Better detection of lesions was noted in the inverted greyscale CXR in 20.8% of cases, with positive findings in standard greyscale CXR. Conventional radiographs can be used as diagnostic tools in suspected COVID-19 patients, especially in healthcare facilities where there is no access to HRCT scans.

Keywords: computed tomography; Coronavirus; COVID-19; ground-glass opacity; HRCT; RT- PCR test; X-ray

Clinical and laboratory features of PCR-confirmed and clinically suspected COVID-19 pediatric patients: A single hospital-based experience during the first COVID-19 wave in the United Arab Emirates

Authors: Eldin, N.M.B; Saleh, M; Labib, B; Othman, M; Chacko, L; Mae, D; Elnour, L; **Al-Rifai, R.H.**

Journal: Frontiers in Pediatrics | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fped.2022.830587

Abstract

Objective: This study investigated clinical and laboratory differences between confirmed (RT-PCR-positive) and clinically suspected (RT-PCR-negative) COVID-19 pediatric patients, and explored factors associated with disease severity at presentation and duration of hospitalization.

Methods: Medical charts of COVID-19-confirmed and clinically suspected pediatric patients admitted to a tertiary hospital in Abu Dhabi were reviewed. Sociodemographic information and clinical and laboratory outcomes were retrieved and analyzed.

Results: Between 1 April to 30 June, 2020, 173 patients (mean age: 3.6 ± SD 3.2 years) presented with respiratory symptoms. Of them, 18.0% had confirmed contact with COVID-19 cases, 66.5% had symptoms for ≤3 days, and 86.7% were with moderate to severe disease. Twenty-eight (16.1%) patients tested positive while the rest (83.8%) tested negative in RT-PCR. COVID-19-confirmed and clinically suspected patients were statistically similar ($p > 0.05$) in all sociodemographic data, disease severity, and vital signs except residence status (89.3% vs. 58.6% were residents, respectively, $p = 0.002$) and contact with confirmed COVID-19 cases (82.1% vs. 5.5%, respectively, $p < 0.001$). Fever (100 and 91.0%) and cough (100 and 95.9%) were the most common symptoms in both confirmed and clinically suspected COVID-19 patients. All patients were statistically comparable in mean white blood cell and platelet counts and hemoglobin concentration, except in mean concentration of neutrophils (higher in clinically suspected, $p = 0.019$). C-reactive protein was two times higher in clinically suspected compared to confirmed patients ($p = 0.043$). Lymphocyte (OR: 1.31, $p < 0.001$), LDH (OR: 1.01, $p = 0.001$), D-dimer (OR: 1.92, $p < 0.001$), and ferritin levels after 24–36 h (OR: 9.25, $p < 0.05$), and SGPT (OR: 1.04, $p < 0.05$) were all associated with disease severity. Elevated ferritin (>300 μg/L) after 24–36 h was the only correlated factor with disease severity (aOR: 17.38, $p < 0.05$). Confirmed compared with clinically suspected patients (aOR: 4.00, 95% CI: 2.92–5.10) and children with moderate compared with mild disease (aOR: 5.87, 95% CI: 1.08–32.06) had longer hospitalization.

Conclusion: In pediatric patients with negative RT-PCR, COVID-19 is still suspected based on clinical symptoms and epidemiological data. A tentative diagnosis can be made based on a thorough examination, and proper medical management can be initiated promptly.

Keywords: children; COVID-19; pediatrics; SARS-CoV-2; United Arab Emirates

The impact of the COVID-19 "infodemic" on well-being: a cross-sectional study

Authors: **Elbarazi, I;** Saddik, B; **Grivna, M; Aziz, F;** Elsori, D; Stip, E; Bendak, E.

Journal: Journal of Multidisciplinary Healthcare | **Year**: 2022 | **DOI**: https://doi.org/10.2147/jmdh.s346930

Abstract

Background: The COVID-19 pandemic created a crisis in the world of information and digital literacy. The amount of misinformation surrounding COVID-19 that has circulated through social media (SM) since January 2020 is notably significant and has been linked to rising levels of anxiety and fear amongst SM users. This study aimed to assess SM practices during COVID-19 and investigated their impact on users' well-being.

Methods: An online survey was distributed between June 10 and July 31 2020 via different SM platforms in the United Arab Emirates and other Arabic-speaking countries. Adults above 18 years of age who spoke Arabic or English were invited to complete the survey which covered multiple domains, use and practices related to social media platforms and mental health questions, including the WHO-5 Well-Being Index.

Results: Out of 993 participants, 73% were females, 76% were non-Emirati, 91% were university graduates, and 50% were employed in various occupations, of which 20% were health care professionals. Participants indicated that they acquired COVID-19 related information primarily from social media and messaging applications of which WhatsApp was the most used. Most participants reported sharing information after verification. The mean well-being score was 12.6 ±5.6, with 49% of participants reporting poor well-being (WHO-5 score <12.5). Adjusted linear regression showed that Facebook usage was negatively associated with well-being scores. Additionally, high time use was associated with poorer well-being. When adjusting for other factors, including low confidence in information around COVID-19 and poor knowledge overall, SM usage was significantly associated with poorer well-being.

Conclusion: The study sheds light on the use of SM during the pandemic and its impact on well-being throughout the novel coronavirus pandemic. Social media practices during emergencies and disasters may impact public well-being. Authorities are advised to step in to minimize the spread of misinformation and more frequent use of social media as it may influence well-being. Public health specialists, information technology and communication experts should collaborate to limit the infodemic effect on communities.

Keywords: COVID-19; infodemic; internet use; Mental health; social media; WHO-5 Well-Being Index

Chlamydia trachomatis seroepidemiology and associated factors in fertility treatment-seeking patients in the Abu Dhabi Emirate, United Arab Emirates

Authors: **Abdo, N.M;** Aslam, I; Irfan, S; George, J.A; Alsuwaidi, A.R; **Ahmed, L.A; Al-Rifai, R.H.**

Journal: Sexually Transmitted Diseases | **Year**: 2023 | **DOI**: https://doi.org/10.1097/olq.0000000000001842

Abstract

Purpose: This study was designed to investigate the seroepidemiology of and identify factors associated with exposure to Chlamydia trachomatis (C. trachomatis) in fertility treatment-seeking patients in Abu Dhabi Emirate, United Arab Emirates.

Methods: A total of 308 fertility treatment-seeking patients were surveyed. Seroprevalence of past (IgG positive), current/acute (IgM positive), and active infection (IgA positive) with C. trachomatis was quantified. Factors associated with exposure to C. trachomatis were identified.

Results: Overall, 19.0%, 5.2%, and 1.6% found to have past, acute/recent, and ongoing active infection with C. trachomatis, respectively. Overall, 22.0% of the patients were seropositive to any of the 3 to C. trachomatis antibodies. Male compared with female patients (45.7% vs. 18.9%, $P < 0.001$) and current/ex-smokers compared with nonsmokers (44.4% vs. 17.8%) had higher seropositivity. Patients with a history of pregnancy loss had higher seropositivity compared with other patients (27.0% vs. 16.8%), particularly recurrent pregnancy losses (33.3%). Current smoking (adjusted odds ratio [aOR], 3.8; 95% confidence interval, 1.32-11.04) and history of pregnancy loss (adjusted odds ratio [aOR], 3.0; 95% confidence interval, 1.5-5.8) were significantly associated with higher odds of exposure to C. trachomatis.

Conclusions: The observed high seroprevalence of C. trachomatis, particularly in patients with a history of pregnancy loss, possibly indicates the contribution of C. trachomatis to the growing burden of infertility in the United Arab Emirates.

Keywords: Chlamydia trachomatis; seroepidemiology; fertility treatment; pregnancy loss; infertility

Assessing the prevalence and potential risks of Salmonella infection associated with fresh salad vegetable consumption in the United Arab Emirates

Authors: Habib, I; Khan, M; Mohamed, M.-Y.I; Ghazawi, A; Abdalla, A; Lakshmi, G; Elbediwi, M; Al Marzooqi, H.M; Afifi, H.S; Shehata, M.G; **Al-Rifai, R**.

Journal: Foods | **Year**: 2023 | **DOI**: https://doi.org/10.3390/foods12163060

Abstract

This study aimed to investigate the occurrence and characteristics of Salmonella isolates in salad vegetables in the United Arab Emirates (UAE). Out of 400 samples tested from retail, only 1.25% (95% confidence interval, 0.41–2.89) were found to be positive for Salmonella, all of which were from conventional local produce, presented at ambient temperature, and featured as loose items. The five Salmonella-positive samples were arugula (n = 3), dill (n = 1), and spinach (n = 1). The Salmonella isolates from the five samples were found to be pan-susceptible to a panel of 12 antimicrobials tested using a disc diffusion assay. Based on whole-genome sequencing (WGS) analysis, only two antimicrobial resistance genes were detected—one conferring resistance to aminoglycosides (aac(6')-Iaa) and the other to fosfomycin (fosA7). WGS enabled the analysis of virulence determinants of the recovered Salmonella isolates from salad vegetables, revealing a range from 152 to 165 genes, collectively grouped under five categories, including secretion system, fimbrial adherence determinants, macrophage-inducible genes, magnesium uptake, and non-fimbrial adherence determinants. All isolates were found to possess genes associated with the type III secretion system (TTSS), encoded by Salmonella pathogenicity island-1 (SPI-1), but various genes associated with the second type III secretion system (TTSS-2), encoded by SPI-2, were absent in all isolates. Combining the mean prevalence of Salmonella with information regarding consumption in the UAE, an exposure of 0.0131 salmonellae consumed per person per day through transmission via salad vegetables was calculated. This exposure was used as an input in a beta-Poisson dose–response model, which estimated that there would be 10,584 cases of the Salmonella infection annually for the entire UAE population. In conclusion, salad vegetables sold in the UAE are generally safe for consumption regarding Salmonella occurrence, but occasional contamination is possible. The results of this study may be used for the future development of risk-based food safety surveillance systems in the UAE and to elaborate on the importance for producers, retailers, and consumers to follow good hygiene practices, particularly for raw food items such as leafy salad greens.

Keywords: leafy greens; Middle East; risk analysis; salmonella; WGS

Surgical antibiotic prophylaxis administration improved after introducing dedicated guidelines: A before-and-after study from Dhulikhel Hospital in Nepal (2019–2023)

Authors: Shrestha, I; Shrestha, S; Vijayageetha, M; Koju, P; Shrestha, S; Zachariah, R; **Khogali, M.A.**

Journal: Tropical Medicine and Infectious Disease | **Year**: 2023 |

DOI: https://doi.org/10.3390/tropicalmed8080420

Abstract

Background: Surgical antibiotic prophylaxis (SAP) is important for reducing surgical site infections. The development of a dedicated hospital SAP guideline in the Dhulikhel Hospital was a recommendation from a baseline study on SAP compliance. Compliance with this new guideline was enhanced through the establishment of a hospital committee, the establishment of an antibiotic stewardship program and the funding and training of healthcare professionals. Using the baseline and a follow-up study after introducing dedicated hospital SAP guidelines, we compared: (a) overall compliance with the SAP guidelines and (b) the proportion of eligible and non-eligible patients who received initial and redosing of SAP.

Methods: A before-and-after cohort study was conducted to compare SAP compliance between a baseline study (July 2019–December 2019) and a follow-up study (January 2023–April 2023).

Results: A total of 874 patients were in the baseline study and 751 in the follow-up study. Overall SAP compliance increased from 75% (baseline) to 85% in the follow-up study ($p < 0.001$). Over 90% of those eligible for the initial dose of SAP received it in both studies. Inappropriate use for those not eligible for an initial dose was reduced from 50% to 38% ($p = 0.04$). For those eligible for redosing, this increased from 14% to 22% but was not statistically significant ($p = 0.272$).

Conclusions: Although there is room for improvement, introduction of dedicated SAP guidelines was associated with improved overall SAP compliance. This study highlights the role of operational research in triggering favorable interventions in hospital clinical care.

Keywords: guidelines; health systems strengthening; operational research; SORT IT; surgical antibiotic prophylaxis

Contact tracing and tuberculosis preventive therapy for household child contacts of pulmonary tuberculosis patients in the Kyrgyz Republic: How well are we doing?

Authors: Kadyrov, M; Thekkur, P; Geliukh, E; Sargsyan, A; Goncharova, O; Kulzhabaeva, A; Kadyrov, A; **Khogali, M;** Harries, A.D; Kadyrov, A.

Journal: Tropical Medicine and Infectious Disease | **Year**: 2023 |

DOI: https://doi.org/10.3390/tropicalmed8070332

Abstract

Background: Early identification, screening and investigation for tuberculosis (TB), and provision of TB preventive therapy (TPT), reduces risk of TB among child household contacts of pulmonary TB patients (index patients).

Methods: A cohort study was conducted to describe the care cascade and timeliness of contact tracing and TPT initiation among child household contacts (aged < 15 years) of index patients initiated on TB treatment in Bishkek, the Kyrgyz Republic during October 2021–September 2022.

Results: In the register, information on the number of child household contacts was available for 153 (18%) of 873 index patients. Of 297 child household contacts identified, data were available for 285, of whom 261 (92%) were screened for TB. More than 50% were screened after 1 month of the index patient initiating TB treatment. TB was diagnosed in 23/285 (9%, 95% CI: 6–13%) children. Of 238 TB-free children, 130 (55%) were eligible for TPT. Of the latter, 64 (49%) were initiated on TPT, of whom 52 (81%) completed TPT.

Conclusion: While TPT completion was excellent, there was deficiency in contact identification, timely screening and TPT initiation. Thus, healthcare providers should diligently request and record details of child household contacts, adhere to contact tracing timelines and counsel caregivers regarding TPT.

Keywords: childhood TB; contact investigation; household contact management; isoniazid preventive therapy; operational research; pediatric TB; structured operational research training initiative (SORT IT)

Contamination levels and phenotypic and genomic characterization of antimicrobial resistance in *Escherichia coli* isolated from fresh salad vegetables in the United Arab Emirates

Authors: Habib, I; **Al-Rifai, R.H;** Mohamed, M.-Y.I; Ghazawi, A; Abdalla, A; Lakshmi, G; Agamy, N; Khan, M.

Journal: Tropical Medicine and Infectious Disease | **Year**: 2023 |

DOI: https://doi.org/10.3390/tropicalmed8060294

Abstract

Background: Contaminated fresh produce has been identified as a vehicle for human foodborne illness.

Methods: The present study investigated the counts, antimicrobial resistance profile, and genome-based characterization of Escherichia coli in 11 different types of fresh salad vegetable products (n = 400) sampled from retailers in Abu Dhabi and Dubai in the United Arab Emirates.

Results: E. coli was detected in 30% of the tested fresh salad vegetable items, with 26.5% of the samples having an unsatisfactory level (≥100 CFU/g) of E. coli, notably arugula and spinach. The study also assessed the effect of the variability in sample conditions on E. coli counts and found, based on negative binominal regression analysis, that samples from local produce had a significantly higher (p-value <0.001) E. coli count than imported samples. The analysis also indicated that fresh salad vegetables from the soil-less farming system (e.g; hydroponic and aeroponic) had significantly (p-value <0.001) fewer E. coli than those from traditional produce farming. The study also examined the antimicrobial resistance in E. coli (n = 145) recovered from fresh salad vegetables and found that isolates exhibited the highest phenotypic resistance toward ampicillin (20.68%), tetracycline (20%), and trimethoprim-sulfamethoxazole (10.35%). A total of 20 (13.79%) of the 145 E. coli isolates exhibited a multidrug-resistant phenotype, all from locally sourced leafy salad vegetables. The study further characterized 18 of the 20 multidrug-resistant E. coli isolates using whole-genome sequencing and found that the isolates had varying numbers of virulence-related genes, ranging from 8 to 25 per isolate. The frequently observed genes likely involved in extra-intestinal infection were CsgA, FimH, iss, and afaA. The β-lactamases gene blaCTX-M-15 was prevalent in 50% (9/18) of the E. coli isolates identified from leafy salad vegetable samples.

Conclusion: The study highlights the potential risk of foodborne illness and the likely spread of antimicrobial resistance and resistance genes associated with consuming leafy salad vegetables and emphasizes the importance of proper food safety practices, including proper storage and handling of fresh produce.

Keywords: antibiotic resistance; E. coli; fresh produce; UAE; WGS

Recurrent urinary tract infection in adult patients, risk factors, and efficacy of low dose prophylactic antibiotics therapy

Authors: Alghoraibi, H; Asidan, A; Aljawaied, R; Almukhayzim, R; Alsaydan, A; Alamer, E; Baharoon, W; **Masuadi, E;** Al Shukairi, A; Layqah, L; Baharoon, S.

Journal: Journal of Epidemiology and Global Health | **Year**: 2023 |

DOI: https://doi.org/10.1007/s44197-023-00105-4

Abstract

Background: Recurrent urinary tract infection (UTI) occurs in sizable percentages of patients after a single episode and is a frequent cause of primary healthcare visits and hospital admissions, accounting for up to one quarter of emergency department visits. We aim to describe the pattern of continuous antibiotic prophylaxis prescription for recurrent urinary tract infections, in what group of adult patients they are prescribed and their efficacy.

Methods: A retrospective chart review of all adult patients diagnosed with single and recurrent symptomatic urinary tract infection in the period of January 2016 to December 2018.

Results: A total of 250 patients with a single UTI episode and 227 patients with recurrent UTI episodes were included. Risk factors for recurrent UTI included diabetes mellitus, chronic renal disease, and use of immunosuppressive drugs, renal transplant, any form of urinary tract catheterization, immobilization and neurogenic bladder. E. coli infections were the most prevalent organism in patients with UTI episodes. Prophylactic antibiotics were given to 55% of patients with UTIs, Nitrofurantoin, Bactrim or amoxicillin clavulanic acid. Post renal transplant is the most frequent reason to prophylaxis antibiotics (44%). Bactrim was more prescribed in younger patients ($P < 0.001$), in post-renal transplantation ($P < 0.001$) and after urological procedures ($P < 0.001$), while Nitrofurantoin was more prescribed in immobilized patients ($P = 0.002$) and in patients with neurogenic bladder ($P < 0.001$). Patients who received continuous prophylactic antibiotics experienced significantly less episodes of urinary tract infections ($P < 0.001$), emergency room visits and hospital admissions due to urinary tract infections ($P < 0.001$).

Conclusion: Despite being effective in reducing recurrent urinary tract infection rate, emergency room visits and hospital admissions due to UTI, continuous antibiotic prophylaxis was only used in 55% of patients with recurrent infections. Trimethoprim/sulfamethoxazole was the most frequently used prophylactic antibiotic. Urology and gynecological referral were infrequently requested as part of the evaluation process for patients with recurrent UTI. There was a lack of use of other interventions such as topical estrogen in postmenopausal women and documentation of education on non-pharmacological methods to decrease urinary tract infections.

Keywords: antibiotic prophylaxis; nitrofurantoin; recurrent urinary tract infection; risk factors; TMP-SMX; urinary tract infection

Susceptibility to reinfection with SARS-CoV-2 virus relative to existing antibody concentrations and T cell response

Authors: Atef, S; Al Hosani, F; AbdelWareth, L; **Al-Rifai, R.H;** Abuyadek, R; Jabari, A; Ali, R; Altrabulsi, B; Dunachie, S; Alatoom, A; Donnelly, J.G.

Journal: International Journal of Infectious Diseases | **Year**: 2023 |

DOI: https://doi.org/10.1016/j.ijid.2023.01.006

Abstract

Objectives: We investigated the reinfection rate of vaccinated or convalescent immunized SARS-CoV-2 in 952 expatriate workers with SARS-CoV-2 serological antibody (Ab) patterns and surrogate T cell memory at recruitment and follow-up.

Methods: Trimeric spike, nucleocapsid, and neutralizing Abs were measured, along with a T cell stimulation assay, targeting SARS-CoV-2 memory in clusters of differentiation (CD) 4+ and CD8+ T cells. The subjects were then followed up for reinfection for up to 6 months.

Results: The seroprevalence positivity at enrollment was greater than 99%. The T cell reactivity in this population was 38.2%. Of the 149 (15.9%) participants that were reinfected during the follow-up period (74.3%) had nonreactive T cells at enrollment. Those who had greater than 100 binding Ab units/ml increase from the median concentration of antispike immunoglobulin G Abs had a 6% reduction in the risk of infection. Those who were below the median concentration had a 78% greater risk of infection.

Conclusion: Significant immune protection from reinfection was observed in those who retained T cell activation memory. Additional protection was observed when the antispike was greater than the median value.

Keywords: neutralizing antibodies; reinfection; SARS-CoV-2 immunocompetence; seroprevalence; spike and receptor binding protein antibodies; T cell response

Increased prevalence of EBV infection in nasopharyngeal carcinoma patients: A six-year cross-sectional study

Authors: Al-Anazi, A.E; Alanazi, B.S; Alshanbari, H.M; **Masuadi, E;** Hamed, M.E; Dandachi, I; Alkathiri, A; Hanif, A; Nour, I; Fatani, H; Alsaran, H; AlKhareeb, F; Al Zahrani, A; Alsharm, A.A; Eifan, S; Alosaimi, B.

Journal: Cancers | **Year**: 2023 | **DOI**: https://doi.org/10.3390/cancers15030643

Abstract

Background: Epstein Barr Virus (EBV) is implicated in the carcinogenesis of nasopharyngeal carcinoma (NPC) and currently associated with at least 1% of global cancers. The differential prognosis analysis of NPC in EBV genotypes remains to be elucidated.

Methods: Medical, radiological, pathological, and laboratory reports of 146 NPC patients were collected retrospectively over a 6-year period between 2015 and 2020. From the pathology archives, DNA was extracted from tumor blocks and used for EBV nuclear antigen 3C (EBNA-3C) genotyping by nested polymerase chain reaction (PCR).

Results: We found a high prevalence of 96% of EBV infection in NPC patients with a predominance of genotype I detected in 73% of NPC samples. Histopathological examination showed that most of the NPC patients were in the advanced stages of cancer: stage III (38.4%) or stage IV-B (37.7%). Only keratinized squamous cell carcinoma was significantly higher in EBV negative NPC patients compared with those who were EBV positive (OR = 0.01, 95%CI = (0.004–0.32; p = 0.009)), whereas the majority of patients (91.8%) had undifferentiated, non-keratinizing squamous cell carcinoma, followed by differentiated, non-keratinizing squamous cell carcinoma (7.5%). Although NPC had metastasized to 16% of other body sites, it was not associated with EBV infection, except for lung metastasis. A statistically significant reverse association was observed between EBV infection and lung metastasis (OR = 0.07, 95%CI = (0.01–0.51; p = 0.008)). Although 13% of NPC patients died, the overall survival (OS) mean time was 5.59 years.

Conclusion: Given the high prevalence of EBV-associated NPC in our population, Saudi could be considered as an area with a high incidence of EBV-associated NPC with a predominance of EBV genotype I. A future multi-center study with a larger sample size is needed to assess the true burden of EBV-associated NPC in Saudi Arabia.

Keywords: EBV; epidemiology; genotyping; NPC; prevalence; Saudi Arabia

Evaluation of post-vaccination immunoglobulin G antibodies and T-cell immune response after inoculation with different types and doses of SARS-CoV-2 vaccines: A retrospective cohort study

Authors: **Al-Rifai, R.H;** Alhosani, F; Abuyadek, R; Atef, S; Donnelly, J.G; Leinberger-Jabari, A; **Ahmed, L.A;** Altrabulsi, B; Alatoom, A; Alsuwaidi, A.R; AbdelWareth, L.

Journal: Frontiers in Medicine | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fmed.2022.1092646

Abstract

Introduction: The induction and speed of production of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) immune biomarkers may vary by type and number of inoculated vaccine doses. This study aimed to explore variations in SARS-CoV-2 anti-spike (anti-S), anti-nucleocapsid (anti-N), and neutralizing immunoglobulin G (IgG) antibodies, and T-cell response by type and number of SARS-CoV-2 vaccine doses received.

Methods: In a naturally exposed and SARS-CoV-2–vaccinated population, we quantified the anti-S, anti-N, and neutralizing IgG antibody concentration and assessed T-cell response. Data on socio-demographics, medical history, and history of SARS-CoV-2 infection and vaccination were collected. Furthermore, nasal swabs were collected to test for SARS-CoV-2 infection. Confounder-adjusted association between having equal or more than a median concentration of the three IgG antibodies and T-cell response by number and type of the inoculated vaccines was quantified.

Results: We surveyed 952 male participants with a mean age of 35.5 years ± 8.4 standard deviations. Of them, 52.6% were overweight/obese, and 11.7% had at least one chronic comorbidity. Of the participants, 1.4, 0.9, 20.2, 75.2, and 2.2% were never vaccinated, primed with only one dose, primed with two doses, boosted with only one dose, and boosted with two doses, respectively. All were polymerase chain reaction-negative to SARS-CoV-2. BBIBP-CorV (Sinopharm) was the most commonly used vaccine (92.1%), followed by rAd26-S + rAd5-S (Sputnik V Gam-COVID-Vac) (1.5%) and BNT162b2 (Pfizer-BioNTech) (0.3%). Seropositivity to anti-S, anti-N, and neutralizing IgG antibodies was detected in 99.7, 99.9, and 99.3% of the study participants, respectively. The T-cell response was detected in 38.2% of 925 study participants. Every additional vaccine dose was significantly associated with increased odds of having ≥median concentration of anti-S [adjusted odds ratio (aOR), 1.34; 95% confidence interval (CI): 1.02–1.76], anti-N (aOR, 1.35; 95% CI: 1.03–1.75), neutralizing IgG antibodies (aOR, 1.29; 95% CI: 1.00–1.66), and a T-cell response (aOR, 1.48; 95% CI: 1.12–1.95). Compared with boosting with only one dose, boosting with two doses was significantly associated with increased odds of having ≥median concentration of anti-S (aOR, 13.8; 95% CI: 1.78–106.5), neutralizing IgG antibodies (aOR, 13.2; 95% CI: 1.71–101.9), and T-cell response (aOR, 7.22; 95% CI: 1.99–26.5) although not with anti-N (aOR, 0.41; 95% CI: 0.16–1.08). Compared with priming and subsequently boosting with BBIBP-CorV, all participants who were primed with BBIBP-CorV and subsequently boosted with BNT162b2 had ≥median concentration of anti-S and neutralizing IgG antibodies and 14.6-time increased odds of having a T-cell response (aOR, 14.63; 95% CI: 1.78–120.5). Compared with priming with two doses, boosting with the third dose was not associated, whereas boosting with two doses was significantly associated with having ≥median concentration of anti-S (aOR, 14.20; 95% CI: 1.85–109.4), neutralizing IgG (aOR, 13.6; 95% CI: 1.77–104.3), and T-cell response (aOR, 7.62; 95% CI: 2.09–27.8).

Conclusion: Achieving and maintaining a high blood concentration of protective immune biomarkers that predict vaccine effectiveness is very critical to limit transmission and contain outbreaks. In this study, boosting with only one dose or with only BBIBP-CorV after priming with BBIBP-CorV was insufficient, whereas boosting with two doses, particularly boosting with the mRNA-based vaccine, was shown to be associated with having a high concentration of anti-S, anti-N, and neutralizing IgG antibodies and producing an efficient T-cell response.

Keywords: coronavirus; COVID-19; SARS-CoV-2; vaccination; vaccine

Experience of the United Arab Emirates in the use of monoclonal antibody drug sotrovimab in high-risk vaccinated and unvaccinated patients with COVID-19: An observational cohort study

Authors: Abdalateef, S; Al Meheiri, N.M; Nassef, M; Shorrab, A.A; Hashimi, O.A.R; Allam, S; Alnaqbi, M.S; **Al-Rifai, R.H.**

Journal: BMJ Open | **Year**: 2023 | **DOI**: https://doi.org/10.1136/bmjopen-2022-066095

Abstract

Background: Monoclonal antibodies can slow COVID-19 progression. This study describes the experience of using sotrovimab in patients with COVID-19 at high risk for disease progression and hospitalisation within the United Arab Emirates (UAE).

Methods: Observational cohort study. Setting A tertiary hospital in the Emirate of Sharjah, UAE. Participants Patients with mild or moderate COVID-19 at high risk for disease progression. Interventions Infusion with a single 500 mg dose of the monoclonal antibody drug sotrovimab. Primary and secondary outcome measures Any adverse effect within 24 hours, disease progression within 5 days, emergency department visit within 10 days, hospital admission within 10 days or mortality within 28 days of infusion.

Results: 3227 high-risk COVID-19 patients were infused with sotrovimab during the mild (n=3107, 96.3%) or moderate (n=120, 3.7%) disease stages. The incidence of at least one outcome was recorded in 196 (6.1%) of the patients (60.7 per 1000 patients). The most common outcome was disease progression within 5 days of infusion in 129 patients (4.0%), followed by emergency department visits by 90 patients (2.8%) within 10 days. Twenty-nine (0.9%) patients were hospitalised within 10 days of infusion with only two deaths (0.1%). Patients infused with sotrovimab during the moderate disease stage had 11 times greater odds of developing at least one outcome compared with patients infused during the mild stage (adjusted OR, aOR 10.86, 95% CI 7.14 to 16.54). SARS-CoV-2 vaccinated (aOR 12.8, 95% CI 7.3 to 20.5) and unvaccinated (aOR 7.2, 95% CI 3.4 to 15.3) patients infused with sotrovimab during the moderate disease stage had similar odds of at least one outcome compared with patients infused during the mild stage.

Conclusions: Among high-risk sotrovimab-infused COVID-19 patients, there were relatively low incidences of disease progression and hospitalisation. Regardless of vaccination history, monoclonal antibody intervention during the early stages of COVID-19 results in better outcomes.

Keywords: COVID-19; public health; respiratory infections

Sexually transmitted diseases knowledge assessment and associated factors among university students in the United Arab Emirates: a cross-sectional study

Authors: Alshemeili, A; Alhammadi, A; Alhammadi, A; Al Ali, M; Alameeri, E.S; **Abdullahi, A.S; Abu-Hamada, B; Sheek-Hussein, M.M; Al-Rifai, R.H; Elbarazi, I.**

Journal: Frontiers in Public Health | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fpubh.2023.1284288

Abstract

Background: Sexually transmitted diseases and infections (STDIs) remain a serious public health menace with over 350 million cases each year. Poor knowledge of STDIs has been identified as one of the bottlenecks in their control and prevention. Hence, assessment of knowledge, both general and domain-specific, is key to the prevention and control of these diseases. This study assessed the knowledge of STDIs and identified factors associated with STDI knowledge among university students in the United Arab Emirates (UAE).

Methods: This is a cross-sectional study among 778 UAE University students across all colleges. An online data collection tool was used to collect data regarding the participants' demographics and their level of knowledge of STDIs across different domains including general STDI pathogens knowledge (8 items), signs and symptoms (9 items), mode of transmission (5 items), and prevention (5 items). Knowledge was presented both as absolute and percentage scores. Differences in STDI knowledge were statistically assessed using Mann-Whitney U and Chi-squared tests. Logistic regression models were further used to identify factors associated with STDI knowledge.

Results: A total of 778 students participated in the study with a median age of 21 years (IQR = 19, 23). The overall median STDI knowledge score of the participants was 7 (out of 27), with some differences within STDI domains–signs & symptoms (1 out of 9), modes of transmission (2 out of 5), general STDI pathogens (2 out of 8), and prevention (1 out of 5). Higher STDI knowledge was significantly associated with being non-Emirati (OR = 1.85, 95% CI = 1.24–2.75), being married (OR = 2.89, 95% CI = 1.50–5.56), residing in emirates other than Abu Dhabi (OR = 1.61, 95% CI = 1.16–2.25), and being a student of health sciences (OR = 4.45, 95% CI = 3.07–6.45).

Conclusion: In general, STDI knowledge was low among the students. Having good knowledge of STDIs is essential for their prevention and control. Therefore, there is a need for informed interventions to address the knowledge gap among students, youths, and the general population at large.

Keywords: knowledge; STD; STI; students; United Arab Emirates

Natural infection versus hybrid (natural and vaccination) humoral immune response to SARS-CoV-2: a comparative paired analysis

Authors: AbdelWareth, L; Alhousani, F; Abuyadek, R; Donnelly, J; Leinberger-Jabari, A; Atef, S; Al-**Rifai, R.H.**

Journal: Frontiers in Immunology | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fimmu.2023.1230974

Abstract

Objectives: There is substantial immunological evidence that vaccination following natural infection increases protection. We compare the humoral immune response developed in initially seropositive individuals (naturally infected) to humoral hybrid immune response (developed after infection and vaccination) in the same population group after one year.

Methods: The study included 197 male individuals who were naturally infected with SARS-CoV-2 and then vaccinated with SARS-CoV-2 vaccine. Trimeric spike, nucleocapsid, and ACE2-RBD blocking antibodies for SARS-CoV-2 were measured. Nasal swabs were collected for SARS-CoV-2 PCR testing. Information on vaccination against SARS-CoV-2 and PCR verified infection was retrieved from official databases (Abu Dhabi Health Data Services- SP LLC. ("Malaffi"), including number of vaccine doses received, date of vaccination, and type of the received vaccine.

Results: All the study population were tested PCR-Negative at the time of sample collection. Our results showed that there was a significant rise in the mean (SD) and median (IQR) titers of trimeric spike, nucleocapsid and ACE2-RBD blocking antibodies in the post-vaccination stage. The mean (± SD) and median (IQR) concentration of the anti-S antibody rose by 3.3-fold (+230% ± 197% SD) and 2.8-fold (+185%, 220–390%, $p<0.001$), respectively. There was an observed positive dose-response relationship between number of the received vaccine doses and having higher proportion of study participants with higher than median concentration in the difference between the measured anti-S and ACE2-RBD blocking antibodies in the post-vaccination compared to pre-vaccination.

Conclusion: Our study demonstrates that COVID-19 vaccination post natural infection elicits a robust immunological response with an impressive rise of SARS-CoV-2 antibodies, especially the ACE2-RBD blocking antibodies.

Keywords: hybrid immunity; neutralizing antibodies; SARS-CoV-2; spike antibodies; vaccination

Hesitancy toward vaccination against COVID-19: A scoping review of prevalence and associated factors in the Arab world

Authors: **Alam, Z;** Mohamed, S; **Nauman, J; Al-Rifai, R.H; Ahmed, L.A; Elbarazi, I.**

Journal: Hum Vaccin Immunother | **Year**: 2023 | **DOI**: https://doi.org/10.1080/21645515.2023.2245720

Abstract

Background: Despite widespread availability of vaccines against SARS-CoV-2 virus, the cause of Coronavirus Disease 2019 (COVID-19), its uptake in many Arab countries is relatively low. This literature review aimed to scope evidence on COVID-19 vaccine hesitancy (VH) in the Arab world.

Methods: A total of 134 articles reporting prevalence of COVID-19 VH and associated factors, conducted in any of the 22 Arab League countries, were reviewed.

Results: COVID-19 VH prevalence ranged from 5.4% to 83.0%. Female gender, young age, low education level and lack of previous influenza vaccine uptake were most commonly reported to be associated with COVID-19 VH. The most-reported personal concerns contributing toward VH were related to the rapid development, safety and side effects of vaccine, as well as an overall lack of trust in government policies toward pandemic control and widespread conspiracy theories.

Conclusion: Tailored interventions to enable the distribution of trusted information and enhance public acceptance of immunization are warranted.

Keywords: Arab world; COVID-19; pandemic; SARS-CoV-2; scoping review; vaccine hesitancy

Impact of COVID-19 vaccination on the trend of hospital admission and mortality in two tertiary care hospitals in the United Arab Emirates: A retrospective study

Authors: Pradhan, R**; Ahmed, L.A;** Kaabi, N.A; Subki, W.I.E; Zaabi, A.A.

Journal: New Emirates Medical Journal | **Year**: 2023 | **DOI**: https://doi.org/10.2174/04666230316121757

Abstract

Objectives: To investigate the impact of COVID-19 vaccines in the United Arab Emirates (UAE) on the trend of COVID-19-related hospitalization, intensive care unit (ICU) admissions, and case fatality rate (CFR), this retrospective chart review was conducted.

Methods: We included patients admitted to two tertiary hospitals from October 2020 to July 2022. Patients were categorized into non-vaccinated, partially-vaccinated, and fully-vaccinated groups.

Results: A total of 2277 cases were included, with 27.49% being non-vaccinated. The monthly trend of admitted patients dropped from 1264 (56.50%) cases in the first half of 2021 to 194 (8.67%) cases in the first half of 2022, with a reduction rate of 84.65%. The trend of ICU admission followed the overall hospital admission rate, with an overall CFR of 0.88%, 95% CI (0.54% to 1.35%), and a virulence rate of 1.76%, 95% CI (1.26% to 2.38%). The incidence of ICU admission in the unvaccinated group was 4.79%, compared to 0% and 0.97% in the partially-vaccinated and fully-vaccinated groups, respectively ($p < 0.001$). The CFR was significantly ($p < 0.001$) higher in the unvaccinated group 2.88%, 95% CI (1.71 to 4.51) than in the partially-vaccinated 0%, 95% CI (0% to 0.59%) and fully-vaccinated groups 0.19%, 95% CI (0.02% to 0.70%).

Conclusion: Among the study population, COVID-19 vaccines showed promising efficacy in reducing the trend of COVID-19-related hospitalization, ICU admission, and mortality. Full vaccination might reduce the burden of COVID-19 on healthcare.

Keywords: COVID-19; fatality rate; hospital; intensive care; mortality; vaccine

Parental intention to vaccinate children against seasonal influenza in the Eastern Mediterranean region: A cross-sectional study using the health belief model

Authors: Fadl, N; **Elbarazi, I;** Saleeb, M.R.A; Youssef, N; Shaaban, R; Ghazy, R.M.

Journal: Hum Vaccin Immunother | **Year**: 2023 | **DOI**: https://doi.org/10.1080/21645515.2023.2238513

Abstract

Background: Seasonal influenza vaccine is the most effective strategy for reducing influenza incidence and severity. Parental decision-making regarding childhood vaccination is influenced by one's vaccine-related beliefs.

Methods: A cross-sectional study was conducted to determine the role of the Health Belief Model (HBM) in predicting parental intention to vaccinate their children against influenza in the Eastern Mediterranean Region (EMR). An anonymous online survey was distributed to parents of children aged 6 months to 18 years in 14 EMR countries.

Results: Out of the 5964 participants, 28.2% intended to vaccinate their children against influenza. Urban residents (OR = 0.55, 95%CI: 0.35–0.85), decision-making regarding child's health by the father alone (OR = 0.43, 95%CI: 0.34–0.55) or the mother alone (OR = 0.78, 95%CI: 0.65–0.93), having a child with a chronic illness (OR = 0.45, 95%CI: 0.38–0.53), reporting high perceived severity, susceptibility, and benefits (OR = 0.35, 95%CI: 0.30–0.40), and cues to action (OR = 0.45, 95%CI: 0.39–0.51) were inversely associated with parental unwillingness to vaccinate their children against influenza. While parents with a higher number of children in the household (OR = 1.08, 95%CI:1.03–1.12) and higher perceived barriers (OR = 2.92, 95%CI: 2.56–3.34) showed an increased likelihood of unwillingness to vaccinate their children.

Conclusion: Interventions targeting parental beliefs and perceptions are necessary to improve influenza vaccination acceptance and coverage among children.

Keywords: Eastern Mediterranean region; health belief model; influenza vaccine; risk perception; seasonal influenza; willingness to vaccinate

Vaccine hesitancy within the Muslim community: Islamic faith and public health perspectives

Authors: Alsuwaidi, A.R; Hammad, H.A.A.-K; **Elbarazi, I; Sheek-Hussein, M.**

Journal: Hum Vaccin Immunother | **Year**: 2023 | **DOI**: https://doi.org/10.1080/21645515.2023.2190716

Abstract

Background: Vaccine hesitancy is a growing public health concern that has fueled the resurgence of vaccine-preventable diseases in several Muslim-majority countries. Although multiple factors are associated with vaccine hesitancy, certain religious deliberations are significant in determining individuals' vaccine-related decisions and attitudes.

Methods: In this review article, we summarize the literature on religious factors linked to vaccine hesitancy among Muslims, thoroughly discuss the Islamic law (sharia) viewpoint on vaccination and offer recommendations to address vaccine hesitancy in Muslim communities.

Results: Halal content/labeling and the influence of religious leaders were identified as major determinants of vaccination choices among Muslims. The core concepts of sharia, such as "preservation of life," "necessities permit prohibitions," and "empowering social responsibility for the greater public benefit" promote vaccination.

Conclusion: Engaging religious leaders in immunization programs is crucial to enhance the uptake of vaccines among Muslims.

Keywords: halal-based vaccine; Muslims; religious leaders; sharia; vaccine hesitancy

Burden of infectious disease studies in Europe and the United Kingdom: A review of methodological design choices

Authors: Charalampous, P; Haagsma, J.A; Jakobsen, L.S; Gorasso, V; Noguer, I; Padron-Monedero, A; Sarmiento, R; Santos, J.V; Mcdonald, S.A; Plass, D; Wyper, G.M.A; Assunção, R; Von Der Lippe, E; **Ádám, B;** et al.

Journal: Epidemiology and Infection | **Year**: 2023 | **DOI**: https://doi.org/10.1017/s0950268823000031

Abstract

This systematic literature review aimed to provide an overview of the characteristics and methods used in studies applying the Disability-Adjusted Life Years (DALY) concept for infectious diseases within European Union (EU)/European Economic Area (EEA)/European Free Trade Association (EFTA) countries and the United Kingdom. Electronic databases and grey literature were searched for articles reporting the assessment of DALY and its components. We considered studies in which researchers performed DALY calculations using primary epidemiological data input sources. We screened 3,053 studies of which 2,948 were excluded and 105 studies met our inclusion criteria. Of these studies, 22 were multi-country and 83 were single-country studies, of which 46 were from the Netherlands. Food- and water-borne diseases were the most frequently studied infectious diseases. Between 2015 and 2022, the number of burden of infectious disease studies was 1.6 times higher compared to that published between 2000 and 2014. Almost all studies (97%) estimated DALYs based on the incidence- and pathogen-based approach and without social weighting functions; however, there was less methodological consensus with regards to the disability weights and life tables that were applied. The number of burden of infectious disease studies undertaken across Europe has increased over time. Development and use of guidelines will promote performing burden of infectious disease studies and facilitate comparability of the results.

Keywords: burden of disease; disability-adjusted life years; infectious diseases; methodology; systematic review

Seroepidemiology of Treponema pallidum, Mycoplasma hominis, and Ureaplasma urealyticum in fertility treatment-seeking patients in the Emirate of Abu Dhabi, United Arab Emirates

Authors: **Abdo, NM**; Aslam, I; Irfan, S; George, J.A; Alsuwaidi A.R; **Ahmed L.A; Al-Rifai RH**

Journal: Journal of Infection and Public Health | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.jiph.2023.11.019

Abstract

Background: Several genital pathogens affect fertility. The study estimated the seroprevalence of Treponema pallidum, Ureaplasma urealyticum, and Mycoplasma hominis and identify specific factors associated with exposure to at least one of these pathogens in patients seeking fertility treatment in the Emirate of Abu Dhabi, United Arab Emirates.

Methods: A seroepidemiological survey was conducted in a major fertility clinic in the Emirate of Abu Dhabi. Serum samples were screened for eight immunoglobulins (IgG, IgM, and IgA) against T. pallidum, U. urealyticum, and M. hominis using enzyme-linked immunoassays. Factors associated with seropositivity to at least one of the pathogens were investigated.

Results: The study surveyed 308 patients seeking fertility treatment (mean age: 36.1 ± 6.8 years). Most patients were female (88.0%), 24.9% had at least one chronic comorbidity, 19.3% had a previous genital infection, and 68.1% had been diagnosed with infertility for ≥ 6 months. Ig seroprevalence of T. pallidum (IgG: 3.0%, IgM: 3.2%), U. urealyticum (IgG: 2.6%, IgM: 2.0%), and M. hominis (IgG: 33.9%) was 6.4%, 4.6%, and 49.0%, respectively. Nearly one quarter (23.0%) and one decile (9.2%) of the patients exhibited evidence of ongoing infection (IgM seropositivity) or recent infection (IgA seropositivity) with M. hominis, respectively. Overall, 53.0% of the patients were seropositive for at least one of the screened immunoglobulins. Patients with an education level of secondary schooling or below (66.2%) or those who were unemployed (61.1%) had a higher seroprevalence of IgG antibodies compared with patients with college or higher-level education (48.4%) or those who were employed (48.1%) ($p < 0.05$).

Conclusion: Exposure to T. pallidum or U. urealyticum was relatively low, whereas that to M. hominis was common in the surveyed patients. Enhanced awareness and screening programmes for genital pathogens are crucial to prevent and control the transmission of infections and reduce the growing burden of infertility.

Keywords: Treponema pallidum; Mycoplasma hominis; Ureaplasma urealyticum; infertility; reproductive health; United Arab Emirates

Epidemiology and scenario simulations of the Middle East Respiratory Syndrome Corona Virus (MERS-CoV) disease spread and control for dromedary camels in United Arab Emirates (UAE)

Authors: Ali, M.M.; Fathelrahman, E; El Awad, AI; Eltahir, YM; Osman, R; El-Khatib, Y; **AlRifai, RH**; **El Sadig, M**; Khalafalla, AI; Reeves, A.

Journal: Animals | **Year**: 2024 | **DOI**: https://doi.org/10.3390/ani14030362

Abstract

Background: Middle East Respiratory Syndrome (MERS-CoV) is a coronavirus-caused viral respiratory infection initially detected in Saudi Arabia in 2012. In UAE, high seroprevalence (97.1) of MERS-CoV in camels was reported in several Emirate of Abu Dhabi studies, including camels in zoos, public escorts, and slaughterhouses.

Methods: The objectives of this research include simulation of MERS-CoV spread using a customized animal disease spread model (i.e., customized stochastic model for the UAE; analyzing the MERS-CoV spread and prevalence based on camels age groups and identifying the optimum control MERS-CoV strategy.

Results: This study found that controlling animal mobility is the best management technique for minimizing epidemic length and the number of affected farms. This study also found that disease dissemination differs amongst camels of three ages: camel kids under the age of one, young camels aged one to four, and adult camels aged four and up; because of their immunological state, kids, as well as adults, had greater infection rates.

Conclusion: To save immunization costs, it is advised that certain age groups be targeted and that intense ad hoc unexpected vaccinations be avoided. According to the study, choosing the best technique must consider both efficacy and cost.

Keywords: Middle East Respiratory Syndrome Corona Virus (MERS-CoV); disease spread; control strategy; dromedary camels; vaccination; costs

Timeliness metrics for screening and preventing TB in household contacts of pulmonary TB patients in Kenya

Authors: Nair, D.; Thekkur, P.; Mbithi, I.; **Khogali, M.;** Zachariah, R.; Dar Berger, S.; Satyanarayana, S.; Kumar, A. M. V.; Kathure, I.; Mwangi, J.; Bochner, A. F.; McClelland, A.; Chakaya, J. M.; & Harries, A. D.

Journal: IJTLD Open | **Year**: 2024 | **DOI**: https://doi.org/10.5588/ijtldopen.23.0545

Abstract

Background: The study assessed whether a "7-1-7" timeliness metric for screening and TB preventive therapy (TPT) could be implemented for household contacts (HHCs) of index patients with bacteriologically confirmed pulmonary TB under routine programmatic settings in Kenya.

Methods: A longitudinal cohort study conducted among index patients and their HHCs in 12 health facilities, Kiambu County, Kenya.

Results: Between January and June 2023, 95% of 508 index patients had their HHCs line-listed within 7 days of initiating anti-TB treatment ("First 7"). In 68% of 1,115 HHCs, screening outcomes were ascertained within 1 day of line-listing ("Next 1"). In 65% of 1,105 HHCs eligible for further evaluation, anti-TB treatment, TPT or a decision for no drugs was made within 7 days of screening ("Second 7"). Altogether, 62% of screened HHCs started TPT during the "7-1-7" period compared with 58% in a historical cohort. Main barriers to TPT uptake were HHCs not consulting clinicians, HHCs being unwilling to initiate TPT and drug shortages. Healthcare workers felt that a timeliness metric was valuable for streamlining HHC management and proposed "3-5-7" as a workable alternative.

Conclusion: The national TB programme must generate awareness about TPT, ensure uninterrupted drug supplies and assess whether the "3-5-7" metric can be operationalised.

Keywords: HHC; Kenya; TB preventive treatment; TPT; household contact screening; operational research

Using timeliness metrics for household contact tracing and TB preventive therapy in the private sector, India

Authors: Thekkur, P.; Thiagesan, R.; Nair, D.; Karunakaran, N.; **Khogali, M.**; Zachariah, R.; Dar Berger, S.; Satyanarayana, S.; Kumar, A. M. V.; Bochner, A. F.; McClelland, A.; Ananthakrishnan, R.; Harries, A. D.

Journal: Int J Tuberc Lung Dis. | **Year**: 2024 | **DOI**: https://doi.org/10.5588/ijtld.23.0285

Abstract

Background: Although screening of household contacts (HHCs) of TB patients and provision of TB preventive therapy (TPT) is a key intervention to end the TB epidemic, their implementation globally is dismal. We assessed whether introducing a '7-1-7' timeliness metric was workable for implementing HHC screening among index patients with pulmonary TB diagnosed by private providers in Chennai, India, between November 2022 and March 2023.

Methods: This was an explanatory mixed-methods study (quantitative-cohort and qualitative-descriptive).

Results: There were 263 index patients with 556 HHCs. In 90% of index patients, HHCs were line-listed within 7 days of anti-TB treatment initiation. Screening outcomes were ascertained in 48% of HHCs within 1 day of line-listing. Start of anti-TB treatment, TPT or a decision to receive neither was achieved in 57% of HHC within 7 days of screening. Overall, 24% of screened HHCs in the '7-1-7' period started TPT compared with 16% in a historical control ($P < 0.01$). Barriers to achieving '7-1-7' included HHC reluctance for evaluation or TPT, refusal of private providers to prescribe TPT and reliance on facility-based screening of HHCs instead of home visits by health workers for screening.

Conclusion: Introduction of a timeliness metric is a workable intervention that adds structure to HHC screening and timely management.

Keywords: household contacts; tuberculosis screening; timeliness metric; TB preventive therapy; private providers

Durability of COVID-19 humoral immunity post infection and different SARS-COV-2 vaccines

Authors: Alroqi, F; Barhoumi, T; **Masuadi, E**; Nogoud, M; Aljedaie, M; Abu-Jaffal, A. S; Bokhamseen, M; Saud, M; Hakami, M; Arabi, Y. M; Nasr, A.

Journal: Journal of infection and Public Health | **Year**: 2024 |
DOI: https://doi.org/10.1016/j.jiph.2024.02.016

Abstract

Background: The global challenge posed by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) has been a major concern for the healthcare sector in recent years. Healthcare workers have a relatively high risk of encountering COVID-19 patients, making protective immunity against SARS-CoV-2 is a priority for them. This study aims to evaluate the longitudinal measurement of SARS-CoV-2 IgG spike protein antibodies in healthcare workers (HCWs) after COVID-19 infection and after receiving the first and second doses of SARS-CoV-2 vaccines, including Pfizer-BioNTech (BNT162b2) and Oxford-AstraZeneca (AZD1222).

Methods: This longitudinal cohort study involved 311 healthcare workers working in two tertiary hospitals in Saudi Arabia. All participants were followed between July 2020 and July 2022 after completing the study questionnaire. A total of 3 ml of the blood samples were collected at four intervals: before/after vaccination.

Results: HCWs post-infection had lower mean SARS-CoV-2 IgG levels three months post-infection than post-vaccination. 92.2% had positive IgG levels two weeks after the first dose and reached 100% after the second dose. Over 98% had positive antibodies nine months after the second dose, regardless of vaccine type. The number of neutralizing antibodies decreased and was around 50% at nine months after the second dose.

Conclusion: The results show different antibody patterns between infected and vaccinated HCWs. A high proportion of participants had positive antibodies after vaccination, with high levels persisting nine months after the second dose. Neutralizing antibodies decreased over time, with only about 50% of participants having positive antibodies nine months after the second dose. These results contribute to our understanding of immunity in healthcare workers and highlight the need for the continuous monitoring and possible booster strategies.

Keywords: COVID-19, vaccine, IgG antibody, KSA; healthcare workers; SARS-CoV-2

Staphylococcus spp. in salad vegetables: biodiversity, antimicrobial resistance, and first identification of methicillin-resistant strains in the United Arab Emirates food supply

Authors: Habib, I; Lakshmi, G. B; Mohamed, M. I; Ghazawi, A; Khan, M; **Al-Rifai, R. H**; Abdalla, A; Anes, F; Elbediwi, M; Khalifa, H. O; Senok, A.

Journal: Foods | **Year**: 2024 | **DOI**: https://doi.org/10.3390/foods13152439

Abstract

Background: Contamination of leafy greens with Staphylococcus spp. can occur at various supply chain stages, from farm to table. This study comprehensively analyzes the species diversity, antimicrobial resistance, and virulence factors of Staphylococci in salad vegetables from markets in the United Arab Emirates (UAE).

Methods: A total of 343 salad items were sampled from three major cities in the UAE from May 2022 to February 2023 and tested for the presence of Staphylococcus spp. using standard culture-based methods. Species-level identification was achieved using matrix-assisted laser desorption ionization-time of flight mass spectrometry. Antimicrobial susceptibility testing was conducted using the VITEK-2 system with AST-P592 cards. Additionally, whole genome sequencing (WGS) of ten selected isolates was performed to characterize antimicrobial resistance determinants and toxin-related virulence factors.

Results: Nine Staphylococcus species were identified in 37.6% (129/343) of the tested salad items, with coagulase-negative staphylococci (CoNS) dominating (87.6% [113/129]) and S. xylosus being the most prevalent (89.4% [101/113]). S. aureus was found in 4.6% (14/343) of the salad samples, averaging 1.7 log10 CFU/g. One isolate was confirmed as methicillin-resistant S. aureus, harboring the mecA gene. It belonged to multi-locus sequence type ST-672 and spa type t384 and was isolated from imported fresh dill. Among the characterized S. xylosus (n = 45), 13.3% tested positive in the cefoxitin screen test, and 6.6% were non-susceptible to oxacillin. WGS analysis revealed that the cytolysin gene (cylR2) was the only toxin-associated factor found in S. xylosus, while a methicillin-sensitive S. aureus isolate harbored the Panton-Valentine Leukocidin (LukSF/PVL) gene.

Conclusion: This research is the first to document the presence of methicillin-resistant S. aureus in the UAE food chain. Furthermore, S. xylosus (a coagulase-negative staphylococcus not commonly screened in food) has demonstrated phenotypic resistance to clinically relevant antimicrobials. This underscores the need for vigilant monitoring of antimicrobial resistance in bacterial contaminants, whether pathogenic or commensal, at the human-food interface.

Keywords: staphylococci; United Arab Emirates; antimicrobial resistance; food safety; fresh produce

INJURY & SAFETY

A 1-year prospective monocentric study of limb, spinal and pelvic fractures: Can monitoring fracture epidemiology impact injury prevention programmes?

Authors: Báča, V; Klimeš, J; Tolar, V; Zimola, P; Balliu, I; Vitvarová, I; Lásková, H; Džupa, V; **Grivna, M**; Čelko, A.M.

Journal: Central European Journal of Public Health | **Year**: 2018 |

DOI: https://doi.org/10.21101/cejph.a5161

Abstract

Objectives: The aim of this study was to assess fractures of extremities, spine and pelvis in patients with respect to mechanism, time of the incident and demography of patients in order to propose preventive measures.

Methods: A mono-centric (Level I Trauma Centre, predominantly urban population) prospective study was carried-out during the one-year period from 1 January to 31 December 2012. Patients with bone fractures of extremities, spine and pelvis were studied. Demography, mechanism and time of the injury were analysed.

Results: The study group consisted of 3,148 patients, 53% being women and treated for 3,909 fractures. The mean age of patients was 53 years. The most traumatised patients were of the 3rd and 4th decade, a further increase in the incidence of fractures was seen in the 7th and 9th decade. Multiple fractures were significantly higher in men ($p = 0.002$). A car crash or fall from a height was more common cause of spinal fracture or pelvic fracture than fracture to the upper or lower limbs ($p < 0.001$). Most of the fractures occurred during the day between 9 a.m. and 6 p.m; on Saturdays and during the winter season. The bones most often broken were the radius (739 patients, 18.5%) and femur (436 patients, 11.1%).

Conclusions: Our study highlights the need for injury prevention focused on sex, age and types of activities performed. Among younger individuals, such programmes should primarily be targeted toward men who, as observed in our sample, have a higher fracture frequency compared to women. Conversely, injury prevention programmes for individuals ≥ 60 years should primarily be targeted toward women, who have the highest fracture prevalence in this population.

Keywords: fractures of extremities; injury prevention programmes; pelvic fractures; spinal fractures

The association between childhood fractures and adolescence bone outcomes: a population-based study, the Tromsø Study, Fit Futures

Authors: Christoffersen, T; Emaus, N; Dennison, E; Furberg, A.-S; Gracia-Marco, L; Grimnes, G; Nilsen, O.A; Vlachopoulos, D; Winther, A; **Ahmed, L.A.**

Journal: Osteoporosis International | **Year**: 2018 | **DOI**: https://doi.org/10.1007/s00198-017-4300-0

Abstract

Background: Childhood fracture may predict persistent skeletal fragility, but it may also reflect high physical activity which is beneficial to bone development. We observe a difference in the relationship between previous fracture and bone outcome across physical activity level and sex. Further elaboration on this variation is needed. Childhood fracture may be an early marker of skeletal fragility, or increased levels of physical activity (PA), which are beneficial for bone mineral accrual. This study investigated the association between a previous history of childhood fracture and adolescent bone mineral outcomes by various PA levels.

Methods: We recruited 469 girls and 492 boys aged 15–18 years to this study. We assessed PA levels by questionnaire and measured areal bone mineral density (aBMD) and bone mineral content (BMC) using dual-energy X-ray absorptiometry (DXA) at arm, femoral neck (FN), total hip (TH), and total body (TB) and calculated bone mineral apparent density (BMAD, g/cm3). Fractures from birth to time of DXA measurements were retrospectively recorded. We analyzed differences among participants with and without fractures using independent sample t test. Multiple linear regression was used to examine the association between fractures and aBMD and BMC measurements according to adolescent PA.

Results: Girls with and without a previous history of fracture had similar BMC, aBMD, and BMAD at all sites. In multiple regression analyses stratified by physical activity intensity (PAi), there was a significant negative association between fracture and aBMD-TH and BMC-FN yet only in girls reporting low PAi. There was a significant negative association between forearm fractures, BMAD-FN, and BMAD-arm among vigorously active boys.

Conclusion: Our findings indicate a negative association between childhood fractures and aBMD/BMC in adolescent girls reporting low PAi. In boys, such an association appears only in vigorously active participants with a history of forearm fractures.

Keywords: bone mineral density; child; DXA; fracture; physical activity

Incense burning is associated with human oral microbiota composition

Authors: Vallès, Y; Inman, C.K; Peters, B.A; Wareth, L.A; Abdulle, A; Alsafar, H; Anouti, F.A; Dhaheri, A.A; Galani, D; Haji, M; Hamiz, A.A; Hosani, A.A; Houqani, M.A; Aljunaibi, A; Kazim, M; Kirchhoff, T; Mahmeed, W.A; **Maskari, F.A;** Alnaeemi, A; Oumeziane, N; Ramasamy, R; Schmidt, A.M; Vallès, H; Zaabi, E.A; Sherman, S; Ali, R; Ahn, J; Hayes, R.B.

Journal: Scientific Reports | **Year**: 2019 | **DOI**: https://doi.org/10.1038/s41598-019-46353-y

Abstract

Background: Incense burning is common worldwide and produces environmental toxicants that may influence health; however, biologic effects have been little studied.

Methods: In 303 Emirati adults, we tested the hypothesis that incense use is linked to compositional changes in the oral microbiota that can be potentially significant for health. The oral microbiota was assessed by amplification of the bacterial 16S rRNA gene from mouthwash samples. Frequency of incense use was ascertained through a questionnaire and examined in relation to overall oral microbiota composition (PERMANOVA analysis), and to specific taxon abundances, by negative binomial generalized linear models.

Results: We found that exposure to incense burning was associated with higher microbial diversity ($p < 0.013$) and overall microbial compositional changes (PERMANOVA, $p = 0.003$). Our study also revealed that incense use was associated with significant changes in bacterial abundances (i.e. depletion of the dominant taxon Streptococcus), even in occasional users (once/week or less) implying that incense use impacts the oral microbiota even at low exposure levels.

Conclusion: In summary, this first study suggests that incense burning alters the oral microbiota, potentially serving as an early biomarker of incense-related toxicities and related health consequences. Although a common indoor air pollutant, guidelines for control of incense use have yet to be developed.

Keywords: incense burning; oral microbiota; microbial diversity; toxicants; health effects; environmental exposure; UAE

Risky driving behaviour in Abu Dhabi, United Arab Emirates: A cross-sectional, survey-based study

Authors: Alketbi, L.M.B; **Grivna, M;** Al Dhaheri, S.

Journal: BMC Public Health | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s12889-020-09389-8

Abstract

Background: Traffic collision fatality rates per mile travelled have declined in Abu Dhabi similar to many developed countries. Nevertheless, the rate is still significantly higher than the average of countries with similar GDP and socio-demographic indicators. The literature on the subject in the UAE is limited especially in the area of studying drivers behaviour. This study aims to find determinants of risky driving behaviours that precipitate having a road traffic collision (RTC) in the United Arab Emirates (UAE).

Methods: A cross-sectional, survey-based study was employed. Participants were 327 active drivers who were attending Abu Dhabi Ambulatory Health Care Services clinics. They were provided with a questionnaire consisting of demography, lifestyle history, medical history, driving history, and an RTC history. They were also given a driving behaviour questionnaire, a distracted driving survey, depression screening and anxiety screening.

Results: Novice drivers (less than 25 years old) were 42% of the sample and 79% were less than 35 years. Those who reported a history of an RTC constituted 39.8% of the sample; nearly half (47.1%) did not wear a seatbelt during the collision. High scores in the driving behaviour questionnaire and high distraction scores were evident in the sample. Most distraction-prone individuals were young (90.5% were less than 36 years old). High scores in the driving behaviour questionnaire were also associated with high distraction scores ($p < 0.001$). Respondents with high depression risk were more likely to be involved in the RTC. With each one-point increase in the driver's distraction score, the likelihood of a car crash being reported increased by 4.9%.

Conclusion: Drivers in the UAE engage in risky behaviours and they are highly distracted. Some behaviours that contribute to severe and even fatal injuries in RTCs include failing to wear a seatbelt and being distracted. Younger people were more likely distracted, while older drivers were more likely to have higher depression scores. Depression is suggested as a determinant factor in risky driving. These findings are informative to other countries of similar socioeconomic status to the UAE and to researchers in this field in general.

Keywords: depression; distracted driving; driver's behaviour; road traffic collision

Reduction of pedestrian death rates: A missed global target

Authors: **Yasin, Y.J; Grivna, M;** Abu-Zidan, F.M.

Journal: World Journal of Emergency Surgery | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s13017-020-00315-2

Abstract

Background: The UN Decade of Action for Road Safety aimed to reduce road traffic deaths by half by year 2020. We aimed to study risk factors affecting global pedestrian death rates overtime, and whether the defined target of its reduction by WHO has been achieved.

Methods: The studied variables were retrieved from the WHO Global Status Reports on Road Safety published over 2010-2018. These covered years 2007-2016 and included the estimated road traffic death rates per 100,000 population, policies to promote walking and cycling, enforcement levels of national speed limits, the gross national income per capita and the vehicle/person ratio in each country. A mixed linear model was performed to define the factors affecting the change of pedestrian death rates overtime.

Results: Global pedestrian mortality decreased by 28% over 10 years. This was significant between years 2007 and 2010 ($p = 0.034$), between years 2013 and 2016 ($p = 0.002$) but not between 2010 and 2013 ($p = 0.06$). Factors that reduced pedestrian death rates included time ($p < 0.0001$), GNI ($p < 0.0001$), and vehicle/person ratio ($p < 0.0001$). There was a significant drop overtime in both the middle-income, and high-income countries ($p < 0.0001$, Friedman test), but not in the low-income countries ($p = 0.35$, Friedman test).

Conclusions: Global pedestrian mortality has dropped by 28% over a recent decade, which is less than the 50% targeted reduction. This was mainly driven by improved GNI and using more vehicles. The economical gap between poor and rich countries has a major impact on pedestrian death rates.

Keywords: death; global; pedestrian; road safety; road traffic collision

Road traffic fatality time series analysis in Dubai from 2012 to 2016

Authors: Alshamsi, F.A; Alshamsi, E.A**; El-Sadig, M.**

Journal: National Journal of Community Medicine | **Year**: 2020 | https://shorturl.at/hKUET

Abstract

Introduction: Road traffic crashes were second cause of death in the UAE. Many traffic regulations and fines had been implemented in UAE to control the high number of road traffic crashes.

Methods: This study is retrospective analytical study. We used data from road traffic crashes occurring in Dubai between 2012 and 2016. We extracted these data from Dubai Statistics Center (DSC) and Dubai Road and Transport Authority (RTA). We analysed the data using time series model by expert modeller of SPSS.

Results: The Road traffic fatality in Dubai had an increasing trend over the four years of study. Also, seasonality was overserved in time series. More road traffic deaths had been occurred during March, December, July (9.83%, 9.71%, and 9.10% respectively). The Winter's additive model was recognized as a best model in forecasting the trend of fatalities. Forecasting model also showed a ascending trend of traffic road fatalities over the next 4 years.

Conclusion: There was ascending trend in the study and the future 4 years. We need to investigate more about prevention measures for road traffic crashes. Also, further research is needed to study the correlation between temperature and fatal road crashes.

Keywords: mortality; seasonality; time series; traffic accidents; trend; United Arab Emirates

Characteristics of patients with low-trauma vertebral fractures in the United Arab Emirates: A descriptive multicenter analysis

Authors: Alseddeeqi, E; Bashir, N; Alali, K.F; **Ahmed, L.A.**

Journal: Endocrine Journal | **Year**: 2020 | **DOI**: https://doi.org/10.1507/endocrj.ej20-0013

Abstract

Background: Vertebral fracture is the most common type of osteoporotic fracture. However, the prevalence of osteoporosis and osteoporotic vertebral fractures were not explored previously in the United Arab Emirates (UAE). This study aims to describe for the first time the demographic and morphological characteristics of patients with fragility vertebral fractures in the UAE through a retrospective review of the medical records of patients with low-trauma vertebral fractures who visited two tertiary centers during 2011–2016.

Methods: The sex, age at the time of fracture, nationality, body mass index (BMI), and anatomical fracture location were recorded for each patient.

Results: Overall, 143 subjects were diagnosed with low-trauma vertebral fractures in the Emirate of Abu Dhabi during 2011–2016. Of these, 98 were women (68.5%) and 45 were men (31.5%). The overall mean patient age at diagnosis was 62.5 years, and almost half were younger than 65 years. Approximately 60% of the patients were UAE nationals. Fifty-one patients (36.7%) were obese (mean BMI: 35.3 kg/m2), and women with vertebral fractures had a significantly higher mean BMI compared with men ($p = 0.041$).

Conclusion: Nearly 40% of men had a normal BMI, compared with 20% of women. Most fractures were compression fractures (77.6%) in the thoracolumbar transition region. In conclusion, patients with fragility vertebral fractures were predominantly female and tended to be overweight or obese, although male patients tended to have a lower BMI than female patients.

Keywords: body mass index; fragility fracture; low-trauma; osteoporosis; vertebral fracture

Impact of osteoporotic fracture type and subsequent fracture on mortality: the Tromsø Study

Authors: Alarkawi, D; Bliuc, D; Tran, T; **Ahmed, L.A;** Emaus, N; Bjørnerem, A; Jørgensen, L; Christoffersen, T; Eisman, J.A; Center, J.R.

Journal: Osteoporosis International | **Year**: 2020 | **DOI**: https://doi.org/10.1007/s00198-019-05174-5

Abstract

Summary: Less is known about the impact of non-hip non-vertebral fractures (NHNV) on early death. This study demonstrated increased risk of dying following hip and NHNV fractures which was further increased by a subsequent fracture. This highlights the importance of early intervention to prevent both initial and subsequent fractures and improve survival.

Introduction: Osteoporotic fractures are a major health concern. Limited evidence exists on their impact on mortality in ageing populations. This study examined the contribution of initial fracture type and subsequent fracture on mortality in a Norwegian population that has one of the highest rates of fractures.

Methods: The Tromsø Study is a prospective population-based cohort in Norway. Women and men aged 50+ years were followed from 1994 to 2010. All incident hip and non-hip non-vertebral (NHNV) fractures were registered. NHNV fractures were classified as either proximal or distal. Information on self-reported co-morbidities, lifestyle factors, general health and education level was collected. Multivariable Cox models were used to quantify mortality risk with incident and subsequent fractures analysed as time-dependent variables.

Results: Of 5214 women and 4620 men, 1549 (30%) and 504 (11%) sustained a fracture, followed by 589 (38%) and 254 (51%) deaths over 10,523 and 2821 person-years, respectively. There were 403 (26%) subsequent fractures in women and 68 (13%) in men. Hip fracture was associated with a two-fold increase in mortality risk (HR 2.05, 95% CI 1.73–2.42 in women and 2.49, 95% CI 2.00–3.11 in men). Proximal NHNV fractures were associated with 49% and 81% increased mortality risk in women and men (HR 1.49, 95% CI 1.21–1.84 and 1.81, 95% CI 1.37–2.41), respectively. Distal NHNV fractures were not associated with mortality. Subsequent fracture was associated with 89% and 77% increased mortality risk in women and men (HR 1.89, 95% CI 1.52–2.35 and 1.77, 95% CI 1.16–2.71), respectively.

Conclusion: Hip, proximal NHNV and subsequent fractures were significantly associated with increased mortality risk in the elderly, highlighting the importance of early intervention.

Keywords: mortality; non-hip non-vertebral fractures; subsequent fracture; Tromsø Study

Global impact of COVID-19 pandemic on road traffic collisions

Authors: **Yasin, Y.J; Grivna, M;** Abu-Zidan, F.M.

Journal: World Journal of Emergency Surgery | **Year**: 2021 | **DOI**: https://doi.org/10.1186/s13017-021-00395-8

Abstract

Background: Various strategies to reduce the spread of COVID-19 including lockdown and stay-at-home order are expected to reduce road traffic characteristics and consequently road traffic collisions (RTCs). We aimed to review the effects of the COVID-19 pandemic on the incidence, patterns, and severity of the injury, management, and outcomes of RTCs and give recommendations on improving road safety during this pandemic.

Methods: We conducted a narrative review on the effects of COVID-19 pandemic on RTCs published in English language using PubMed, Scopus, and Google Scholar with no date restriction. Google search engine and websites were also used to retrieve relevant published literature, including discussion papers, reports, and media news. Papers were critically read and data were summarized and combined.

Results: Traffic volume dropped sharply during the COVID-19 pandemic which was associated with significant drop in RTCs globally and a reduction of road deaths in 32 out of 36 countries in April 2020 compared with April 2019, with a decrease of 50% or more in 12 countries, 25 to 49% in 14 countries, and by less than 25% in six countries. Similarly, there was a decrease in annual road death in 33 out of 42 countries in 2020 compared with 2019, with a reduction of 25% or more in 5 countries, 15–24% in 13 countries, and by less than 15% in 15 countries. In contrast, the opposite occurred in four and nine countries during the periods, respectively. There was also a drop in the number of admitted patients in trauma centers related to RTCs during both periods. This has been attributed to an increase in speeding, emptier traffic lanes, reduced law enforcement, not wearing seat belts, and alcohol and drug abuse.

Conclusions: The COVID-19 pandemic has generally reduced the overall absolute numbers of RTCs, and their deaths and injuries despite the relative increase of severity of injury and death. The most important factors that affected the RTCs are decreased mobility with empty lines, reduced crowding, and increased speeding. Our findings serve as a baseline for injury prevention in the current and future pandemics.

Keywords: alcohol; COVID-19; death; distraction; injury; road safety; road traffic collision; speed

Risks for bicycle-related injuries in Al Ain city, United Arab Emirates An observational study

Grivna, M; AlKatheeri, A; AlAhbabi, M; AlKaabi, S; Alyafei, M; Abu-Zidan, F.M.

Journal: Medicine (United States) | **Year**: 2021 | **DOI**: https://doi.org/10.1097/md.0000000000027639

Abstract

Background: Traffic-related injuries are a serious health problem. Traffic safety is a priority reflected in the United Nations Sustainable Development Goals. Data on current hazards for bicycle-related injuries from the United Arab Emirates are lacking. The aim of our observational study was to assess the behavior of bicyclists on the roads in Al Ain City, United Arab Emirates and compare our current results with a previous study from 2004.

Methods: We adapted and tested a structured data collection form. Different sectors of Al Ain were randomly selected to cover the whole city during different times. Bicyclists were observed without direct contact.

Results: Out of 1129 bicyclists, 97.6% were males and 13.2% children. 39.4% were cycling on main roads with high-density traffic, 33.1% were cycling against the traffic, 39.3% were cycling at night, and 96.8% of them were not using lights. Only 2.1% of the bicyclists used helmets. A higher proportion of female than male cyclists used helmets (25.9% vs 1.5%; $P < .001$, Fisher exact test). There was an increase in cycling with the traffic ($P < .001$) and in use of helmets ($P < .025$) compared with the previous study.

Conclusion: Unsafe practices of bicyclists and low use of helmets despite legislation persist in Al Ain. There is a need to raise bicycle safety awareness and improve enforcement of bicycle helmet legislation. This should be directed toward expatriate workers, children, parents, and maids. Environmental changes, namely building separate bicycle lanes, can increase safety for cycling.

Keywords: bicycle injuries; children; helmet legislation; helmet use; traffic safety; UAE

Current changes in the epidemiology of fall-related injuries in Al Ain City, United Arab Emirates

Authors: Cevik, A.A; Alao, D.O; Eid, H.O; **Grivna, M;** Abu-Zidan, F.M.

Journal: PLoS ONE | **Year**: 2021 | **DOI**: https://doi.org/10.1371/journal.pone.0257398

Abstract

Background: Falls in the Gulf countries are the second most common cause of injuries. The United Arab Emirates government implemented various preventive measures to decrease injuries in the country. We aimed to evaluate the changes in the epidemiology of fall-related injuries in Al- Ain City over the last decade.

Methods: Data of hospitalized patients who presented with fall-related injuries to the Al-Ain Hospital during the two periods of March 2003 to March 2006 and January 2014 to December 2017 were compared. This included patients' demographics, mechanism, location, anatomical distribution and parameters related to injury severity. Non-parametric tests were used for the statistical analysis.

Results: 882 in the first and 1358 patients in the second period were studied. The incidence of falls decreased by 30.5% over ten years. The number of elderly, female patients, and UAE nationals increased, ($p < 0.001$, $p = 0.004$, and $p < 0.001$). Falls from height decreased by 32.5% ($p < 0.001$) while fall on the same level increased by 22.5% ($p < 0.001$). Fall-related injuries at home have increased significantly by 22.6% ($p <0.001$), while falls in workplaces decreased by 24.4% ($p <0.001$).

Conclusions: Our study showed that the overall incidence of falls decreased compared to a decade ago. The preventive measures were effective in reducing falls from height and workplace injuries. Future preventive measures should target falls at the same level and homes.

Keywords: falls; injury prevention; home safety; public health measures; injury severity; UAE

Epidemiological changes of geriatric trauma in the United Arab Emirates

Authors: Alao, D.O; Cevik, A.A; **Grivna, M;** Eid, H.O; Abu-Zidan, F.M.

Journal: Medicine (United States) | **Year**: 2021 | **DOI**: https://doi.org/10.1097/md.0000000000026258

Abstract

Background: We aimed to study the epidemiological changes in geriatric trauma in Al-Ain City, United Arab Emirates, in the past decade to give recommendations on injury prevention.

Methods: Trauma patients aged 65years and above who were hospitalized at Al-Ain Hospital for more than 24hours or died in the hospital after their arrival regardless of the length of stay were studied. Data were extracted from the Al-Ain Hospital trauma registry. Two periods were compared; March 2003 to March 2006 and January 2014 to December 2017. Studied variables which were compared included demography, mechanism of injury and its location, and clinical outcome.

Results: There were 66 patients in the first period and 200 patients in the second period. The estimated annual incidence of hospitalized geriatric trauma patients in Al-Ain City was 8.5 per 1000 geriatric inhabitants in the first period compared with 7.8 per 1000 geriatric inhabitants in the second period. Furthermore, mortality was reduced from 7.6% to 2% (P=0.04). There was a significant increase in falls on the same level by14.9% (62.1%-77%, P=0.02, Pearson χ2test). This was associated with a significant increase of injuries occurring at home (55.4%-78.7% P=0.0003, Fisher Exact test). There was also a strong trend in the reduction of road traffic collision injuries which was reduced by 10.8% (27.3%-16.5%, P=0.07, Fisher Exact test).

Conclusion: Although the incidence and severity of geriatric trauma did not change over the last decade, in-hospital mortality has significantly decreased over time. There was a significant increase in injuries occurring at homes and in falls on the same level. The home environment should be targeted in injury prevention programs so as to reduce geriatric injuries.

Keywords: geriatric; incidence; injury; mechanism; prevention; trauma

Risk factors associated with quad bike crashes: A protocol for systematic review of observational studies

Authors: Menon, P; El-Sadig, M; Ab Khan, M; Östlundh, L; El-Deyarbi, M; **Al-Rifai, R.H; Grivna, M.**

Journal: BMJ Open | **Year**: 2021 | **DOI**: https://doi.org/10.1136/bmjopen-2020-044456

Abstract

Background: Quad bikes are four-wheeled vehicles, driven off-road on uneven terrains by farmers for work or young adults for leisure. Quad bike accidental crashes result mostly due to the unique ecosystem of uneven terrain, where these unstable vehicles are commonly driven, in addition to numerous distinctive sociodemographic characteristics related to drivers. This is a protocol for a systematic review of observational studies from all geographical regions and demographic groups in the world to summarise the common risk factors relating to quad bike crashes.

Methods: A comprehensive search for the literature on quad bike crashes and related injuries will be conducted in six electronic databases: PubMed, Embase, Scopus, Web of Science, IEEE and PsycINFO. Proquest Dissertation and Thesis, OpenGrey and BASE will be searched for grey literature. Five researchers will be involved in the screening, and the review of full text articles, using the inclusion and exclusion criteria. Disagreements between reviewers will be resolved by discourse. Three researchers will help resolving conflicts that may arise during the screening process and will resolve eventual conflicts identified in the process with the help of the systematic review software 'Covidence' for automatic deduplication and blinded screening. Information on crashes leading to injuries and death, target population characteristics and risk factors involved will be extracted from eligible articles in addition to the assessment of the quality of the researched articles.

Ethics and dissemination: Since this is a systematic review of published literature, a formal ethical approval is not needed. Results of the review will be disseminated through peer-reviewed publications, conference presentations and reports to the concerned authorities. PROSPERO registration number CRD42020170245.

Keywords: epidemiology; occupational & industrial medicine; public health; risk management; sports medicine

Methodological considerations in injury burden of disease studies across Europe: a systematic literature review

Authors: Charalampous, P; Pallari, E; Gorasso, V; von der Lippe, E; Devleesschauwer, B; Pires, S.M; Plass, D; Idavain, J; Ngwa, C.H; Noguer, I; Padron-Monedero, A; Sarmiento, R; Majdan, M; **Ádám, B;** et al.

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Abstract

Background: Calculating the disease burden due to injury is complex, as it requires many methodological choices. Until now, an overview of the methodological design choices that have been made in burden of disease (BoD) studies in injury populations is not available. The aim of this systematic literature review was to identify existing injury BoD studies undertaken across Europe and to comprehensively review the methodological design choices and assumption parameters that have been made to calculate years of life lost (YLL) and years lived with disability (YLD) in these studies.

Methods: We searched EMBASE, MEDLINE, Cochrane Central, Google Scholar, and Web of Science, and the grey literature supplemented by handsearching, for BoD studies. We included injury BoD studies that quantified the BoD expressed in YLL, YLD, and disability-adjusted life years (DALY) in countries within the European Region between early-1990 and mid-2021.

Results: We retrieved 2,914 results of which 48 performed an injury-specific BoD assessment. Single-country independent and Global Burden of Disease (GBD)-linked injury BoD studies were performed in 11 European countries. Approximately 79% of injury BoD studies reported the BoD by external cause-of-injury. Most independent studies used the incidence-based approach to calculate YLDs. About half of the injury disease burden studies applied disability weights (DWs) developed by the GBD study. Almost all independent injury studies have determined YLL using national life tables.

Conclusions: Considerable methodological variation across independent injury BoD assessments was observed; differences were mainly apparent in the design choices and assumption parameters towards injury YLD calculations, implementation of DWs, and the choice of life table for YLL calculations. Development and use of guidelines for performing and reporting of injury BoD studies is crucial to enhance transparency and comparability of injury BoD estimates across Europe and beyond.

Keywords: burden of disease, burden of Injury, disability-adjusted life years, review, methodology

Risk factors associated with quadbike crashes: a systematic review

Authors: **Menon, P**; El-Deyarbi, M; Khan, M.A; **Al-Rifai, R.H; Grivna, M;** Östlundh, L; **El-Sadig, M.**

Journal: World Journal of Emergency Surgery | **Year**: 2022 | **DOI**: https://doi.org/10.1186/s13017-022-00430-2

Abstract

Background: Quadbikes or all-terrain vehicles are known for their propensity for crashes resulting in injury, disability, and death. The control of these needless losses resulting from quadbike crashes has become an essential contributor to sustainable development goals. Understanding the risk factors for such injuries is essential for developing preventive policies and strategies. The aim of this review was to identify the risk factors associated with quadbike crashes at multiple levels through a systematic review of a wide range of study designs.

Methods: The study incorporated a mixed-method systematic review approach and followed the PRISMA 2020 guidelines for reporting systematic reviews, including a peer reviewed protocol. This systematic review included observational studies investigating the risk factors associated with quadbike crashes, injuries, or deaths. Seven electronic databases were searched from inception to October 2021. Studies were screened and extracted by three researchers. Quality appraisal was conducted using the Mixed Methods Appraisal Tool (MMAT). Due to extensive heterogeneity, meta-analysis was not conducted. All the risk factors have been presented in a narrative synthesis for discussion following the guidelines for Synthesis without Meta-analysis (SWiM).

Results: Thirty-nine studies combining an aggregate of 65,170 participants were included in this systematic review. The results indicate that modifiable risk factors, such as the increasing age of driving initiation, reducing substance use, and the use of organized riding parks, could reduce quadbike injuries. Riding practices such as avoiding passengers, avoiding nighttime riding, and using helmets could significantly reduce crashes and injuries among riders. Vehicle modifications such as increasing the wheelbase and limiting engine displacement could also help reduce crash incidence. Traditional interventional methods, such as legislation and training, had a weak influence on reducing quadbike injuries.

Conclusion: Multiple risk factors are associated with quadbike injuries, with most of them modifiable. Strengthening policies and awareness to minimize risk factors would help in reducing accidents associated with quadbikes.

Keywords: all-terrain vehicle; Haddon matrix; injury prevention; quadbike; risk; safety; sustainable development goals

Reduction of motorcycle-related deaths over 15 years in a developing country

Authors: **Yasin, Y.J;** Eid, H.O; Alao, D.O; **Grivna, M;** Abu-Zidan, F.M.

Journal: World Journal of Emergency Surgery | **Year**: 2022 | **DOI**: https://doi.org/10.1186/s13017-022-00426-y

Abstract

Background: There have been major improvements in the trauma system and injury prevention in Al-Ain City. We aimed to study the impact of these changes on the incidence, pattern, injury severity, and outcome of hospitalized motorcycle-related injured patients in Al-Ain City, United Arab Emirates.

Methods: This is a retrospective analysis of two separate periods of prospectively collected data which were retrieved from Al-Ain Hospital Trauma Registry (March 2003 to March 2006 compared with January 2014 to December 2017). All motorcycle-injured patients who were admitted to Al-Ain Hospital for more than 24 h or died in the Emergency Department or after hospitalization were studied.

Results: The incidence of motorcycle injuries dropped by 37.1% over the studied period. The location of injury was significantly different between the two periods ($p = 0.02$, Fisher's exact test), with fewer injuries occurring at streets/highways in the second period (69.1% compared with 85.3%). The anatomical injury severity of the head significantly increased over time ($p = 0.03$), while GCS on arrival significantly improved ($p < 0.0001$), indicating improvements in both prehospital and in-hospital trauma care. The mortality of the patients significantly decreased (0% compared with 6%, $p = 0.002$, Fisher's exact test).

Conclusion: The incidence of motorcycle injuries in our city dropped by almost 40% over the last 15 years. There was a significant reduction in the mortality of hospitalized motorcycle-injured patients despite increased anatomical severity of the head injuries. This is attributed to improvements in the trauma care system, including injury prevention, and both prehospital and in-hospital trauma care.

Keywords: death; incidence; injury; motorcycle; road traffic collision; trauma; United Arab Emirates

Motorized 2–3 wheelers death rates over a decade: a global study

Author: **Yasin, Y.J; Grivna, M;** Abu-Zidan, F.M.

Journal: World Journal of Emergency Surgery | **Year**: 2022 | **DOI**: https://doi.org/10.1186/s13017-022-00412-4

Abstract

Background: Motorized 2–3-wheelers-related death is high due to the exposed body of the driver/passenger and the high speed. The United Nation (UN) Decade of Action for road safety aimed to reduce road traffic deaths by 50% by the year 2020. We aimed to study the factors affecting the death rates of motorized 2–3 wheelers injured victims and whether the reduction in the death rates has met the UN target.

Methods: Data were retrieved from the WHO Global Status Reports on Road Safety published over 2009 to 2018 which covered the years of 2007 to 2016. Studied variables included motorized 2–3 wheelers death rates, percentage of helmet-wearing rate, helmet law enforcement, speed law enforcement, gross national income per capita, vehicles/person ratio, and motorized 2–3 wheelers/person ratio. A mixed linear model was used to define factors affecting the change of motorized 2–3 wheelers death rates over time.

Results: The global mean motorized 2–3 wheelers death rates increased from 2.37/100,000 population to 3.23/100,000 population over the studied decade (a relative ratio of 1.36) which was not statistically significant. Factors that affected mortality included GNI ($p = 0.025$), motorized 2–3 wheelers per person ratio ($p < 0.0001$), percentage of helmet wearing rate ($p = 0.046$), and the interaction between vehicle/person ratio and motorized 2–3 wheelers/person ratio ($p = 0.016$). There was a significant increase in the death rates over time in the low-income countries (a relative ratio of 2.52, $p = 0.019$, Friedman test), and middle-income countries (a relative ratio of 1.46, $p < 0.0001$, Friedman test), compared with a significant decrease in the high-income countries (a relative ratio of 0.72, $p < 0.0001$, Friedman test).

Conclusions: Global mortality of motorized 2–3 wheelers has increased by a relative ratio of 1.36 over a recent decade. The UN target of reducing death was not met. The increase was related to the increase in motorized 2–3 wheelers per person ratio and economic inequity which has to be addressed globally. The economic global gap significantly impacts the mortality rates of motorized 2–3 wheelers.

Keywords: 2–3 wheelers; death; global; motorcycle; road safety; road traffic collision

Seat belt use among pregnant women in the United Arab Emirates: The Mutaba'ah Study

Authors: **Abdullahi, A.S; Yasin, Y.J; Shah, S.M; Ahmed, L.A; Grivna, M.**

Journal: Injury Prevention | **Year**: 2023 | **DOI**: https://doi.org/10.1136/ip-2023-045047

Abstract

Introduction: Motor vehicle collisions are a major cause of death and injury among pregnant women and their fetuses. Seat belt use compliance during pregnancy varies in different populations. We aimed to study seat belt use among pregnant women and factors affecting seat belt use during pregnancy in Al Ain City, the United Arab Emirates.

Methods: This cross-sectional analysis used the baseline data collected from pregnant women participating in the Mutaba'ah Study from May 2017 to November 2022. Data were collected using self-administered questionnaires. Variables included sociodemographic, gestation periods and seat belt-related information. All pregnant women who responded to the questions related to seat belt use were included (N=2354).

Results: Seat belt use before and during pregnancy was estimated at 69.7% (95% CI 67.9% to 71.6%) and 65.5% (95% CI 63.6% to 67.4%), respectively. The reasons for not using seat belts during pregnancy included being uncomfortable to wear, habitual non-use and considering them unsafe for pregnancy. Age, higher levels of education of the pregnant woman or her spouse, being employed, having a sufficient household income, lower gestational age, and using a seat belt before pregnancy were positively associated with using a seat belt during pregnancy in the bivariate analyses. Pregnant women in their third trimester had independently significant lower odds of using a seat belt compared with those in the first trimester (OR 0.42, 95% CI 0.24 to 0.76).

Conclusions: The findings indicate decreased compliance with seat belt use during pregnancy and as gestation progressed. The decrease was related to several reasons, including feeling uncomfortable wearing seat belts, habitual non-use and unsafe for pregnancy, necessitating appropriate measures to increase awareness. Raising public awareness about the advantages of wearing seat belts during pregnancy and the involvement of healthcare professionals in educating pregnant women are warranted.

Keywords: attitudes; behavior; driver; motor vehicle; occupant; passenger; risk perception

Returning to work after traumatic spine fractures: current status in a military hospital

Authors: Alhabeeb, A. Y.; Konbaz, F.; Aleissa, S.; Alhamed, G. S.; Alhowaish, T. S.; Alhamadh, M. S.; **Masuadi, E.**; Abalkhail, M.; AlHelal, F.; Bourghli, A.

Journal: Military Medicine | **Year**: 2024 | **DOI**: https://doi.org/10.1093/milmed/usae012

Abstract

Introduction: The consequences of traumatic spine fracture (TSF) are complex and have a major burden on patients' social life and financial status. In this study, we aimed to investigate the return to work (RTW) after surgically treated TSFs, develop eventual predictors of delayed or failure to RTW, and assess narcotics use following such injuries.

Methods: This was a single-center retrospective cohort study that was performed in a tertiary care center. TSF patients who required surgical intervention from 2016 to 2021 were enrolled. Demographic, operative, and complication data, as well as narcotics use, were recorded. RTW was modeled using multivariate logistic regression analysis.

Results: Within the 173 patients with TSF, male patients accounted for 82.7%, and motor vehicle accidents were the most common mechanism of injury (80.2%). Neurologically intact patients represented 59%. Only 38.15% returned to work after their injury. Majority of the patients didn't use narcotics more than 1 week after discharge (93.1%). High surgical blood loss, operation time, and hospital length of stay were significantly associated with not returning to work. In multivariant regression analysis, every increase of 100 ml of surgical blood loss was found to decrease the chance of RTW by 25% (P = 0.04). Furthermore, every increase of one hour in operation time decreases the chance of RTW by 31% (P = 0.03).

Conclusions: RTW is an important aspect that needs to be taken into consideration by health care providers. We found that age and high surgery time, blood loss, and hospital stay are significantly impacting patients' RTW after operated TSF.

Keywords: Traumatic spine fracture; return to work; multivariate logistic regression; narcotics use; surgical predictors

Collecting behavioral evidence from a highly mobile and seasonal population: A protocol for a survey on quad bike injuries

Authors: **Menon, P.; El-Sadig, M.;** Albastaki, M. F.; Alzaabi, H.; Alhammadi, S.; Almehrzi, M.; Aljanaahi, H.; **Al-Rifai, R. H.; Masuadi, E. M.; Grivna, M.**

Journal: PLoS One | **Year**: 2024 | **DOI**: https://doi.org/10.1371/journal.pone.0298059

Abstract

Background: Quad bikes are popular recreational, four-wheeled bikes in the Middle East. Injury prevention programs targeting quad bike crashes in the United Arab Emirates (UAE) need evidence about the risk factors and behaviours associated with these crashes in the target population. This is a protocol for a study aiming to investigate quad bike rider behaviours and to assess the risk factors associated with related injuries in the UAE.

Methods: This is a cross-sectional observational study aiming to describe a seasonal sport in a desert environment. With an estimated sample size of 451, the survey will follow a three-stage, location-based sampling strategy using the line-transect method. A sampling frame of desert locations with high injury incidences was developed, using Dubai ambulance injury records. Further expansion of the sampling frame was participatory, involving police, enthusiasts, emergency responders and gas station employees. The data collection will be limited to the winter months in fifteen high-injury desert locations across three major Emirates in the UAE. Trained researchers will observe the riders directly in the desert to note their riding habits, followed by a researcher-administered interview on riding and injury history. The interviews will be administered in Arabic and English using Qualtrics software on handheld tablets with offline and online entry mode. In addition, paper-based entry with the same format will be used as a contingency in busy quad bike locations.

Conclusions: The objective of this study protocol is to develop a comprehensive survey that will furnish substantial evidence for the formulation of effective injury prevention strategies. To enhance the credibility of the recorded riding behaviors, field observations will be employed. The uniqueness of this study lies in its innovative sampling strategy, custom-tailored to accommodate the highly mobile and transient population of desert bikers in the UAE.

Keywords: quad bikes; UAE; injury prevention; rider behaviours; cross-sectional study

Significance of scapular fracture existence in blunt chest trauma: a retrospective cohort study

Authors: Hefny, A. F; Mansour, N. A; Hefny, M. A; **Masuadi, E**; Al Bahri, S; Elkamhawy, A. A; Saber, K. S.

Journal: Surgery Research and Practice | **Year**: 2024 | **DOI**: https://doi.org/10.1155/2024/3550087

Abstract

Background: Scapular fracture is a rare encounter in blunt trauma patients. The scapula is surrounded by strong groups of muscles offering good protection for the bone. Therefore, a high-energy trauma is needed to cause a scapular fracture. We aim to study scapular fractures and their relation to injury severity and mortality in blunt chest trauma (BCT) patients.

Methods: We retrospectively collected data from all patients with BCT who were admitted to our hospital from December 2014 through January 2017. The injury details of all BCT patients were retrieved from the trauma registry of the hospital and were supplemented by patients' electronic files for missing information. Collected data included demography, mechanism of injury, vital signs, Glasgow Coma Score (GCS) on admission, injured body regions, management, Injury Severity Score (ISS), New Injury Severity Score (NISS), length of hospital stay (LOS), and mortality.

Results: During the study period, 669 patients had BCT. Scapular fracture was present in 29 (4.3%) of the BCT patients. The scapular fracture was missed by chest X-ray in 35.7% of the patients; however, it was accurately diagnosed by computed tomography (CT) scan of the chest. Neck injury was significantly higher in patients with scapular fracture compared with patients without fracture ($p < 0.001$). ISS and NISS were significantly higher in patients with scapular fractures compared to other patients without fractures ($p=0.04$ and $p=0.003$ Mann-Whitney U test, respectively). Two patients with scapular fractures died due to severe associated injuries (the overall mortality was 9.6%).

Conclusion: Scapular fracture in BCT patients indicates a high-energy type of trauma. Compared to a chest X-ray, CT scan was more accurate for the diagnosis of scapular fracture. Associated injuries are the main cause of trauma-related mortality rather than the direct effect of the fractured scapula. Particular attention and meticulous evaluation should be paid to head and neck injuries to avoid missing injuries.

Keywords: scapular fracture; blunt chest trauma; injury severity; computed tomography; trauma-related mortality

Child vulnerable road user crash injury severity

Authors: Abdulazeez, M.U.; **Abdullahi, A.S.; El Sadig, M.**; Koppel, S.; Abdullah, K.A.

Journal: Case Studies on Transport Policy | **Year**: 2024 |
DOI: https://doi.org/10.1016/j.cstp.2024.101268

Abstract

Road traffic crashes (RTC) are the main cause of mortality, morbidity, and disability for children globally as well as in the United Arab Emirates (UAE). Although vehicle occupants usually account for the majority of children involved in RTC in developed countries and in the UAE, injuries sustained by child vulnerable road users (VRUs) are usually more severe due to their lack of protection compared to child occupants. Such injuries are known to result in long-term suffering for children including disabilities in some cases, thereby posing a severe public health burden and economic losses to the population. However, despite the severity of injuries to child VRUs involved in RTC, studies in the UAE have mostly focused on vehicle occupants for both children and adults. To the best of our knowledge, this is the first dedicated study on child VRU RTC injuries in the UAE. Additionally, the UAE government is promoting an active transportation policy among children in a bid to curb childhood obesity. Hence, this study examined the factors contributing to RTC injury severity for child VRUs in the UAE. The results of this study will help in enhancing the safety outcomes of child VRU RTC injuries as well as providing policy recommendations for safe active transport among children in the country.

Keywords: vulnerable road user; pedestrian; motorcyclist; bicyclist; injury severity; children mortality

Streamlining management in thoracic trauma: radiomics- and AI-based assessment of patient risks

Authors: Hefny, A. F; Almansoori, T. M; Smetanina, D; Morozova, D; Voitetskii, R; Das, K. M; Kashapov, A; Mansour, N. A; Fathi, M. A; **Khogali, M**; Ljubisavljevic, M; Statsenko, Y.

Journal: Frontiers in Surgery | **Year**: 2024 | **DOI**: https://doi.org/10.3389/fsurg.2024.1462692

Abstract

Background: In blunt chest trauma, patient management is challenging because clinical guidelines miss tools for risk assessment. No clinical scale reliably measures the severity of cases and the chance of complications. The objective of the study was to optimize the management of patients with blunt chest trauma by creating models prognosticating the transfer to the intensive care unit and in-hospital length of stay (LOS).

Methods: The study cohort consisted of 212 cases. We retrieved information on the cases from the hospital's trauma registry. After segmenting the lungs with Lung CT Analyzer, we performed volumetric feature extraction with data-characterization algorithms in PyRadiomics.

Results: To predict whether the patient will require intensive care, we used the three groups of findings: ambulance, admission, and radiomics data. When trained on the ambulance data, the models exhibited a borderline performance. The metrics improved after we retrained the models on a combination of ambulance, laboratory, radiologic, and physical examination data (81.5% vs. 94.4% Sn). Radiomics data were the top-accurate predictors (96.3% Sn). Age, vital signs, anthropometrics, and first aid time were the best-performing features collected by the ambulance service. Laboratory findings, AIS scores for the lower extremity, abdomen, head, and thorax constituted the top-rank predictors received on admission to the hospital. The original first-order kurtosis had the highest predictive value among radiomics data. Top-informative radiomics features were derived from the right hemithorax because the right lung is larger. We constructed regression models that can adequately reflect the in-hospital LOS. When trained on different groups of data, the machine-learning regression models showed similar performance (MAE/ROV ≈ 8%). Anatomic scores for the body parts other than thorax and laboratory markers of hemorrhage had the highest predictive value. Hence, the number of injured body parts correlated with the case severity.

Conclusion: The study findings can be used to optimize the management of patients with a chest blunt injury as a specific case of monotrauma. The models we built may help physicians to stratify patients by risk of worsening and overcome the limitations of existing tools for risk assessment. High-quality AI models trained on radiomics data demonstrate superior performance.

Keywords: abbreviated injury scale (AIS); blunt chest trauma; chest CT scans; injury severity score (ISS); patient management; radiomics; regression models; risk factors

ENVIRONMENTAL & OCCUPATIONAL & HEALTH

Heavy metal content of herbal health supplement products in Dubai - UAE: A cross-sectional study

Authors: Abdulla, N.M; Ádám, B; **Blair, I; Oulhaj, A**.

Journal: BMC Complementary and Alternative Medicine | **Year**: 2019 |
DOI: https://doi.org/10.1186/s12906-019-2693-3

Abstract

Background: Lead, mercury, cadmium, chromium, and arsenic intoxication have been associated with the use of health supplement (HS) products. The aim of this study is to estimate the concentration of heavy metals in HS products that are on sale in Dubai, United Arab Emirates, premises and to compare estimated daily metal intake with regulatory standards.

Methods: Dubai-area premises selling HS products were identified by searching the Dubai Municipality database to identify all pharmacies, para-pharmacies and nutrition and healthcare shops. A total of 859 premises were identified in the Deira and Bur-Dubai areas. Data collection was performed between September 1 and December 12, 2016. During that period, all premises that had been identified within Dubai were visited and samples for laboratory testing were collected.

Results: A total of 200 HS products were tested for lead, mercury, cadmium, chromium and arsenic. High proportion of samples were found to contain metals less than the limits of the detection (LOD) of the method. It was found that 93% of products contained Arsenic (As) < LOD, 94.5% of lead (Pb) < LOD, 100% of Cadmium (Cd) < LOD, 99% of Mercury (Hg) < LOD and 23.5% of Chromium (Cr) < LOD. Using the single imputation method to account for LOD, estimates for the average daily intake of lead was 0.88 μg compared to the tolerable daily intake (TDI) of 20 μg, daily intake of mercury was 0.09 μg (TDI = 20 μg), daily intake of cadmium was 0.83 μg (TDI = 6 μg) while for arsenic it was 0.92 μg compared to the tolerable daily intake of 10 μg. The average daily intake of chromium was 7.57 μg with no internationally established TDI. Assuming users followed the manufacturers' instructions, daily intake of arsenic, lead and mercury would not exceed TDI for any of the 200 products. However, the daily intake of cadmium exceeded or approximated the TDI for three products.

Conclusions: In this study we found low levels of metals in the products that were available for sale in Dubai. With few exceptions, if the products were used according to the suppliers' instructions, average daily intake of heavy metals will be well below the recommended tolerable daily intakes.

Keywords: heavy metals; herbal supplements; limit of detection; tolerable daily intake

WHO/ILO work-related burden of disease and injury: Protocol for systematic reviews of occupational exposure to solar ultraviolet radiation and of the effect of occupational exposure to solar ultraviolet radiation on melanoma and non-melanoma skin cancer

Authors: Paulo, M.S; Ádám, B; Akagwu, C; Akparibo, I; Al-Rifai, R.H; Bazrafshan, S; Gobba, F; Green, A.C; Ivanov, I; Kezic, S; Leppink, N; Loney, T; Modenese, A; Pega, F; Peters, C.E; Prüss-Üstün, A.M; Tenkate, T; Ujita, Y; Wittlich, M; John, S.M.

Journal: Environment International | **Year**: 2019 | **DOI**: https://doi.org/10.1016/j.envint.2018.09.039

Abstract

Background: The World Health Organization (WHO) and the International Labour Organization (ILO) are developing a joint methodology for estimating the national and global work-related burden of disease and injury (WHO/ILO joint methodology), with contributions from a large network of experts. In this paper, we present the protocol for two systematic reviews of parameters for estimating the number of deaths and disability-adjusted life years from melanoma and non-melanoma skin cancer (or keratinocyte carcinoma) from occupational exposure to solar ultraviolet radiation, to inform the development of the WHO/ILO joint methodology. Objectives: We aim to systematically review studies on occupational exposure to solar ultraviolet radiation (Systematic Review 1) and systematically review and meta-analyse estimates of the effect of occupational exposure to solar ultraviolet radiation on melanoma and non-melanoma skin cancer (Systematic Review 2), applying the Navigation Guide systematic review methodology as an organizing framework and conducting both systematic reviews in tandem and in a harmonized way.

Methods: Separately for Systematic Reviews 1 and 2, we will search electronic academic databases for potentially relevant records from published and unpublished studies, including Ovid Medline, PubMed, EMBASE, and Web of Science. We will also search electronic grey literature databases, Internet search engines and organizational websites; hand-search reference list of previous systematic reviews and included study records and consult additional experts. We will include working-age (≥15 years) workers in the formal and informal economy in any WHO and/or ILO Member State, but exclude children (<15 years) and unpaid domestic workers. For Systematic Review 1, we will include quantitative studies on the prevalence of relevant levels of occupational exposure to solar ultraviolet radiation (i.e. <0.33 SED/d and ≥0.33 SED/d) and of the total working time spent outdoors, stratified by country, sex, age and industrial sector or occupation, in the years 1960 to 2018. For Systematic Review 2, we will include randomized controlled trials, cohort studies, case-control studies and other non-randomized intervention studies with an estimate of the effect of any occupational exposure to solar ultraviolet radiation (i.e; ≥0.33 SED/d) on the prevalence of, incidence of or mortality due to melanoma and non-melanoma skin cancer, compared with the theoretical minimum risk exposure level (i.e. <0.33 SED/d). At least two review authors will independently screen titles and abstracts against the eligibility criteria at a first stage and full texts of potentially eligible records at a second stage, followed by extraction of data from qualifying studies. At least two review authors will assess the risk of bias and the quality of evidence, using the most suited tools currently available. For Systematic Review 2, if feasible, we will combine relative risks using meta-analysis. We will report results using the guidelines for accurate and transparent health estimates reporting (GATHER) for Systematic Review 1 and the preferred reporting items for systematic reviews and meta-analyses guidelines (PRISMA) for Systematic Review 2. PROSPERO registration number: CRD42018094817.

Keywords: occupational exposure, solar ultraviolet radiation, skin cancer, systematic review, burden of disease

WHO/ILO work-related burden of disease and injury: Protocol for systematic reviews of occupational exposure to solar ultraviolet radiation and of the effect of occupational exposure to solar ultraviolet radiation on cataract

Author: Tenkate, T; Ádám, B; **Al-Rifai, R.H;** Chou, B.R; Gobba, F; Ivanov, I.D; Leppink, N; Loney, T; Pega, F; Peters, C.E; Prüss-Üstün, A.M; **Silva Paulo, M;** Ujita, Y; Wittlich, M; Modenese, A.

Author: Environment International | **Year**: 2019 | **DOI**: https://doi.org/10.1016/j.envint.2018.10.001

Background: The World Health Organization (WHO) and the International Labour Organization (ILO) are developing a joint methodology for estimating the national and global work-related burden of disease and injury (WHO/ILO joint methodology), with contributions from a large network of experts. Here, we present the protocol for two systematic reviews of parameters for estimating the number of disability-adjusted life years of cataracts from occupational exposure to solar ultraviolet radiation, to inform the development of the WHO/ILO joint methodology. We aim to systematically review studies on occupational exposure to solar ultraviolet radiation (Systematic Review 1) and systematically review and meta-analyse estimates of the effect of occupational exposure to solar ultraviolet radiation on the development of cataract (Systematic Review 2), applying the Navigation Guide systematic review methodology as an organizing framework and conducting both systematic reviews in tandem and in a harmonized way.

Methods: Data sources: Separately for Systematic Reviews 1 and 2, we will search electronic academic databases for potentially relevant records from published and unpublished studies, including Ovid Medline, PubMed, EMBASE, and Web of Sciences. We will also search electronic grey literature databases, Internet search engines and organizational websites; hand search reference list of previous systematic reviews and included study records; and consult additional experts. We will include working-age (≥15 years) workers in WHO and/or ILO Member States, but exclude children (<15 years) and unpaid domestic workers. For Systematic Review 1, we will include quantitative studies on the prevalence of relevant levels of occupational exposure to solar ultraviolet radiation and of the total working time spent outdoors from 1960 to 2018, stratified by sex, age, country and industrial sector or occupation. For Systematic Review 2, we will include randomized controlled trials, cohort studies, case-control studies and other non-randomized intervention studies with an estimate of the effect of any occupational exposure to solar ultraviolet radiation (i.e. ≥30 Jm−2/day of occupational solar UV exposure at the surface of the eye) on the prevalence or incidence of cataract, compared with the theoretical minimum risk exposure level (i.e. <30 Jm−2/day of occupational solar UV exposure at the surface of the eye). At least two review authors will independently screen titles and abstracts against the eligibility criteria at a first stage and full texts of potentially eligible records at a second stage, followed by extraction of data from qualifying studies. At least two review authors will assess risk of bias and the quality of evidence, using the most suited tools currently available. For Systematic Review 2, if feasible, we will combine relative risks using meta-analysis. We will report results using the guidelines for accurate and transparent health estimates reporting (GATHER) for Systematic Review 1 and the preferred reporting items for systematic reviews and meta-analyses guidelines (PRISMA) for Systematic Review 2.

Keywords: occupational exposure, solar ultraviolet radiation, cataract, systematic review, burden of disease

Environmental assessment of cytotoxic drugs in healthcare settings: protocol for a systematic review and meta-analysis

Authors: **Al Alawi, L; Soteriades, E.S; Paulo, M.S;** Östlundh, L; **Grivna, M; Al Maskari, F; Al-Rifai, R.H.**

Journal: Systematic Reviews | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s13643-020-01494-4

Abstract

Background: Occupational exposure to cytotoxic drugs is associated with various unfavorable health outcomes. This protocol reports a methodology for a systematic review and meta-analysis that aims to systematically review the published literature and quantify the level of environmental contamination of healthcare settings with cytotoxic drugs.

Methods: This protocol is developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocol-2015 (PRISMA-P) guidelines. Six electronic databases (PubMed, Web of Science, Scopus, Cochrane Library, CINAHL, and EMBASE) will be searched with no restrictions on publication period. Eligible studies will be identified and data will be extracted using a predefined data extraction form by at least two independent reviewers following best practice. Eligible studies should report calculated or calculable estimates on the proportion of positive samples tested for cytotoxic drugs and/or estimates on the concentration of the cytotoxic drug(s) in the tested samples. Risk of bias (RoB) will be assessed by using the RoB in Studies estimating Prevalence of Exposure to Occupational risk factors (RoB-SPEO) tool, which developed by the World Health Organization (WHO) and International Labour Organization (ILO) for environmental and occupational health systematic reviews. The random-effects model will be used to perform meta-analyses.

Discussion/Conclusion: Occupational exposure to cytotoxic drugs is associated with short- and long-term adverse health outcomes. Following this protocol, the review to be carried out will be the first to fill an evidence gap on the environmental contamination of healthcare settings with cytotoxic drugs. The findings of this review will help in the understanding of the risk of occupational exposure of healthcare workers to cytotoxic drugs and facilitate the identification of priority areas for specific interventions. Ethics and dissemination: The systematic review methodology does not require ethics approval due to the nature of the study design. The results of the systematic review will be published in a peer-reviewed journal and will be publicly available. Systematic review registration: PROSPERO CRD42020162780, dated July 14, 2020.

Keywords: cytotoxic drugs; environmental assessment; meta-analysis; systematic review

Personal protective eyewear usage among industrial workers in small-scale enterprises

Authors: Almahmoud, T; **Elkonaisi, I; Grivna, M;** Abu-Zidan, F.M.

Journal: Injury Epidemiology | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s40621-020-00280-z

Abstract

Background: Work-related eye injury causes significant vision loss. Most of these injuries are preventable with appropriate eye safety practices. We aimed to study industrial workers' perceptions of Personal Protective Eyewear (PPE) and its usage in a high-income developing country.

Methods: A field-based cross-sectional study in small-scale industrial entities was performed in Al-Ain City, UAE during the period of October 2018 to June 2019. Five hundred workers completed a pretested structured questionnaire. Data on demographics, occupational history, work hazard awareness, and PPE usage at their work place were collected.

Results: The workers were experienced, with a median of 15 years in practice. The majority (80%) learned their work skills through apprenticeship (i.e; on-the-job) training. Most (85%) were involved with activities presenting eye injury risk, and were highly aware of this. None of the workers used safety goggles or glasses all the time for activities that need PPE usage. Five percent never used PPE in the workplace. The main reason for not using PPE was the work demands (95%) and poor vision through the lenses (75%). Young age and less work experience were associated with less PPE usage ($P < 0.001$). Wearing prescription spectacles had a positive correlation with usage of safety goggles ($P = 0.005$) and a negative correlation with welding helmet usage ($P < 0.001$).

Conclusions: There was a high level of awareness about the value of PPE in the workplace which was not translated into real practice. Educational programs promoting eye safety practices and proper PPE usage should be adopted by workers in small-scale industrial settings.

Keywords: eye injuries; perception; personal protective eyewear

Eye injuries and related risk factors among workers in small-scale industrial enterprises

Authors: AlMahmoud, T; Elkonaisi, I; **Grivna, M; AlNuaimi, G;** Abu-Zidan, F.M.

Journal: Ophthalmic Epidemiology | **Year**: 2020 | **DOI**: https://doi.org/10.1080/09286586.2020.1770302

Abstract

Background: We aimed to study eye injuries and their risk factors among workers at small-scale industrial enterprises.

Methods: Cross-sectional descriptive study. Five hundred workers at small-scale industrial enterprises in Al-Ain City, United Arab Emirates were included. A pre-tested structured questionnaire was used to collect data by direct interviews during the period of October 2018 through June 2019. The outcome measures included self-reported eye injuries, risk factors, and outcomes in the past 12 months. The study adhered to the guidelines of the Declaration of Helsinki.

Results: One-hundred seventy-five (35%) workers reported eye injury, 25 (14.3%) had recurrent injuries. Twenty-five (15%) received treatment for eye injury. Five percent were hospitalized. Workers who had an eye injury were less educated compared with those who did not ($p < .0001$), received less safety training ($p < .0001$), had less work experience ($p < .0001$), used more spectacle correction glasses ($p < .0001$), and had less usage of the safety eye goggles and safety eyeglasses ($p < .0001$) compared with those who had no eye injury. Arc welding (76; 43.4%), chipping (25; 14.3%), and drilling (24; 13.7%) were associated with high risk for eye injury. Twenty-eight percent of eye injuries occurred to observers or working assistants.

Conclusions: This study has shown a high percentage of eye injury incidents among workers at small-scale industrial enterprises. This was associated with low usage of the safety eye goggles and glasses. Arc welding posed significant risks for eye injury. This information is useful for safety promotion and development of work-related eye injury prevention legislations.

Keywords: arc welding; eye injury; industrial workers; personal protective eyewear; risks

Occupational health of frontline healthcare workers in the United Arab Emirates during the COVID-19 pandemic: A snapshot of summer 2020

Authors: **Ajab, S; Ádam, B;** Hammadi, M.A; Bastaki, N.A; Al Junaibi, M; Al Zubaidi, A; Hegazi, M; **Grivna, M;** Kady, S; Koornneef, E; Neves, R; Uva, A.S; **Sheek-hussein, M;** Loney, T; Serranheira, F; **Paulo, M.S.**

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph182111410

Abstract

Background: The study aim was to understand the availability of personal protective equipment (PPE) and the levels of anxiety, depression, and burnout of healthcare workers (HCWs) in the United Arab Emirates (UAE).

Methods: This study was an online-based, cross-sectional survey during July and August 2020. Participants were eligible from the entire country, and 1290 agreed to participate. The majority of HCWs were females aged 30–39 years old, working as nurses, and 80% considered PPE to be available. Twelve percent of respondents tested positive for SARS-CoV-2. Half of HCWs considered themselves physically tired (52.2%), reported musculoskeletal pain or discomfort (54.2%), and perceived moderate-to-high levels of burnout on at least one of three burnout domains (52.8%). A quarter of HCWs reported anxiety (26.3%) or depression (28.1%). HCWs reporting not having musculoskeletal pain, having performed physical activity, and higher scores of available PPE reported lower scores of anxiety, depression, and burnout.

Conclusion: UAE HCWs experienced more access to PPE and less anxiety, depression, and burnout compared with HCWs in other countries. Study findings can be used by healthcare organizations and policymakers to ensure adequate measures are implemented to maximize the health and wellbeing of HCWs during the current COVID-19 and future pandemics.

Keywords: anxiety; burnout; COVID-19; healthcare workers; occupational health; personal protective equipment

Sharps injuries and splash exposures among healthcare workers in Arab countries: Protocol of a systematic review and meta-analysis

Karkaz, I; Elbarazi, I; Östlundh, L; **Paulo, M.S; Sheek-Hussein, M; Al-Rifai, R.H; Ádám, B.**

Journal: BMJ Open | **Year**: 2021 | **DOI**: https://doi.org/10.1136/bmjopen-2021-052993

Abstract

Introduction: Sharps injuries, including needlestick injuries and splash exposures, constitute serious occupational health problems for healthcare workers, carrying the risk of bloodborne infections. However, data on such occupational incidents and their risk factors in healthcare settings are scarce and not systematically summarised in the Arab countries. The aim of this study is to conduct a systematic review and meta-analysis to review published literature about sharps injuries and splash exposures of healthcare workers in Arab countries, with the objectives to determine the incidence and/or prevalence of these events, their identified risk factors and the applied preventive and postexposure prophylactic measures.

Methods and analysis: The protocol is developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocol guidelines. A comprehensive presearch developed in January to March 2021 in the database PubMed will be followed by a systematic search of six, core medical and health science databases: PubMed, EMBASE, Scopus, CINAHL, Web of Science and Africa-Wide Information in May 2021. The search will be performed without any filters or restrictions for publication years. Covidence systematic review tool will be used for document management, blinded screening and study selection. Two reviewers will independently screen the records, extract data and conduct risk of bias assessment. Results will be synthesised narratively in summary tables, and, if findings allow, meta-analysis will be conducted on the incidence and/or prevalence of sharps injuries and splash exposures, and on the effect size of risk factors.

Ethics and dissemination: The systematic review methodology does not require ethics approval due to the nature of the study design based only on published studies. The results of the systematic review will be published in a peer-reviewed journal, disseminated to stakeholders and made publicly available. PROSPERO registration number CRD42021242416.

Keywords: health and safety; infection control; occupational medicine; preventive medicine; public health; risk management

Pesticide use, perceived health risks and management in Ethiopia and in Hungary: A comparative analysis

Authors: Tessema, R.A; Nagy, K; **Ádám, B.**

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph181910431

Abstract

Background: Pesticides play a very important role for ensuring food security and economic growth but their use can cause harmful effects to human health and to the environment. The study aimed to investigate the level of knowledge, health risk perceptions, and experiences on the practice of pesticide use and management among extension officers in Ethiopia and plant doctors in Hungary.

Methods: A questionnaire survey among 326 officers was conducted in the two study areas and data were analyzed by ordinal logistic regression.

Results: According to the findings, Hungarian officers had much better knowledge of pesticide products (92%), and less frequently experienced pesticide poisoning among applicators (7%) than the Ethiopians (66% and 41%, respectively). Hungarian officers perceived less health risk of pesticide use (AOR = 0.46, 95%, CI: 0.27–0.80), were ten times more likely to deem the pesticide management system effective (AOR = 10.23, 95%, CI: 5.68–18.46) and were nine times more likely to report that applicators used personal protective equipment (AOR = 8.95, 95%, CI: 4.94–16.28).

Conclusion: A significant proportion of officers from both countries reported inappropriate methods of pesticide residue disposal. These observations point out that the situation of pesticide use and knowledge and management of pesticide products is definitely better in Hungary; nevertheless, the issue continues to need more attention in both settings.

Keywords: exposure; extension officer; knowledge; pesticide; plant doctor; risk management; risk perception

Presumed exposure to chemical pollutants and experienced health impacts among warehouse workers at logistics companies: A cross-sectional survey

Authors: Lovas, S; Nagy, K; Sándor, J; **Ádám, B.**

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph18137052

Abstract

Background: During intercontinental shipping, freight containers and other closed transport devices are applied. These closed spaces can be polluted with various harmful chemicals that may accumulate in poorly ventilated environments. The major pollutants are residues of pesticides used for fumigation as well as volatile organic compounds (VOCs) released from the goods. While handling cargos at logistics companies, workers can be exposed to these pollutants, frequently without adequate occupational health and safety precautions.

Methods: A cross-sectional questionnaire survey was conducted among potentially exposed warehouse workers and office workers as controls at Hungarian logistics companies (1) to investigate the health effects of chemical pollutants occurring in closed spaces of transportation and storage and (2) to collect information about the knowledge of and attitude toward workplace chemical exposures as well as the occupational health and safety precautions applied.

Results: Pre-existing medical conditions did not show any significant difference between the working groups. Numbness or heaviness in the arms and legs (AOR = 3.99; 95% CI = 1.72–9.26) and dry cough (AOR = 2.32; 95% CI = 1.09–4.93) were significantly associated with working in closed environments of transportation and storage, while forgetfulness (AOR = 0.40; 95% CI = 0.18–0.87), sleep disturbances (AOR = 0.36; 95% CI = 0.17–0.78), and tiredness after waking up (AOR = 0.40; 95% CI = 0.20–0.79) were significantly associated with employment in office. Warehouse workers who completed specific workplace health and safety training had more detailed knowledge related to this workplace chemical issue (AOR = 8.18; 95% CI = 3.47–19.27), and they were significantly more likely to use certain preventive measures.

Conclusion: Warehouse workers involved in handling cargos at logistics companies may be exposed to different chemical pollutants, and the related health risks remain unknown if the presence of these chemicals is not recognized. Applied occupational health and safety measures at logistics companies are not adequate enough to manage this chemical safety issue, which warrants awareness raising and the introduction of effective preventive strategies to protect workers' health at logistics companies.

Keywords: chemical pollutant; freight container; logistics; pesticide; volatile organic compound; warehouse

Micronucleus formation induced by glyphosate and glyphosate-based herbicides in human peripheral white blood cells

Authors: Nagy, K; Argaw Tessema, R; Szász, I; Smeirat, T; Al Rajo, A; **Ádám, B.**

Journal: Frontiers in Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3389/fpubh.2021.639143

Abstract

Background: Glyphosate is the most commonly used herbicide around the world, which led to its accumulation in the environment and consequent ubiquitous human exposure. Glyphosate is marketed in numerous glyphosate-based herbicide formulations (GBHs) that include co-formulants to enhance herbicidal effect of the active ingredient, but are declared as inert substances. However, these other ingredients can have biologic activity on their own and may interact with the glyphosate in synergistic toxicity.

Methods: In this study, we focused to compare the cytogenetic effect of the active ingredient glyphosate and three marketed GBHs (Roundup Mega, Fozat 480, and Glyfos) by investigating cytotoxicity with fluorescent co-labeling and WST-1 cell viability assay as well as genotoxicity with cytokinesis block micronucleus assay in isolated human mononuclear white blood cells.

Results: Glyphosate had no notable cytotoxic activity over the tested concentration range (0–10,000 μM), whereas all the selected GBHs induced significant cell death from 1,000 μM regardless of metabolic activation (S9). Micronucleus (MN) formation induced by glyphosate and its formulations at sub-cytotoxic concentrations (0–100 μM) exhibited a diverse pattern. Glyphosate caused statistically significant increase of MN frequency at the highest concentration (100 μM) after 20-h exposure. Contrarily, Roundup Mega exerted a significant genotoxic effect at 100 μM both after 4- and 20-h exposures; moreover, Glyfos and Fozat 480 also resulted in a statistically significant increase of MN frequency from the concentration of 10 μM after 4-h and 20-h treatment, respectively. The presence of S9 had no effect on MN formation induced by either glyphosate or GBHs.

Conclusion: The differences observed in the cytotoxic and genotoxic pattern between the active principle and formulations confirm the previous concept that the presence of co-formulants in the formulations or the interaction of them with the active ingredient is responsible for the increased toxicity of herbicide products, and draw attention to the fact that GBHs are still currently in use, the toxicity of which rivals that of POEA-containing formulations (e.g; Glyfos) already banned in Europe. Hence, it is advisable to subject them to further comprehensive toxicological screening to assess the true health risks of exposed individuals, and to reconsider their free availability to any users.

Keywords: cytotoxicity; formulation; GBHs; genotoxicity; glyphosate; micronucleus

From inequitable to sustainable e-waste processing for reduction of impact on human health and the environment

Authors: **Ádám, B;** Göen, T; Scheepers, P.T.J; Adliene, D; Batinic, B; Budnik, L.T; Duca, R.-C; Ghosh, M; Giurgiu, D.I; Godderis, L; Goksel, O; Hansen, K.K; Kassomenos, P; Milic, N; Orru, H; Paschalidou, A; Petrovic, M; Puiso, J; Radonic, J; Sekulic, M.T; Teixeira, J.P; Zaid, H; Au, W.W.

Journal: Environmental Research | **Year**: 2021 | **DOI**: https://doi.org/10.1016/j.envres.2021.110728

Abstract

Recycling of electric and electronic waste products (e-waste) which amounted to more than 50 million metric tonnes per year worldwide is a massive and global operation. Unfortunately, an estimated 70–80% of this waste has not been properly managed because the waste went from developed to low-income countries to be dumped into landfills or informally recycled. Such recycling has been carried out either directly on landfill sites or in small, often family-run recycling shops without much regulations or oversights. The process traditionally involved manual dismantling, cleaning with hazardous solvents, burning and melting on open fires, etc; which would generate a variety of toxic substances and exposure/hazards to applicators, family members, proximate residents and the environment. The situation clearly calls for global responsibility to reduce the impact on human health and the environment, especially in developing countries where poor residents have been shouldering the hazardous burden. On the other hand, formal e-waste recycling has been mainly conducted in small scales in industrialized countries. Whether the latter process would impose less risk to populations and environment has not been determined yet. Therefore, the main objectives of this review are: 1. to address current trends and emerging threats of not only informal but also formal e-waste management practices, and 2. to propose adequate measures and interventions. A major recommendation is to conduct independent surveillance of compliance with e-waste trading and processing according to the Basel Ban Amendment. The recycling industry needs to be carefully evaluated by joint effort from international agencies, producing industries and other stakeholders to develop better processes. Subsequent transition to more sustainable and equitable e-waste management solutions should result in more effective use of natural resources, and in prevention of adverse effects on health and the environment.

Keywords: Basel ban amendment; e-waste; electronic waste recycling; environmental pollution; health hazards

Harmonized definition of occupational burnout: A systematic review, semantic analysis, and Delphi consensus in 29 countries

Authors: Guseva Canu, I; Marca, S.C; Dell'Oro, F; **Balázs, Á;** et al.

Journal: Scand J Work Environ Health | **Year**: 2021 | **DOI**: https://doi.org/10.5271/sjweh.3935

Abstract

Background: A consensual definition of occupational burnout is currently lacking. We aimed to harmonize the definition of occupational burnout as a health outcome in medical research and reach a consensus on this definition within the Network on the Coordination and Harmonisation of European Occupational Cohorts (OMEGA-NET).

Methods: First, we performed a systematic review in MEDLINE, PsycINFO and Embase (January 1990 to August 2018) and a semantic analysis of the available definitions. We used the definitions of burnout and burnout-related concepts from the Systematized Nomenclature of Medicine Clinical Terms (SNOMED-CT) to formulate a consistent harmonized definition of the concept. Second, we sought to obtain the Delphi consensus on the proposed definition.

Results: We identified 88 unique definitions of burnout and assigned each of them to 1 of the 11 original definitions. The semantic analysis yielded a first proposal, further reformulated according to SNOMED-CT and the panelists' comments as follows: "In a worker, occupational burnout or occupational physical AND emotional exhaustion state is an exhaustion due to prolonged exposure to work-related problems". A panel of 50 experts (researchers and healthcare professionals with an interest for occupational burnout) reached consensus on this proposal at the second round of the Delphi, with 82% of experts agreeing on it.

Conclusion: This study resulted in a harmonized definition of occupational burnout approved by experts from 29 countries within OMEGA-NET. Future research should address the reproducibility of the Delphi consensus in a larger panel of experts, representing more countries, and examine the practicability of the definition.

Keywords: Delphi consensus; epidemiology; exhaustion; job stress; occupational burnout; occupational health; semantic analysis; systematic review

Occupational and environmental pesticide exposure and associated health risks among pesticide applicators and non-applicator residents in rural Ethiopia

Authors: Tessema, R.A; Nagy, K; **Ádám, B.**

Journal: Frontiers in Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fpubh.2022.1017189

Abstract

Background: Intensive pesticide use increased concern about the potential acute and chronic health effects of pesticides in general and among applicators in particular. This study aims to explore occupational and environmental pesticide exposure and health risks among pesticide applicators and residents.

Methods: A community-based cross-sectional study was conducted involving 1,073 individuals. We examined the health effects potentially attributable to pesticide exposure using regression to estimate prevalence ratios (PR).

Results: A higher proportion of good knowledge of pesticides [75 vs. 14%; APR = 1.542 (1.358–1.752), $p < 0.001$] and a higher mean score of perceived health risk of pesticide use [4.21 vs. 3.90; APR = 1.079 (1.004–1.159), $p < 0.05$] were observed among applicators than residents. A significantly higher proportion of applicators experienced health effects presumably related to pesticide exposure among themselves (36%) than residents (16%), and a higher proportion of them used prescribed drugs in the past 12 months [51 vs. 32%; APR = 1.140 (1.003–1.295), $p < 0.05$]. Skin irritation, shortness of breath, cough, and dizziness were more likely reported by applicators than residents. Perceived toxicity of currently applied pesticide products, mix pesticides without gloves, regularly maintain and wash sprayer tank after application, occurrence of an incidental splash during mixing and application, and using home-based care after experiencing a symptom presumably due to pesticide exposure were significantly associated with health effects among applicators. Use of face mask and visiting health facility when experiencing a symptom presumably due to pesticide exposure were significantly positively correlated with attending training on the health risks and use of pesticides.

Conclusion: A substantial proportion of applicators reported improper use of preventive measures and methods of pesticide waste disposal. These observations point out that applicators can face high health risks of occupational pesticide exposure in Ethiopia. Even trained applicators pursued poor preventive practices; hence, comprehensive practice-oriented in-depth training focusing on safety precautions and proper use of personal protective equipment, and provision of adequate pesticide waste disposal means are crucial interventions.

Keywords: applicators; health risk; occupational health; pesticide exposure; preventive measures; residents

Association between depression, happiness, and sleep duration: data from the UAE Healthy Future pilot study

Authors: **Al Balushi, M;** Al Balushi, S; Javaid, S; Leinberger-Jabari, A; **Al-Maskari, F;** Al-Houqani, M; Al Dhaheri, A; Al Nuaimi, A; Al Junaibi, A; Oumeziane, N; Kazim, M; Al Hamiz, A; Haji, M; Al Hosani, A; Abdel Wareth, L; AlMahmeed, W; Alsafar, H; AlAnouti, F; Al Zaabi, E; K. Inman, C; Shahawy, O.E; Weitzman, M; Schmidt, A.M; Sherman, S; Abdulle, A; Ahmad, A; Ali, R.

Journal: BMC Psychology | **Year**: 2022 | **DOI**: https://doi.org/10.1186/s40359-022-00940-3

Abstract

Background: The United Arab Emirates Healthy Future Study (UAEHFS) is one of the first large prospective cohort studies and one of the few studies in the region which examines causes and risk factors for chronic diseases among the nationals of the United Arab Emirates (UAE). The aim of this study is to investigate the eight-item Patient Health Questionnaire (PHQ-8) as a screening instrument for depression among the UAEHFS pilot participants.

Methods: The UAEHFS pilot data were analyzed to examine the relationship between the PHQ-8 and possible confounding factors, such as self-reported happiness, and self-reported sleep duration (hours) after adjusting for age, body mass index (BMI), and gender. Results: Out of 517 participants who met the inclusion criteria, 487 (94.2%) participants filled out the questionnaire and were included in the statistical analysis using 100 multiple imputations. 231 (44.7%) were included in the primary statistical analysis after omitting the missing values. Participants' median age was 32.0 years (Interquartile Range: 24.0, 39.0). In total, 22 (9.5%) of the participant reported depression. Females have shown significantly higher odds of reporting depression than males with an odds ratio = 3.2 (95% CI:1.17, 8.88), and there were approximately 5-fold higher odds of reporting depression for unhappy than for happy individuals. For one interquartile-range increase in age and BMI, the odds ratio of reporting depression was 0.34 (95% CI: 0.1, 1.0) and 1.8 (95% CI: 0.97, 3.32) respectively.

Conclusion: Females are more likely to report depression compared to males. Increasing age may decrease the risk of reporting depression. Unhappy individuals have approximately 5-fold higher odds of reporting depression compared to happy individuals. A higher BMI was associated with a higher risk of reporting depression. In a sensitivity analysis, individuals who reported less than 6 h of sleep per 24 h were more likely to report depression than those who reported 7 h of sleep.

Keywords: depression; happiness; PHQ-8; self-reported happiness; sleep duration; sociodemographic; marital status

Pharmacogenomics implementation in cardiovascular disease in a highly diverse population: initial findings and lessons learned from a pilot study in United Arab Emirates

Authors: Al-Mahayri, Z.N; Khasawneh, L.Q; Alqasrawi, M.N; Altoum, S.M; Jamil, G; Badawi, S; Hamza, D; George, L; AlZaabi, A; Ouda, H; **Al-Maskari, F;** AlKaabi, J; Patrinos, G.P; Ali, B.R.

Journal: Human Genomics | **Year**: 2022 | **DOI**: https://doi.org/10.1186/s40246-022-00417-9

Abstract

Background: Pharmacogenomic (PGx) testing has proved its utility and cost-effectiveness for some commonly prescribed cardiovascular disease (CVD) medications. In addition, PGx-guided dosing guidelines are now available for multiple CVD drugs, including clopidogrel, warfarin, and statins. The United Arab Emirates (UAE) population is diverse and multiethnic, with over 150 nationalities residing in the country. PGx-testing is not part of the standard of care in most global healthcare settings, including the UAE healthcare system. The first pharmacogenomic implementation clinical study in CVD has been approved recently, but multiple considerations needed evaluation before commencing. The current report appraises the PGx-clinical implementation procedure and the potential benefits of pursuing PGx-implementation initiatives in the UAE with global implications.

Methods: Patients prescribed one or more of the following drugs: clopidogrel, atorvastatin, rosuvastatin, and warfarin, were recruited. Genotyping selected genetic variants at genes interacting with the study drugs was performed by real-time PCR. Results: For the current pilot study, 160 patients were recruited.

Results: The genotypes and inferred haplotypes, diplotypes, and predicted phenotypes revealed that 11.9% of the participants were poor CYP2C19 metabolizers, 35% intermediate metabolizers, 28.1% normal metabolizers, and 25% rapid or ultrarapid metabolizers. Notably, 46.9% of our cohort should receive a recommendation to avoid using clopidogrel or consider an alternative medication. Regarding warfarin, only 20% of the participants exhibited reference alleles at VKORC1-1639G > A, CYP2C9*2, and CYP2C9*3, leaving 80% with alternative genotypes at any of the two genes that can be integrated into the warfarin dosing algorithms and can be used whenever the patient receives a warfarin prescription. For statins, 31.5% of patients carried at least one allele at the genotyped SLCO1B1 variant (rs4149056), increasing their risk of developing myopathy. 96% of our cohort received at least one PGx-generated clinical recommendation for the studied drugs.

Conclusion: The current pilot analysis verified the feasibility of PGx-testing and the unforeseen high frequencies of patients currently treated with suboptimal drug regimens, which may potentially benefit from PGx testing.

Keywords: cardiovascular diseases; clopidogrel; pharmacogenomic-implementation; pharmacogenomics; precision medicine; statins; UAE; warfarin

Subjective cognitive complaints in first episode psychosis: A focused follow-up on sex effect and alcohol usage

Authors: Stip, E; Al Mugaddam, F; **Nauman, J;** Baki, A.A; Potvin, S.

Journal: Schizophrenia Research | **Year**: 2022 | **DOI**: https://doi.org/10.1016/j.scog.2022.100267

Abstract

Background: A network of early psychosis-specific intervention programs at the University of Montreal in Montreal, Quebec, Canada, conducted a longitudinal naturalistic five-year study at two Urban Early Intervention Services (EIS).

Methods: In this study, 198 patients were recruited based on inclusion/exclusion criteria and agreed to participate. Our objectives were to assess the subjective cognition complaints of schizophrenic patients assessed by Subjective Scale to Investigate Cognition in Schizophrenia (SSTICS) in their first-episode psychosis (FEP) in relation to their general characteristics. We also wanted to assess whether there are sex-based differences in the subjective cognitive complaints, as well as differences in cognitive complaints among patients who use alcohol in comparison to those who are abstainers. Additionally, we wanted to monitor the changes in the subjective complaints progress for a period of five years follow-up.

Results: Our findings showed that although women expressed more cognitive complaints than men [mean (SD) SSTICS, 28.2 (13.7) for women and 24.7 (13.2) for men], this difference was not statistically significant (r = −0.190, 95 % CI, −0. 435 to 0. 097). We also found that abstainers complained more about their cognition than alcohol consumers [mean (SD) SSTICS, 27.9 (13.4) for abstainers and 23.7 (12.9) for consumers], a difference which was statistically significant (r = −0.166, 95 % CI, −0. 307 to −0.014).

Conclusion: Our findings showed a drop in the average score of SSTICS through study follow-up time among FEP patients. In conclusion, we suggest that if we want to set up a good cognitive remediation program, it is useful to start with the patients' demands. This demand can follow the patients' complaints. Further investigations are needed in order to propose different approaches between alcohol users and abstinent patients concerning responding to their cognitive complaints.

Keywords: alcohol; first-episode psychosis FEP; metacognition; PANSS; schizophrenia; SSTICS; subjective cognition

Quality of life among health care workers in Arab countries 2 years after COVID-19 pandemic

Authors: Ghazy, R.M; Abubakar Fiidow, O; Abdullah, F.S.A; **Elbarazi, I;** et al.

Journal: Frontiers in Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fpubh.2022.917128

Abstract

Background: Assessment of the quality of life (QoL) among healthcare workers (HCWs) is vital for better healthcare and is an essential indicator for competent health service delivery. Since the coronavirus disease 2019 (COVID-19) pandemic strike, the frontline position of HCWs subjected them to tremendous mental and psychological burden with a high risk of virus acquisition. This study evaluated the QoL and its influencing factors among HCWs residing in the Arab countries.

Methods: This was a cross-sectional study using a self-administered online questionnaire based on the World Health Organization QoL-BREF instrument with additional questions related to COVID-19. The study was conducted in three different languages (Arabic, English, and French) across 19 Arab countries between February 22 and March 24, 2022.

Results: A total of 3,170 HCWs were included in the survey. The majority were females (75.3%), aged 18–40 years (76.4%), urban residents (90.4%), married (54.5%), and were living in middle-income countries (72.0%). The mean scores of general health and general QoL were 3.7 ± 1.0 and 3.7 ± 0.9, respectively. Those who attained average physical, psychological, social, and environmental QoL were 40.8, 15.4, 26.2, and 22.3%, respectively. The income per capita and country income affected the mean scores of all QoL domains. Previous COVID-19 infection, having relatives who died of COVID-19, and being vaccinated against COVID-19 significantly affected the mean scores of different domains.

Conclusion: A large proportion of the Arab HCWs evaluated in this study had an overall poor QoL. More attention should be directed to this vulnerable group to ensure their productivity and service provision.

Keywords: COVID-19; health personnel; healthcare providers; professional quality of life; satisfaction

Estimate of occupational exposure to carcinogens among migrant workers in the United Arab Emirates: A cross-sectional study

Authors: **Elbarazi, I;** El-Zaemey, S; Saddik, B; **Ádám, B; El Sadig, M; Abdullahi, A.S;** Fritschi, L; **Sheek-Hussein, M.**

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph192013012

Abstract

Background: Occupational illnesses, such as cancer, cause more deaths each year than occupational accidents. Occupational carcinogens include physical, chemical, biological and organizational hazards. In the United Arab Emirates (UAE), migrant workers account for 80% of labor. Being sometimes employed as unskilled workers and more willing to work in demanding jobs, their vulnerability and exposure may be increased. This study aimed to estimate the prevalence of occupational exposure to workplace carcinogens among migrant workers in the UAE.

Methods: A sample of employees working in construction, cleaning, dry cleaning, mechanic workshops and hair salons were recruited and interviewed. Using OccIDEAS (an online assessment tool), participants were asked questions about their demographics, work history and regular tasks. Exposure to various carcinogens was estimated using the in-built algorithms of OccIDEAS.

Results: A sample of 1778 workers was included. The sample consisted of workers from Bangladesh (19.2%), India (31%), Nepal (4.7%), Pakistan (29.9%) and the Philippines (4.8%), with the rest from other nationalities. Overall, the prevalence of probable exposure was considerable, with the highest among drivers (96%) and the lowest among laundry workers (52%). Moderate to high exposure was found to 20 different carcinogens. Self-rated health among those who were exposed to carcinogens was significantly lower than among those not exposed (AOR = 0.783, 95% CI [0.638–0.961]).

Conclusion: Exposure to several different carcinogens is relatively common in the UAE among migrant workers. Further strengthening policies and the implementation of tailored interventions are needed to prevent exposure to occupational carcinogens and, consequently, to combat occupational cancer in the UAE.

Keywords: carcinogenic exposure; cross-sectional survey; OccIDEAS; occupational cancer; prevalence; self-rated health; UAE

Occupational exposure to solar radiation and the eye: A call to implement health surveillance of outdoor workers

Authors: Modenese, A; Chou, B.R; **Ádám, B;** Loney, T; Silva Paulo, M; Tenkate, T; Gobba, F.

Journal: Medicina del Lavoro | **Year**: 2023 | **DOI**: https://doi.org/10.23749/mdl.v114i4.14657

Abstract

Globally, hundreds of millions of outdoor workers are exposed to solar radiation (SR) for most of their work. Such occupational exposure is known to induce various adverse health effects on the eyes, mainly related to its ultraviolet (UV) component. The present work is a call to action to raise awareness of the need for health surveillance to prevent chronic ocular diseases in outdoor workers. Photo-chemical chronic damage can induce pterygium at the eye's outer layer and cataracts in the lens. Considering carcinogenic effects, rare squamous-cell tumors of the cornea and/or the conjunctiva and ocular melanomas are associated with UV radiation exposure. Solar UV-related eye diseases should be considered "occupational diseases" when workers have sufficient exposure. Still, they are often not recognized and/ or frequently not reported to the national compensation authorities. Therefore, to prevent the burden of these work-related eye pathologies, an adequate risk assessment with identification of appropriate preventive measures and a provision of periodic health surveillance to the exposed workers, particularly those at higher risk of exposure or with individual susceptibility, should be urgently implemented.

Keywords: adverse eye effects; cataract; eye tumors; macular degeneration; occupational exposure; ocular melanoma; optical radiation; pterygium; solar radiation; ultraviolet radiation

Genotoxicity of occupational pesticide exposures among agricultural workers in Arab countries: A systematic review and meta-analysis

Authors: **Sherif, M;** Makame, K.R; Östlundh, L; Paulo, M.S; Nemmar, A; Ali, B.R; **Al-Rifai, R.H;** Nagy, K; **Ádám, B.**

Journal: Toxics | **Year**: 2023 | **DOI**: https://doi.org/10.3390/toxics11080663

Abstract

Background: Exposure to pesticides in Arab countries is a significant public health concern due to extensive agricultural activity and pesticide use. This systematic review aimed to evaluate the genotoxic effects of agricultural pesticide exposure in the region, identify research gaps, and assess methodological limitations.

Methods: Following the PRISMA guidelines, a comprehensive search yielded five relevant studies conducted in Egypt, Syria, and Jordan.

Results: Various genotoxicity assays were employed, revealing a higher level of DNA damage in exposed compared to non-exposed individuals. Farmers exposed to pesticides exhibited a significantly higher occurrence of chromosomal translocation (t(14;18)), micronuclei, and chromosomal aberrations. However, only two studies assessed cytotoxicity indirectly. The studies predominantly focused on male participants, with variations in sample size and pesticide types. The lack of detailed exposure data necessitates cautious interpretation.

Conclusion: This review underscores the need for further research on the genotoxicity of occupational pesticide exposure in the Middle East. Future studies should adopt robust study designs, collect biological and environmental samples, conduct repeated sampling, analyze seasonal variations, and encompass diverse study sites associated with specific crop groups.

Keywords: agriculture; Arab countries; DNA damage; genotoxicity; occupational exposure; pesticide

The prevalences and levels of occupational exposure to dusts and/or fibres (silica, asbestos and coal): A systematic review and meta-analysis from the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury

Authors: Schlünssen, V; Mandrioli, D; Pega, F; Momen, N.C; **Ádám, B;** Chen, W; Cohen, R.A; Godderis, L; Göen, T; Hadkhale, K; Kunpuek, W; Lou, J; Mandic-Rajcevic, S; Masci, F; Nemery, B; Popa, M; Rajatanavin, N; Sgargi, D; Siriruttanapruk, S; Sun, X; Suphanchaimat, R; Thammawijaya, P; Ujita, Y; van der Mierden, S; Vangelova, K; Ye, M; Zungu, M; Scheepers, P.T.J.

Journal: Environment International | **Year**: 2023 | **DOI**: https://doi.org/10.1016/j.envint.2023.107980

Abstract

Background: The World Health Organization (WHO) and the International Labour Organization (ILO) are developing joint estimates of the work-related burden of disease and injury (WHO/ILO Joint Estimates), with contributions from a large number of individual experts. Evidence from human, animal and mechanistic data suggests that occupational exposure to dusts and/or fibres (silica, asbestos and coal dust) causes pneumoconiosis. In this paper, we present a systematic review and meta-analysis of the prevalences and levels of occupational exposure to silica, asbestos and coal dust.

Methods: Data sources: We searched electronic academic databases for potentially relevant records from published and unpublished studies, including Ovid Medline, PubMed, EMBASE, and CISDOC. We also searched electronic grey literature databases, Internet search engines and organizational websites; hand-searched reference lists of previous systematic reviews and included study records; and consulted additional experts. Study eligibility and criteria: We included working-age (≥ 15 years) workers in the formal and informal economy in any WHO and/or ILO Member State but excluded children (<15 years) and unpaid domestic workers.

Results: Eighty-eight studies (82 cross-sectional studies and 6 longitudinal studies) met the inclusion criteria, comprising > 2.4 million measurements covering 23 countries from all WHO regions. For Construction, the pooled prevalence estimate was 0.89 (95% CI 0.84 to 0.93, 17 studies, I2 91%, moderate quality of evidence) and the level estimate was rated as of very low quality of evidence. For Manufacturing, the pooled prevalence estimate was 0.85 (95% CI 0.78 to 0.91, 24 studies, I2 100%, moderate quality of evidence) and the pooled level estimate was rated as of very low quality of evidence. The pooled prevalence estimate for Mining was 0.75 (95% CI 0.68 to 0.82, 20 studies, I2 100%, moderate quality of evidence) and the pooled level estimate was 0.04 mg/m3 (95% CI 0.03 to 0.05, 17 studies, I2 100%, low quality of evidence).

Conclusions: Overall, we judged the bodies of evidence for occupational exposure to silica to vary by industrial sector between very low and moderate quality of evidence for prevalence, and very low and low for level. For occupational exposure to asbestos, the bodies of evidence varied by industrial sector between very low and low quality of evidence for prevalence and were of very low quality of evidence for level. For occupational exposure to coal dust, the bodies of evidence were of very low or moderate quality of evidence for prevalence, and low for level.

Keywords: asbestos; coal dust; exposure prevalence; silica

Occupational allergic diseases among harvesting fishermen on the open sea: A systematic review

Authors: Lucas, D; Greta, G; Bygvraa, D.A; Canals, M.L; **Ádám, B;** Lux, H; Jensen, O.C.

Journal: Annals of Allergy, Asthma and Immunology | **Year**: 2023 |
DOI: https://doi.org/10.1016/j.anai.2023.04.018

Abstract

Background: Nearly 60 million people work in the fishing and aquaculture sectors worldwide and are exposed to specific allergens. Some reviews have been published in occupational allergic diseases in seafood workers but none in fishermen. Objective: To describe the morbidity and main causal agents of allergic diseases among harvesting fishermen.

Methods: A protocol with predefined objectives and inclusion criteria was used in accord with the Preferred Items for Reporting Systematic Reviews and Meta-analyses–Protocols statement. Population was defined as harvesting fishermen, and the conditions of interest were allergic pulmonary diseases, occupational allergic rhinitis, and allergic dermatologic disease. A literature search was carried out in EMBASE, MEDLINE, Web of Science, and PASCAL databases. After the title-abstract and full-text selection of eligible studies, data were extracted and synthesized qualitatively.

Results: A total of 25 studies were selected, 15 articles on occupational asthma (OA) and 10 on dermatologic diseases. Most studies were case reports and case series from European countries. Most OAs were sensitizer induced, with common crab, Anisakis simplex, red soft coral, and cuttlefish as causal agents. Irritant-induced OA because of metabisulfites was also described. Occupational eczema caused by bryozoans was the most common of the cases among fishermen working in the North Sea and the Channel.

Conclusion: Occupational allergic diseases in harvesting fishermen are described in well-resourced countries, but there are few studies from countries with a high number of fishermen, such as in Asia, and these mostly include immunoglobulin E-mediated diseases. The presence of the healthy worker effect is probable. Atmospheric allergen concentration is a major risk factor for OA. Specific conditions, including cold air, fish-juice contact, and salt-water contact, are other risk factors. There is a need to investigate occupational allergic disease in all countries and develop specific studies in fishermen.

Keywords: occupational allergic diseases, fishermen, seafood workers, allergic asthma, dermatologic diseases

Are encapsulated pesticides less harmful to human health than their conventional alternatives? Protocol for a systematic review of in vitro and in vivo animal model studies

Authors: Ramadhan Makame, K; **Sherif, M;** Östlundh, L; Sándor, J; **Ádám, B;** Nagy, K.

Journal: Environment International | **Year**: 2023 | **DOI**: https://doi.org/10.1016/j.envint.2023.107924

Abstract

Background: The gradual increase in the global population has led to the rising demand for agricultural products worldwide. This required the introduction of environment- and public health-friendly advanced technologies for plant protection to guard yields from pest destruction in a sustainable way. Encapsulation technology is a promising procedure to increase the effectiveness of pesticide active ingredients while reducing human exposure and environmental impact. Despite the presumed favorable properties of encapsulated pesticide formulations on human health, it is necessary to systematically assess whether they are less harmful to human health than conventional pesticide products. Objectives: We aim to systematically review the literature to answer the question of whether micro- or nano-encapsulated pesticide formulations exert different degrees of toxicity than their conventional (not-encapsulated) counterparts in in vivo animal and in vitro (human, animal, and bacterial cell) non-target models. The answer is important to estimate the possible differences in the toxicological hazards of the two different types of pesticide formulations.

Methods: The systematic review will follow the guidelines developed by the National Toxicology Program's Office of Health Assessment and Translation (NTP/OHAT). The protocol adheres to the Preferred Reporting Items for Systematic Reviews and meta-analyses Protocol (PRISMA-P) statement. PubMed (NLM), Scopus (Elsevier), Web of Science Core Collection (Clarivate), Embase (Elsevier), and Agricola (EBSCOhost) electronic databases will be comprehensively searched in September 2022 to identify eligible studies using multiple search terms of "pesticide", "encapsulation" and "toxicity" along with their synonyms and other words that are semantically related. The reference lists of all eligible articles and retrieved reviews will be manually screened to identify additional relevant papers. We will include peer-reviewed experimental (non-target in vivo animal model and in vitro human, animal, and bacterial cell cultures) studies published as full-text articles in English language that simultaneously investigate the effect of any micro- or nano-encapsulated pesticide formulation, applied in all ranges of concentrations, duration, and routes of exposure, and its corresponding active ingredient(s) or its conventional non-encapsulated product formulation(s) used in the same ranges of concentrations, duration, and routes of exposure on the same pathophysiological outcome. We will exclude studies that examine pesticidal activity on target organisms, cultures of cells isolated from target organisms exposed in vivo or in vitro, and those using biological materials isolated from target organisms/cells. Studies identified by the search will be screened and managed according to the review inclusion and exclusion criteria in the Covidence systematic review tool by two reviewers, who will also blindly extract the data and assess the risk of bias of included studies. The OHAT risk of bias tool will be applied to evaluate the quality and risk of bias in the included studies. If findings make it possible, a meta-analysis will be performed on identified toxicity outcomes. To rate the certainty in the body of evidence, we will use the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

Keywords: agrochemical; encapsulated; microencapsulated; nanoencapsulated; pesticide; plant protection product; safety toxicity; systematic review

Risk of cutaneous squamous cell carcinoma due to occupational exposure to solar ultraviolet radiation: Protocol for a systematic review and meta-analysis

Authors: Paulo, M.S; Symanzik, C; **Ádam, B;** Gobba, F; Kezic, S; van der Molen, H.F; Peters, C.E; Rocholl, M; Tenkate, T; John, S.M; Loney, T; Modenese, A; Wittlich, M.

Journal: PLoS ONE | **Year**: 2023 | **DOI**: https://doi.org/10.1371/journal.pone.0282664

Abstract

Background: Solar ultraviolet radiation (UVR) is the most significant occupational carcinogenic exposure in terms of the number of workers exposed (i.e; outdoor workers). Consequently, solar UVR-induced skin cancers are among the most common forms of occupational malignancies that are potentially expected globally.

Methods: This systematic review is registered in PROSPERO (CRD42021295221) and aims to assess the risk of cutaneous squamous cell carcinoma (cSCC) associated to occupational solar UVR exposure. Systematic searches will be performed in three electronic literature databases (PubMed/Medline, EMBASE, and Scopus). Further references will be retrieved by a manual search (e.g; in grey literature databases, internet search engines, and organizational websites). We will include cohort studies and case-control studies. Risk of Bias assessment will be conducted separately for case-control and cohort studies. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) will be used for the certainty of assessment. In case quantitative pooling is not feasible, a narrative synthesis of results will be performed.

Keywords: occupational solar UV exposure, cutaneous squamous cell carcinoma, skin cancer, outdoor workers

Chemical pollutants in closed environments of transportation and storage of non-dangerous goods – Insufficient legislation, low awareness, and poor practice in Hungary

Authors: Lovas, S; Varga, O; Loney, T; **Ádám, B.**

Journal: Int J Environ Health Res | **Year**: 2023 | **DOI**: https://doi.org/10.1080/09603123.2022.2035325

Abstract

Background: Several chemical pollutants can accumulate within the closed environments of transportation and storage. Pollutants are mainly residues of pesticides, volatile organic compounds and components of diesel exhaust. The study objectives were to (i) review the regulations relevant to occupational chemical exposures in closed environments of inland transportation and storage; and (ii) explore the practice of preventing these exposures.

Methods: A systematic search and content analysis of international and Hungarian nation legal documents were carried out. In addition, semi-structured interviews with occupational health and safety (OHS) professionals and warehouse managers were conducted.

Results: Analysis of legal documents highlighted the lack of explicit regulations on the investigated problem. The 21 interviews revealed that the participants had limited knowledge about the pollutants; they deemed chemical exposure rare and related health effects negligible.

Conclusion: The revealed limitations indicate that this field should be more specifically regulated and OHS professionals should be better informed about these workplace hazards.

Keywords: closed environments of transportation and storage; occupational chemical exposure; pesticide residues

Is exposure to pesticides associated with biological aging? A systematic review and meta-analysis

Authors: Zuo, S; Sasitharan, V; Di Tanna, G. L; Vonk, J. M; De Vries, M; **Sherif, M; Ádám, B**; Rivillas, J. C; Gallo, V.

Journal: Ageing research reviews | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.arr.2024.102390

Abstract

Background: Exposure to pesticides is a risk factor for various diseases, yet its association with biological aging remains unclear. We aimed to systematically investigate the relationship between pesticide exposure and biological aging.

Methods: PubMed, Embase and Web of Science were searched from inception to August 2023. Observational studies investigating the association between pesticide exposure and biomarkers of biological aging were included. Three-level random-effect meta-analysis was used to synthesize the data. Risk of bias was assessed by the Newcastle-Ottawa Scale.

Results: Twenty studies evaluating the associations between pesticide exposure and biomarkers of biological aging in 10,368 individuals were included. Sixteen reported telomere length and four reported epigenetic clocks. Meta-analysis showed no statistically significant associations between pesticide exposure and the Hannum clock (pooled β = 0.27; 95 %CI: -0.25, 0.79), or telomere length (pooled Hedges'g = -0.46; 95 %CI: -1.10, 0.19). However, the opposite direction of effects for the two outcomes showed an indication of possible accelerated biological aging. After removal of influential effect sizes or low-quality studies, shorter telomere length was found in higher-exposed populations.

Conclusion: The existing evidence for associations between pesticide exposure and biological aging is limited due to the scarcity of studies on epigenetic clocks and the substantial heterogeneity across studies on telomere length. High-quality studies incorporating more biomarkers of biological aging, focusing more on active chemical ingredients of pesticides and accounting for potential confounders are needed to enhance our understanding of the impact of pesticides on biological aging.

Keywords: aging; meta-analysis; pesticides; systematic review

MATERNAL & CHILD HEALTH

Maternal and birth cohort studies in the Gulf Cooperation Council countries: Protocol for a systematic review and narrative evaluation

Authors: **Al-Rifai, R.H; Ali, N; Barigye, E.T; Al Haddad, A.H.I; Loney, T; Al-Maskari, F; Ahmed, L.A.**

Journal: BMJ Open | **Year**: 2018 | **DOI**: https://doi.org/10.1136/bmjopen-2017-019843

Abstract

Background: Cohort studies have revealed that genetic, socioeconomic, communicable and non-communicable diseases, and environmental exposures during pregnancy may influence the mother and her pregnancy, birth delivery and her offspring. Numerous studies have been conducted in the Gulf Cooperation Council (GCC) countries to examine maternal and birth health. The objectives of this protocol for a systematic review are to systematically review and characterise the exposures and outcomes that have been examined in the mother and birth cohort studies in the GCC region, and to summarise the strength of association between key maternal exposures during pregnancy (ie, body mass index) and different health-related outcomes (ie, mode of birth delivery). The review will then synthesise and characterise the consequent health implications and will serve as a platform to help identify areas that are overlooked, point out limitations of studies and provide recommendations for future cohort studies.

Methods: Medline, Embase, Cochrane Library and Web of Science electronic databases will be comprehensively searched. Two reviewers will independently screen each study for eligibility, and where discrepancies arise they will be discussed and resolved; otherwise a third reviewer will be consulted. The two reviewers will also independently extract data into a predefined Excel spreadsheet. The included studies will be categorised on the basis of whether the participant is a mother, infant or mother-infant dyad. Outcome variables will be divided along two distinctions: mother or infant. Exposure variables will be divided into six domains: psychosocial, biological, environmental, medical/medical services, maternal/reproductive and perinatal/child. Studies are expected to be of heterogeneous nature; therefore, quantitative syntheses might be limited. Ethics and dissemination There is no primary data collection; therefore, ethical review is not necessary. The findings of this review will be disseminated in a peer-reviewed journal and presented at relevant conferences. PROSPERO registration number CRD42017068910.

Keywords: community child health; GCC countries; Gulf Cooperation Council; maternal medicine

Mutaba'ah - Mother and Child Health Study: Protocol for a prospective cohort study investigating the maternal and early life determinants of infant, child, adolescent and maternal health in the United Arab Emirates

Authors: **Al Haddad**, **A; Ali, N; Elbarazi, I;** Elabadlah, H; **Al-Maskari, F;** Narchi, H; Brabon, C; Ghazal-Aswad, S; AlShalabi, F.M; Zampelas, A; Loney, T; Blair, I; **Ahmed, L.A.**

Journal: BMJ Open | **Year**: 2019 | **DOI**: https://doi.org/10.1136/bmjopen-2019-030937

Abstract

Background: Early life exposures, particularly environmental and parental lifestyle factors, have a major influence on children's health and development. Due to increasing interest in the early life developmental origins of diseases, many birth cohorts have been established. These studies constitute a repository of data which researchers use over many years to investigate emerging research questions. However, no such databank or cohort study is available in the United Arab Emirates (UAE). This project aims to establish a prospective mother and child cohort study in Al Ain (Abu Dhabi, UAE) to investigate the maternal and early life determinants of infant, child, adolescent and maternal health of the Emirati population.

Methods: During the period 2017-2021, this study aims to recruit 10 000 pregnancies at approximately 12 weeks of gestation from hospitals and clinics in Al Ain city. For each mother/newborn pair, an initial dataset will be collected including anthropometric, physiological and biochemical measurements, medical interventions, circumstances of pregnancy, delivery details and neonatal and perinatal growth and health using a combination of questionnaires, interviews and medical record extractions. Baseline data will act as the starting point from which the children will be followed up and re-surveyed at intervals throughout their life course until the age of 16 years, to explore how familial, socioeconomic and lifestyle factors interact with genetic and environmental factors to influence health outcomes and achievements later in life.

Keywords: birth; child; cohort; early life exposures; health outcomes; mother; pregnancy; United Arab Emirates

Burden, associated risk factors and adverse outcomes of gestational diabetes mellitus in twin pregnancies in Al Ain, UAE

Authors: Alkaabi, J; Almazrouei, R; Zoubeidi, T; Alkaabi, F.M; Alkendi, F.R; Almiri, A.E; Sharma, C; Souid, A.-K; **Ali, N; Ahmed, L.A.**

Journal: BMC Pregnancy and Childbirth | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s12884-020-03289-w

Abstract

Background: Gestational diabetes mellitus (GDM) in singleton pregnancies represent a high-risk scenario. The incidence, associated factors and outcomes of GDM in twin pregnancies is not known in the UAE.

Methods: This was five years retrospective analysis of hospital records of twin pregnancies in the city of Al Ain, Abu Dhabi, UAE. Relevant data with regards to the pregnancy, maternal and birth outcomes and incidence of GDM was extracted from two major hospitals in the city. Regression models assessed the relationship between socio-demographic and pregnancy-related variables and GDM, and the associations between GDM and maternal and fetal outcomes at birth.

Results: A total of 404 women and their neonates were part of this study. The study population had a mean age of 30.1 (SD: 5.3), overweight or obese (66.5%) and were majority multiparous (66.6%). High incidence of GDM in twin pregnancies (27.0%). While there were no statistical differences in outcomes of the neonates, GDM mothers were older (OR: 1.09, 95% CI: 1.06-1.4) and heavier (aOR: 1.02, 95% CI: 1.00-1.04). They were also likely to have had GDM in their previous pregnancies (aOR: 7.37, 95% CI: 2.76-19.73). The prognosis of mothers with twin pregnancies and GDM lead to an independent and increased odds of cesarean section (aOR: 2.34, 95% CI: 1.03-5.30) and hospitalization during pregnancy (aOR: 1.60, 95% CI: 1.16-2.20).

Conclusion: More than a quarter of women with twin pregnancies were diagnosed with GDM. GDM was associated with some adverse pregnancy outcomes but not fetal outcomes in this population. More studies are needed to further investigate these associations and the management of GDM in twin pregnancies.

Keywords: gestational diabetes mellitus; maternal outcomes; neonatal outcomes; twin pregnancy

Antenatal care initiation among pregnant women in the United Arab Emirates: The Mutaba'ah Study

Authors: **Ali, N; Elbarazi, I; Alabboud, S; Al-Maskari, F;** Loney, T; **Ahmed, L.A.**

Journal: Frontiers in Public Health | **Year**: 2020 | **DOI**: https://doi.org/10.3389/fpubh.2020.00211

Abstract

Introduction: Antenatal care (ANC) provides monitoring and regular follow-up of maternal and fetal health during pregnancy. Women with appropriate ANC tend to have better delivery and birth outcomes. This study describes the patterns of ANC utilization and factors associated with appropriate ANC initiation in the United Arab Emirates (UAE) for the first time.

Methods: Baseline cross-sectional data from pregnant women who participated in the Mutaba'ah—Mother and Child Health Study between May 2017 and January 2019 was analyzed. Participants were recruited during ANC visits and completed a self-administered questionnaire that collected socio-demographic and pregnancy-related information and assessed whether it was their first ANC appointment. Regression models assessed the relationship between socio-demographic and pregnancy-related variables and "appropriate" (≤ 4 months' gestation) vs. "late" ANC initiation (>4 months' gestation).

Results: At recruitment, 841 participants reported that it was their first ANC visit and half (50.2%) of these women were late initiating their ANC. Mothers who were more educated, had previous infertility treatment or previous miscarriages were all more likely to achieve appropriate ANC initiation [adjusted odds ratio (aOR): 1.66, 95% confidence interval (CI): 1.05–2.62; aOR: 3.68, 95% CI: 1.50–9.04; aOR: 1.80, 95% CI: 1.16–2.79, respectively]. Women worrying about childbirth were less likely to achieve appropriate ANC initiation (aOR: 0.54, 95% CI: 0.34–0.85).

Conclusion: Half of pregnant women in this study did not achieve the global consensus guidelines on appropriate ANC initiation. Interventions among less educated women and those with previous pregnancy complications and childbirth anxiety are recommended to ensure appropriate ANC initiation.

Keywords: birth; cohort; infertility; mother; pregnancy; pregnancy trimesters; prenatal care; United Arab Emirates

Mapping local patterns of childhood overweight and wasting in low- and middle-income countries between 2000 and 2017

Authors: LBD Double Burden of Malnutrition Collaborators (**Elbarazi, I.**)

Journal: Nature Medicine | **Year**: 2020 | **DOI**: https://doi.org/10.1038/s41591-020-0807-6

Abstract

A double burden of malnutrition occurs when individuals, household members or communities experience both undernutrition and overweight. Here, we show geospatial estimates of overweight and wasting prevalence among children under 5 years of age in 105 low- and middle-income countries (LMICs) from 2000 to 2017 and aggregate these to policy-relevant administrative units. Wasting decreased overall across LMICs between 2000 and 2017, from 8.4% (62.3 (55.1–70.8) million) to 6.4% (58.3 (47.6–70.7) million), but is predicted to remain above the World Health Organization's Global Nutrition Target of <5% in over half of LMICs by 2025. Prevalence of overweight increased from 5.2% (30 (22.8–38.5) million) in 2000 to 6.0% (55.5 (44.8–67.9) million) children aged under 5 years in 2017. Areas most affected by double burden of malnutrition were located in Indonesia, Thailand, southeastern China, Botswana, Cameroon and central Nigeria. Our estimates provide a new perspective to researchers, policy makers and public health agencies in their efforts to address this global childhood syndemic.

Keywords: double burden of malnutrition, childhood overweight, childhood wasting, low- and middle-income countries, geospatial estimates

Maternal and birth cohort studies in the Gulf Cooperation Council countries: A systematic review and meta-analysis

Authors: **Al-Rifai, R.H; Ali, N;** Barigye, E.T; Al Haddad, A.H.I; **Al-Maskari, F;** Loney, T; **Ahmed, L.A.**

Journal: Systematic Reviews | **Year**: 2020 | **DOI**: https://doi.org/10.1186/s13643-020-1277-0

Abstract

Background: We systematically reviewed and chronicled exposures and outcomes measured in the maternal and birth cohort studies in the Gulf Cooperation Council (GCC) countries and quantitatively summarized the weighted effect estimates between maternal obesity and (1) cesarean section (CS) and (2) fetal macrosomia.

Methods: We searched MEDLINE-PubMed, Embase, Cochrane Library, Scopus, and Web of Science electronic databases up to 30 June 2019. We considered all maternal and birth cohort studies conducted in the six GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates (UAE)). We categorized cohort studies on the basis of the exposure(s) (anthropometric, environmental, medical, maternal/reproductive, perinatal, or socioeconomic) and outcome(s) (maternal or birth) being measured. Adjusted weighted effect estimates, in the form of relative risks, between maternal obesity and CS and fetal macrosomia were generated using a random-effects model.

Results: Of 3502 citations, 81 published cohort studies were included. One cohort study was in Bahrain, eight in Kuwait, seven in Qatar, six in Oman, 52 in Saudi Arabia, and seven in the UAE. Majority of the exposures studied were maternal/reproductive (65.2%) or medical (39.5%). Birth and maternal outcomes were reported in 82.7% and in 74.1% of the cohort studies, respectively. In Saudi Arabia, babies born to obese women were at a higher risk of macrosomia (adjusted relative risk (aRR), 1.15; 95% confidence interval (CI), 1.10-1.20; I^2 = 50%) or cesarean section (aRR, 1.21; 95% CI, 1.15-1.26; I^2 = 62.0%). Several cohort studies were only descriptive without reporting the magnitude of the effect estimate between the assessed exposures and outcomes.

Conclusions: Cohort studies in the GCC have predominantly focused on reproductive and medical exposures. Obese pregnant women are at an increased risk of undergoing CS delivery or macrosomic births. Longer-term studies that explore a wider range of environmental and biological exposures and outcomes relevant to the GCC region are needed.

Keywords: Cohort studies; Infant health; Maternal exposure; Maternal health; Middle East; Prenatal exposure delayed effects; Review

Impact of recurrent miscarriage on maternal outcomes in subsequent pregnancy: The Mutaba'ah Study

Authors: **Ali, N; Elbarazi, I;** Ghazal-Aswad, S; **Al-Maskari, F; Al-Rifai, R.H; Oulhaj, A;** Loney, T; **Ahmed, L.A.**

Journal: International Journal of Women's Health | **Year**: 2020 | **DOI**: https://doi.org/10.2147/ijwh.s264229

Abstract

Purpose: To estimate the prevalence of recurrent miscarriage (RM) and investigate the association between RM and adverse maternal outcomes in subsequent pregnancies.

Methods: This is an interim analysis of a prospective study of 1737 pregnant women with gravidity of two or more prior to the current pregnancy. These women joined the Mutaba'ah Study between May 2017 and April 2019 and were followed up until they delivered. Hospital medical records were used to extract data on past pregnancy history and the progress and outcomes of the current pregnancy, such as gestational diabetes, preeclampsia, mode of delivery, preterm delivery, and complications at birth.

Results: Amongst pregnant women with at least two previous pregnancies (n=1737), there were 234 (13.5%) women with a history of two or more consecutive miscarriages. Women with RM were slightly older, more parous, and more likely to have had previous infertility treatment (all p-values <0.05). Women with a history of RM had independently significant increased odds of cesarean section (adjusted odds ratio (aOR) 1.81, 95% CI 1.24–2.65) and preterm (<37 weeks, aOR: 2.52, 95% CI 1.56–4.08) or very preterm delivery (<32 weeks, aOR: 7.02 95% CI 2.41–20.46) in subsequent pregnancies than women who did not have a history of RM.

Conclusion: Women with a history of RM were twice as likely to undergo cesarean section and seven times more likely to deliver prior to 32 weeks of gestation than women without a history of RM. The study findings support the need for early pregnancy monitoring or assessment units to ensure better follow-up and customized care for at-risk pregnant women with a history of RM.

Keywords: cesarean section; cohort study; miscarriage; preterm delivery; recurrent miscarriage

Gestational diabetes mellitus in Europe: A systematic review and meta-analysis of prevalence studies

Authors: **Paulo, M.S; Abdo, N.M;** Bettencourt-Silva, R; **Al-Rifai, R.H.**

Journal: Frontiers in Endocrinology | **Year**: 2021 | **DOI**: https://doi.org/10.3389/fendo.2021.691033

Abstract

Background: Gestational Diabetes Mellitus (GDM) is defined as the type of hyperglycemia diagnosed for the first-time during pregnancy, presenting with intermediate glucose levels between normal levels for pregnancy and glucose levels diagnostic of diabetes in the non-pregnant state. We aimed to systematically review and meta-analyze studies of prevalence of GDM in European countries at regional and sub-regional levels, according to age, trimester, body weight, and GDM diagnostic criteria.

Methods: Systematic search was conducted in five databases to retrieve studies from 2014 to 2019 reporting the prevalence of GDM in Europe. Two authors have independently screened titles and abstracts and full text according to eligibility using Covidence software. A random-effects model was used to quantify weighted GDM prevalence estimates. The National Heart, Lung, and Blood Institute criteria was used to assess the risk of bias.

Results: From the searched databases, 133 research reports were deemed eligible and included in the meta-analysis. The research reports yielded 254 GDM-prevalence studies that tested 15,572,847 pregnant women between 2014 and 2019. The 133 research reports were from 24 countries in Northern Europe (44.4%), Southern Europe (27.1%), Western Europe (24.1%), and Eastern Europe (4.5%). The overall weighted GDM prevalence in the 24 European countries was estimated at 10.9% (95% CI: 10.0–11.8, I2: 100%). The weighted GDM prevalence was highest in the Eastern Europe (31.5%, 95% CI: 19.8–44.6, I2: 98.9%), followed by in Southern Europe (12.3%, 95% CI: 10.9–13.9, I2: 99.6%), Western Europe (10.7%, 95% CI: 9.5–12.0, I2: 99.9%), and Northern Europe (8.9%, 95% CI: 7.9–10.0, I2: 100). GDM prevalence was 2.14-fold increase in pregnant women with maternal age ≥30 years (versus 15-29 years old), 1.47-fold if the diagnosis was made in the third trimester (versus second trimester), and 6.79- fold in obese and 2.29-fold in overweight women (versus normal weight).

Conclusions: In Europe, GDM is significant in pregnant women, around 11%, with the highest prevalence in pregnant women of Eastern European countries (31.5%). Findings have implications to guide vigilant public health awareness campaigns about the risk factors associated with developing GDM. Systematic Review Registration: PROSPERO [https://www.crd.york.ac.uk/PROSPERO/], identifier CRD42020161857.

Keywords: diabetes mellitus; Europe; GDM; gestational diabetes mellitus; meta-analysis; pregnancy complications; pregnancy hyperglycemia; systematic review

Prevalence of gestational diabetes mellitus in the Middle East and North Africa, 2000–2019: A systematic review, meta-analysis, and meta-regression

Authors: **Al-Rifai, R.H; Abdo, N.M; Paulo,** M.S; Saha, S; **Ahmed, L.A.**

Journal: Frontiers in Endocrinology | **Year**: 2021 | **DOI**: https://doi.org/10.3389/fendo.2021.668447

Abstract

Background: Women in the Middle East and North Africa (MENA) region are burdened with several risk factors related to gestational diabetes mellitus (GDM) including overweight and high parity. We systematically reviewed the literature and quantified the weighted prevalence of GDM in MENA at the regional, subregional, and national levels.

Methods: Studies published from 2000 to 2019 reporting the prevalence of GDM in the MENA region were retrieved and were assessed for their eligibility. Overall and subgroup pooled prevalence of GDM was quantified by random-effects meta-analysis. Sources of heterogeneity were investigated by meta-regression. The risk of bias (RoB) was assessed by the National Heart, Lung, and Blood Institute's tool.

Results: One hundred and two research articles with 279,202 tested pregnant women for GDM from 16 MENA countries were included. Most of the research reports sourced from Iran (36.3%) and Saudi Arabia (21.6%), with an overall low RoB. In the 16 countries, the pooled prevalence of GDM was 13.0% (95% confidence interval [CI], 11.5–14.6%, I2, 99.3%). Nationally, GDM was highest in Qatar (20.7%, 95% CI, 15.2–26.7% I2, 99.0%), whereas subregionally, GDM was highest in Gulf Cooperation Council (GCC) countries (14.7%, 95% CI, 13.0–16.5%, I2, 99.0%). The prevalence of GDM was high in pregnant women aged ≥30 years (21.9%, 95% CI, 18.5–25.5%, I2, 97.1%), in their third trimester (20.0%, 95% CI, 13.1–27.9%, I2, 98.8%), and who were obese (17.2%, 95% CI, 12.8–22.0%, I2, 93.8%). The prevalence of GDM was 10.6% (95% CI, 8.1–13.4%, I2, 98.9%) in studies conducted before 2009, whereas it was 14.0% (95% CI, 12.1–16.0%, I2, 99.3%) in studies conducted in or after 2010.

Conclusion: Pregnant women in the MENA region are burdened with a substantial prevalence of GDM, particularly in GCC and North African countries. Findings have implications for maternal health in the MENA region and call for advocacy to unify GDM diagnostic criteria. Systematic Review Registration: PROSPERO CRD42018100629.

Keywords: gestational diabetes mellitus; MENA region; meta-analysis; prevalence; systematic review

Knowledge and preference towards mode of delivery among pregnant women in the United Arab Emirates: The Mutaba'ah Study

Authors: **Al-Rifai, R.H; Elbarazi, I; Ali, N;** Loney, T; **Oulhaj, A; Ahmed, L.A.**

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph18010036

Abstract

Background: The rate of cesarean section (CS) is growing in the United Arab Emirates (UAE). Pregnant women's knowledge on the mode of delivery, factors associated with lack of adequate knowledge, and preference towards CS delivery were investigated.

Methods: Baseline cross-sectional data from 1617 pregnant women who participated in the Mutaba'ah Study between September 2018 and March 2020 were analyzed. A self-administered questionnaire inquiring about demographic and maternal characteristics, ten knowledge-based statements about mode of delivery, and one question about preference towards mode of delivery was used. Knowledge on the mode of delivery was categorized into "adequate (total score 6–10)" or "lack of adequate (total score 0–5)" knowledge. Crude and multivariable models were used to identify factors associated with "lack of adequate" knowledge on the mode of delivery and factors associated with CS preference.

Results: A total of 1303 (80.6%) pregnant women (mean age 30.6 ± 5.8 years) completed the questionnaire. The majority (57.1%) were ≥30 years old, in their third trimester (54.5%), and had at least one child (76.6%). In total, 20.8% underwent CS delivery in the previous pregnancy, and 9.4% preferred CS delivery for the current pregnancy. A total of 78.4% of pregnant women lacked adequate knowledge on the mode of delivery. The level of those who lacked adequate knowledge was similar across women in different pregnancy trimesters. Young women (18–24 years) (adjusted odds ratios (aOR), 3.07, 95% confidence interval (CI), 1.07–8.86) and women who had CS delivery in the previous pregnancy (aOR, 1.90, 95% CI, 1.06–3.40) were more likely to be classified with a lack of adequate knowledge. Age (aOR, 1.08, 95% CI, 1.02–1.14), employment (aOR, 1.96, 95% CI, 1.13–3.40), or previous CS delivery (aOR, 31.10, 95% CI, 17.71–55.73) were associated with a preference towards CS delivery.

Conclusion: This study showed that pregnant women may not fully appreciate the health risks associated with different modes of delivery. Therefore, antenatal care appointments should include a balanced discussion on the potential benefits and harms associated with different delivery modes.

Keywords: knowledge; maternal health; mode of delivery; United Arab Emirates

Effect of gestational diabetes mellitus history on future pregnancy behaviors: The Mutaba'ah Study

Authors: **Ali, N;** Aldhaheri, A.S; Alneyadi, H.H; Alazeezi, M.H; Al Dhaheri, S.S; Loney, T; **Ahmed, L.A.**

Journal: Int J Environ Res Public Health | **Year**: 2021 | **DOI**: https://doi.org/10.3390/ijerph18010058

Abstract

Background: Gestational diabetes mellitus (GDM) increases the risk of adverse pregnancy outcomes in any pregnancy and recurrence rates are high in future pregnancies. This study aims to investigate the effect of self-reported history of previous GDM on behaviors in a future pregnancy.

Methods: This is an interim cross-sectional analysis of the pregnant women who participated in the Mutaba'ah Study between May 2017 and March 2020 in the United Arab Emirates. Participants completed a baseline self-administered questionnaire on sociodemographic and pregnancy-related information about the current pregnancy and previous pregnancies. Regression models assessed the relationships between self-reported history of GDM and pre-pregnancy and pregnancy behaviors in the current pregnancy.

Results: Out of 5738 pregnant parous women included in this analysis, nearly 30% (n = 1684) reported a history of GDM in a previous pregnancy. Women with a history of previous GDM were less likely to plan their current pregnancies (adjusted odds ratio (aOR): 0.84, 95% confidence interval (CI) 0.74–0.96) and more likely to be worried about childbirth (aOR: 1.18, 95% CI 1.03–1.36). They had shorter interpregnancy intervals between their previous child and current pregnancy (aOR: 0.88, 95% CI 0.82–0.94, per SD increase). There were no significant differences between women with and without a history of GDM in supplement use, sedentary behavior, or physical activity before and during this current pregnancy. Nearly a third of parous pregnant women in this population had a history of GDM in a previous pregnancy. Pregnant women with a previous history of GDM were similar to their counterparts with no history of GDM in the adopted pre-pregnancy and prenatal health behaviors.

Conclusion: More intensive and long-term lifestyle counseling, possibly supported by e-health and social media materials, might be required to empower pregnant women with a history of GDM. This may assist in adopting and maintaining healthy prenatal behaviors early during the pregnancy or the preconception phase to minimize the risk of GDM recurrence and the consequential adverse maternal and infant health outcomes.

Keywords: gestational diabetes mellitus; maternal health; pregnancy; prenatal care; United Arab Emirates

Infant birth weight estimation and low birth weight classification in United Arab Emirates using machine learning algorithms

Authors: Khan, W; Zaki, N; Masud, M.M; Ahmad, A; Ali, L; **Ali, N; Ahmed, L.A.**

Journal: Scientific Reports | **Year**: 2022 | **DOI**: https://doi.org/10.1038/s41598-022-14393-6

Abstract

Background: Accurate prediction of a newborn's birth weight (BW) is a crucial determinant to evaluate the newborn's health and safety. Infants with low BW (LBW) are at a higher risk of serious short- and long-term health outcomes. Over the past decade, machine learning (ML) techniques have shown a successful breakthrough in the field of medical diagnostics. Various automated systems have been proposed that use maternal features for LBW prediction. However, each proposed system uses different maternal features for LBW classification and estimation. Therefore, this paper provides a detailed setup for BW estimation and LBW classification.

Methods: Multiple subsets of features were combined to perform predictions with and without feature selection techniques. Furthermore, the synthetic minority oversampling technique was employed to oversample the minority class. The performance of 30 ML algorithms was evaluated for both infant BW estimation and LBW classification. Experiments were performed on a self-created dataset with 88 features. The dataset was obtained from 821 women from three hospitals in the United Arab Emirates. Different performance metrics, such as mean absolute error and mean absolute percent error, were used for BW estimation. Accuracy, precision, recall, F-scores, and confusion matrices were used for LBW classification.

Results: Extensive experiments performed using five-folds cross validation show that the best weight estimation was obtained using Random Forest algorithm with mean absolute error of 294.53 g while the best classification performance was obtained using Logistic Regression with SMOTE oversampling techniques that achieved accuracy, precision, recall and F1 score of 90.24%, 87.6%, 90.2% and 0.89, respectively.

Conclusions: The results also suggest that features such as diabetes, hypertension, and gestational age, play a vital role in LBW classification.

Keywords: birth weight prediction, low birth weight classification, machine learning, maternal features, synthetic minority oversampling technique

Incidence of gestational diabetes mellitus in the United Arab Emirates; comparison of six diagnostic criteria: The Mutaba'ah Study

Authors: **Bashir, M.M; Ahmed, L.A; Elbarazi, I;** Loney, T; **Al-Rifai, R.H;** Alkaabi, J.M; **Al-Maskari, F.**

Journal: Frontiers in Endocrinology | **Year**: 2022 | **DOI**: https://doi.org/10.3389/fendo.2022.1069477

Abstract

Background: For more than half a century, there has been much research and controversies on how to accurately screen for and diagnose gestational diabetes mellitus (GDM). There is a paucity of updated research among the Emirati population in the United Arab Emirates (UAE). The lack of a uniform GDM diagnostic criteria results in the inability to accurately combine or compare the disease burden worldwide and locally. This study aimed to compare the incidence of GDM in the Emirati population using six diagnostic criteria for GDM.

Methods: The Mutaba'ah study is the largest multi-center mother and child cohort study in the UAE with an 18-year follow-up. We included singleton pregnancies from the Mutaba'ah cohort screened with the oral glucose tolerance test (OGTT) at 24–32 weeks from May 2017 to March 2021. We excluded patients with known diabetes and with newly diagnosed diabetes. GDM cumulative incidence was determined using the six specified criteria. GDM risk factors were compared using chi-square and t-tests. Agreements among the six criteria were assessed using kappa statistics.

Results: A total of 2,546 women were included with a mean age of 30.5 ± 6.0 years. Mean gravidity was 3.5 ± 2.1, and mean body mass index (BMI) at booking was 27.7 ± 5.6 kg/m2. GDM incidence as diagnosed by any of the six criteria collectively was 27.1%. It ranged from 8.4% according to the EASD 1996 criteria to 21.5% according to the NICE 2015 criteria. The two most inclusive criteria were the NICE 2015 and the IADPSG criteria with GDM incidence rates of 21.5% (95% CI: 19.9, 23.1) and 21.3% (95% CI: 19.8, 23.0), respectively. Agreement between the two criteria was moderate ($k = 0.66$; $p < 0.001$). The least inclusive was the EASD 1996 criteria [8.4% (95% CI: 7.3, 9.6)]. The locally recommended IADPSG/WHO 2013 criteria had weak to moderate agreement with the other criteria, with Cohen's kappa coefficient ranging from ($k = 0.51$; $p < 0.001$) to ($k = 0.71$; $p < 0.001$). Most of the GDM risk factors assessed were significantly higher among those with GDM ($p < 0.005$) identified by all criteria.

Keywords: diabetes; diagnostic criteria; gestational diabetes mellitus; IADPSG; incidence; risk factors; United Arab Emirates

Predictive modeling for the diagnosis of gestational diabetes mellitus using epidemiological data in the United Arab Emirates

Authors: **Ali, N;** Khan, W; Ahmad, A; Masud, M.M; Adam, H; **Ahmed, L.A.**

Journal: Information | **Year**: 2022 | **DOI**: https://doi.org/10.3390/info13100485

Abstract

Background: Gestational diabetes mellitus (GDM) is a common condition with repercussions for both the mother and her child. Machine learning (ML) modeling techniques were proposed to predict the risk of several medical outcomes. A systematic evaluation of the predictive capacity of maternal factors resulting in GDM in the UAE is warranted.

Methods: Data on a total of 3858 women who gave birth and had information on their GDM status in a birth cohort were used to fit the GDM risk prediction model. Information used for the predictive modeling were from self-reported epidemiological data collected at early gestation. Three different ML models, random forest (RF), gradient boosting model (GBM), and extreme gradient boosting (XGBoost), were used to predict GDM. Furthermore, to provide local interpretation of each feature in GDM diagnosis, features were studied using Shapley additive explanations (SHAP).

Results: Results obtained using ML models show that XGBoost, which achieved an AUC of 0.77, performed better compared to RF and GBM. Individual feature importance using SHAP value and the XGBoost model show that previous GDM diagnosis, maternal age, body mass index, and gravidity play a vital role in GDM diagnosis.

Conclusions: ML models using self-reported epidemiological data are useful and feasible in prediction models for GDM diagnosis amongst pregnant women. Such data should be periodically collected at early pregnancy for health professionals to intervene at earlier stages to prevent adverse outcomes in pregnancy and delivery. The XGBoost algorithm was the optimal model for identifying the features that predict GDM diagnosis.

Keywords: gestational diabetes mellitus; machine learning; prediction modeling; United Arab Emirates

Maternal early-life risk factors and later gestational diabetes mellitus: A cross-sectional analysis of the UAE Healthy Future Study (UAEHFS)

Authors: Juber, N.F; Abdulle, A; AlJunaibi, A; AlNaeemi, A; Ahmad, A; Leinberger-Jabari, A; Al Dhaheri, A.S; AlZaabi, E; Mezhal, F; **Al-Maskari, F;** AlAnouti, F; Alsafar, H; Alkaabi, J; Wareth, L.A; Aljaber, M; Kazim, M; Weitzman, M; Al-Houqani, M; Ali, M.H; Oumeziane, N; El-Shahawy, O; Sherman, S; AlBlooshi, S; **Shah, S.M;** Loney, T; Almahmeed, W; Idaghdour, Y; Ali, R.

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph191610339

Abstract

Background: Limited studies have focused on maternal early-life risk factors and the later development of gestational diabetes mellitus (GDM). We aimed to estimate the GDM prevalence and examine the associations of maternal early-life risk factors, namely: maternal birthweight, parental smoking at birth, childhood urbanicity, ever-breastfed, parental education attainment, parental history of diabetes, childhood overall health, childhood body size, and childhood height, with later GDM.

Methods: This was a retrospective cross-sectional study using the UAE Healthy Future Study (UAEHFS) baseline data (February 2016 to April 2022) on 702 ever-married women aged 18 to 67 years.

Results: We fitted a Poisson regression to estimate the risk ratio (RR) for later GDM and its 95% confidence interval (CI). The GDM prevalence was 5.1%. In the fully adjusted model, females with low birthweight were four times more likely (RR 4.04, 95% CI 1.36–12.0) and females with a parental history of diabetes were nearly three times more likely (RR 2.86, 95% CI 1.10–7.43) to report later GDM.

Conclusion: In conclusion, maternal birthweight and parental history of diabetes were significantly associated with later GDM. Close glucose monitoring during pregnancy among females with either a low birth weight and/or parental history of diabetes might help to prevent GDM among this high-risk group.

Keywords: epidemiology; GDM; gestational diabetes mellitus; maternal early-life factor; pregnancy; UAE; UAE healthy future study; UAEHFS; United Arab Emirates

Gestational diabetes mellitus: A cross-sectional survey of its knowledge and associated factors among United Arab Emirates University students

Authors: **Bashir, M.M; Ahmed, L.A;** Alshamsi, M.R; Almahrooqi, S; Alyammahi, T; Alshehhi, S.A; Alhammadi, W.I; Alhosani, H.A; Alhammadi, F.H; **Al-Rifai, R.H; Al-Maskari, F.**

Journal: Int J Environ Res Public Health | **Year**: 2022 | **DOI**: https://doi.org/10.3390/ijerph19148381

Abstract

Background: Gestational diabetes mellitus (GDM) burden is burgeoning globally. Correct knowledge about GDM among young people is paramount for timely prevention. This study assesses GDM knowledge and identifies factors associated with it among United Arab Emirates (UAE) University students.

Methods: A validated self-administered questionnaire collected data from the university students. We analyzed the data for GDM knowledge status (ever heard of GDM) and GDM knowledge levels (poor, fair, and good) and conducted ordinal logistic regressions to assess for associated factors.

Results: A total of 735 students were surveyed with a mean age of 21.0 years. Of these, 72.8% had heard of GDM, and 52.9% of males versus 20.3% of female students had never heard of the condition before. Higher age ($p = 0.019$) and being a postgraduate student ($p = 0.026$) were associated with higher GDM knowledge status in males. GDM knowledge level analysis showed that 24.0%, 58.5%, and 17.5% had poor, fair, and good knowledge. The mean GDM-knowledge score was 6.3 ± 2.4 (out of 12). Being married [aOR-1.82 (95%CI 1.10–3.03)] and knowing someone who had GDM [aOR-1.78 (95%CI 1.23–2.60)] were independently associated with higher GDM knowledge levels among students. Students' primary source of GDM knowledge was family/friends.

Conclusion: There is an observed knowledge gap related to GDM among the students, especially males. This study urges the need to accelerate targeted GDM awareness campaigns among university students and the general population in the UAE.

Keywords: diabetes; GDM; gestational; knowledge; pregnancy; students; United Arab Emirates

Sociodemographic determinants of prepregnancy body mass index and gestational weight gain: The Mutaba'ah Study

Authors: Cheng, T.S; **Ali, N; Elbarazi, I; Al-Rifai, R.H; Al-Maskari, F;** Loney, T; **Ahmed, L.A.**

Journal: Obesity Science and Practice | **Year**: 2022 | **DOI**: https://doi.org/10.1002/osp4.573

Abstract

Objective: This study examined the associations of sociodemographic and lifestyle factors with prepregnancy body mass index (BMI) and gestational weight gain (GWG).

Methods: In the Mutaba'ah Study in the United Arab Emirates, repeated measurements throughout pregnancy from medical records were used to determine prepregnancy BMI and GWG. Associations of sociodemographic and lifestyle factors with prepregnancy BMI and GWG (separately by normal weight, overweight, and obesity status) were tested using multivariable regression models, adjusted for maternal age at delivery.

Results: Among 3536 pregnant participants, more than half had prepregnancy overweight (33.2%) or obesity (26.9%), and nearly three-quarters had inadequate (34.2%) or excessive (38.2%) GWG. Higher parity (β for 1–2 to ≥5 children = 0.94 to 1.73 kg/m2), lower maternal education (β for tertiary = −1.42), infertility treatment (β = 0.69), and maternal prepregnancy active smoking (β = 1.95) were independently associated with higher prepregnancy BMI. Higher parity was associated with a lower risk for excessive GWG among women with prepregnancy normal weight (odds ratios (ORs) for 1–2 to ≥5 children = 0.61 to 0.39). Higher maternal education was negatively associated with inadequate GWG among women with normal weight and overweight (ORs for tertiary education = 0.75 and 0.69, respectively).

Conclusions: Sociodemographic factors, especially parity and maternal education, were differentially associated with prepregnancy BMI and GWG adequacy across weight status.

Keywords: sociodemographic factors, lifestyle factors, prepregnancy BMI, gestational weight gain, maternal education

Node embedding-based graph autoencoder outlier detection for adverse pregnancy outcomes

Authors: Khan, W; Zaki, N; Ahmad, A; Masud, M.M; Govender, R; Rojas-Perilla, N; Ali, L; Ghenimi, N; **Ahmed, L.A.**

Journal: Scientific Reports | **Year**: 2023 | **DOI**: https://doi.org/10.1038/s41598-023-46726-4

Abstract

Background: Adverse pregnancy outcomes, such as low birth weight (LBW) and preterm birth (PTB), can have serious consequences for both the mother and infant. Early prediction of such outcomes is important for their prevention. Previous studies using traditional machine learning (ML) models for predicting PTB and LBW have encountered two important limitations: extreme class imbalance in medical datasets and the inability to account for complex relational structures between entities. To address these limitations, we propose a node embedding-based graph outlier detection algorithm to predict adverse pregnancy outcomes.

Methods: We developed a knowledge graph using a well-curated representative dataset of the Emirati population and two node embedding algorithms. The graph autoencoder (GAE) was trained by applying a combination of original risk factors and node embedding features. Samples that were difficult to reconstruct at the output of GAE were identified as outliers considered representing PTB and LBW samples.

Results: Our experiments using LBW, PTB, and very PTB datasets demonstrated that incorporating node embedding considerably improved performance, achieving a 12% higher AUC-ROC compared to traditional GAE.

Conclusion: Our study demonstrates the effectiveness of node embedding and graph outlier detection in improving the prediction performance of adverse pregnancy outcomes in well-curated population datasets.

Keywords: adverse pregnancy outcomes, low birth weight, preterm birth, node embedding, graph outlier detection

Associations between birth weight and adult sleep characteristics: A cross-sectional analysis from the UAEHFS

Author: Juber, N.F; Abdulle, A; Ahmad, A; Leinberger-Jabari, A; Dhaheri, A.S.A; **Al-Maskari, F;** AlAnouti, F; Al-Houqani, M; Ali, M.H; El-Shahawy, O; Sherman, S; **Shah, S.M;** et al.

Journal: Journal of Clinical Medicine | **Year**: 2023 | **DOI**: https://doi.org/10.3390/jcm12175618

Abstract

Background: Abnormal birth weight, particularly low birth weight (LBW), is known to have long-term adverse health consequences in adulthood, with disrupted sleep being suggested as a mediator or modifier of this link. We thus aimed to assess the associations between birth weight and self-reported adult sleep characteristics: sleep duration, difficulty waking up in the morning, daily nap frequency, sleep problems at night, snoring, daytime tiredness or sleepiness, and ever-stop breathing during sleep.

Methods: This cross-sectional analysis used the United Arab Emirates Healthy Future Study data collected from February 2016 to March 2023 involving 2124 Emiratis aged 18–61 years. We performed a Poisson regression under unadjusted and age-sex-and-BMI-adjusted models to obtain the risk ratio and its 95% confidence interval for our analysis of the association between birth weight and each adult sleep characteristics, compared to individuals with normal birth weight (≥2.5 kg).

Results: Those with LBW had significantly a 17% increased risk of difficulty waking up in the morning, compared to those with normal birth weight. In addition, females with LBW history were also at an increased risk of reporting difficulty waking up in the morning.

Conclusion: Studies with objective sleep assessments that include measurements of more confounding factors are recommended to confirm these risks.

Keywords: birth weight; epidemiology; global health; prenatal exposure delayed effects; sleep characteristics; UAE Healthy Future Study; United Arab Emirates

The effects of a peripartum strategy to prevent and treat primary postpartum haemorrhage at health facilities in Niger: a longitudinal, 72-month study

Authors: Seim, A.R; Alassoum, Z; Souley, I; Bronzan, R; Mounkaila, A; **Ahmed, L.A.**

Journal: The Lancet Global Health | **Year**: 2023 | **DOI**: https://doi.org/10.1016/s2214-109x(22)00518-6

Abstract

Background: Primary postpartum haemorrhage is the principal cause of birth-related maternal mortality in most settings and has remained persistently high in severely resource-constrained countries. We evaluate the impact of an intervention that aims to halve maternal mortality caused by primary postpartum haemorrhage within 2 years, nationwide in Niger.

Methods: In this 72-month longitudinal study, we analysed the effects of a primary postpartum haemorrhage intervention in hospitals and health centres in Niger, using data on maternal birth outcomes assessed and recorded by the facilities' health professionals and reported once per month at the national level. Reported data were monitored, compiled, and analysed by a non-governmental organisation collaborating with the Ministry of Health. All births in all health facilities in which births occurred, nationwide, were included, with no exclusion criteria. After a preintervention survey, brief training, and supplies distribution, Niger implemented a nationwide primary postpartum haemorrhage prevention and three-step treatment strategy using misoprostol, followed if needed by an intrauterine condom tamponade, and a non-inflatable anti-shock garment, with a specific set of organisational public health tools, aiming to reduce primary postpartum haemorrhage mortality.

Findings: Among 5 382 488 expected births, 2 254 885 (41·9%) occurred in health facilities, of which information was available on 1 380 779 births from Jan 1, 2015, to Dec 31, 2020, with reporting increasing considerably over time. Primary postpartum mortality decreased from 82 (32·16%; 95% CI 25·58–39·92) of 255 health facility maternal deaths in the 2013 preintervention survey to 146 (9·53%; 8·05–11·21) of 1532 deaths among 343 668 births in 2020. Primary postpartum haemorrhage incidence varied between 1900 (2·10%; 2·01–2·20) of 90 453 births and 4758 (1·47%; 1·43–1·52) of 322 859 births during 2015–20, an annual trend of 0·98 (95% CI 0·97–0·99; p<0·0001).

Interpretation: Primary postpartum haemorrhage morbidity and mortality declined rapidly nationwide. Because each treatment technology that was used has shown some efficacy when used alone, a strategic combination of these treatments can reasonably attain outcomes of this magnitude. Niger's strategy warrants testing in other low-income and perhaps some middle-income settings. Funding: The Government of Norway, the Government of Niger, the Kavli Trust (Kavlifondet), the InFiL Foundation, and individuals in Norway, the UK, and the USA. Translation: For the French translation of the abstract see Supplementary Materials section.

Keywords: primary postpartum haemorrhage, maternal mortality, intervention, misoprostol, Niger

Happiness and associated factors amongst pregnant women in the United Arab Emirates: The Mutaba'ah Study

Authors: **Ali, N; Elbarazi, I; Al-Maskari, F;** Loney, T**; Ahmed, L.A.**

Journal: PLoS ONE | **Year**: 2023 | **DOI**: https://doi.org/10.1371/journal.pone.0268214

Abstract

Background: Prenatal happiness and life satisfaction research are often over-shadowed by other pregnancy and birth outcomes. This analysis investigated the level of, and factors associated with happiness amongst pregnant women in the United Arab Emirates.

Methods: Baseline cross-sectional data was analyzed from the Mutaba'ah Study, a large population-based prospective cohort study in the UAE. This analysis included all expectant mothers who completed the baseline self-administered questionnaire about sociodemographic and pregnancy-related information between May 2017 and July 2021. Happiness was assessed on a 10-point scale (1 = very unhappy; 10 = very happy). Regression models were used to evaluate the association between various factors and happiness.

Results: Overall, 9,350 pregnant women were included, and the majority (60.9%) reported a happiness score of ≥8 (median). Higher levels of social support, planned pregnancies and primigravidity were independently associated with higher odds of being happier; adjusted odds ratio (aOR (95% CI): 2.02 (1.71-2.38), 1.34 (1.22-1.47), and 1.41 (1.23-1.60), respectively. Women anxious about childbirth had lower odds of being happier (aOR: 0.58 (0.52-0.64).

Conclusion: Self-reported happiness levels were high among pregnant women in the UAE. Health services enhancing social support and promoting well-being during pregnancy and childbirth may ensure continued happiness during pregnancy in the UAE.

Keywords: prenatal happiness, life satisfaction, pregnant women, UAE, social support

Infant low birth weight prediction using graph embedding features

Authors: Khan, W; Zaki, N; Ahmad, A; Bian, J; Ali, L; Mehedy Masud, M; Ghenimi, N; **Ahmed, L.A.**

Journal: Int J Environ Res Public Health | **Year**: 2023 | **DOI**: https://doi.org/10.3390/ijerph20021317

Abstract

Low Birth weight (LBW) infants pose a serious public health concern worldwide in both the short and long term for infants and their mothers. Infant weight prediction prior to birth can help to identify risk factors and reduce the risk of infant morbidity and mortality. Although many Machine Learning (ML) algorithms have been proposed for LBW prediction using maternal features and produced considerable model performance, their performance needs to be improved so that they can be adapted in real-world clinical settings. Existing algorithms used for LBW classification often fail to capture structural information from the tabular dataset of patients with different complications. Therefore, to improve the LBW classification performance, we propose a solution by transforming the tabular data into a knowledge graph with the aim that patients from the same class (normal or LBW) exhibit similar patterns in the graphs. To achieve this, several features related to each node are extracted such as node embedding using node2vec algorithm, node degree, node similarity, nearest neighbors, etc. Our method is evaluated on a real-life dataset obtained from a large cohort study in the United Arab Emirates which contains data from 3453 patients. Multiple experiments were performed using the seven most commonly used ML models on the original dataset, graph features, and a combination of features, respectively. Experimental results show that our proposed method achieved the best performance with an area under the curve of 0.834 which is over 6% improvement compared to using the original risk factors without transforming them into knowledge graphs. Furthermore, we provide the clinical relevance of the proposed model that are important for the model to be adapted in clinical settings.

Keywords: birth weight prediction; healthcare; knowledge graph; low birth weight; topological features

The relative validity of a semiquantitative food frequency questionnaire among pregnant women in the United Arab Emirates: The Mutaba'ah study

Authors: Almulla, A. A.; **Ahmed, L. A.**; Hesselink, A.; Augustin, H.; Bärebring, L.

Journal: Nutrition and Health | **Year**: 2024 | **DOI**: https://doi.org/10.1177/02601060231224010

Abstract

Background: Food frequency questionnaire (FFQ) is the most frequently used dietary assessment method in estimating dietary intakes in epidemiological studies. This study aimed to assess the relative validity of a semiquantitative FFQ in evaluating dietary intake among pregnant women in the United Arab Emirates.

Methods: Within the Mutaba'ah study, a subsample of 111 pregnant women completed a semiquantitative FFQ and a single 24-hour dietary recall (24-HDR) regarded as the reference method. Absolute and energy-adjusted nutrient and food intakes between the FFQ and 24-HDR were compared using the Wilcoxon signed ranks test, correlations, Bland-Altman analysis, cross-classification, and weighted kappa analysis.

Results: There were no significant differences in reported absolute intakes between the FFQ and 24-HDR for carbohydrates, whole grains, white meat, beta-carotene, vitamin K, sodium, and selenium. Spearman's correlation coefficients between the FFQ and 24-HDR ranged from 0.09 (trans fatty acids) to 0.5 (potassium) for absolute intakes. Correlation decreased after energy adjustment. Bland-Altman analysis showed that the FFQ overestimated intakes compared with 24-HDR and that the limits of agreement were wide. The average percentage of pregnant women classified into the same or adjacent quartile of intake by both methods was 73%. Weighted kappa values ranged from -0.02 (white meat) to 0.33 (magnesium).

Conclusion: Our findings showed that the semi-quantitative FFQ is a useful tool in ranking pregnant women from the Emirati population according to their dietary intake. However, the validity of some estimated intakes was poor; hence, certain intakes should be interpreted with caution.

Keywords: 24-hour dietary recall; food frequency questionnaire; United Arab Emirates; pregnant women; validity

Dietary patterns during pregnancy in relation to maternal dietary intake: The Mutaba'ah Study

Authors: Almulla, A. A; Augustin, H; **Ahmed, L. A**; & Bärebring, L.

Journal: PLoS One | **Year**: 2024 | **DOI**: https://doi.org/10.1371/journal.pone.0312442

Abstract

Aim: To relate adherence to healthy dietary patterns, evaluated by different dietary indices, to the intake of nutrients and food groups among pregnant women in the United Arab Emirates.

Methods: The analyses included 1122 pregnant women from the Mutaba'ah Study. Dietary intake was assessed using a semi-quantitative Food Frequency Questionnaire. Adherence to three dietary pattern indices was assessed; Alternate Healthy Eating Index for Pregnancy (AHEI-P), Alternate Mediterranean Diet (aMED) and Dietary Approaches to Stop Hypertension (DASH). Associations between adherence (score >median) to the three dietary indices and intake of nutrients and food groups were analyzed using logistic regression analysis.

Results: Women with higher intake of polyunsaturated fatty acids, fiber, vegetables, fruits, legumes, and nuts and lower intake of saturated fatty acids, red meat, and sweetened beverages had significantly higher odds of adherence to all three dietary patterns ($p<0.05$). Associations between intakes of nutrients and food groups with odds of adherence to the dietary patterns differed for total fat (only with AHEI-P, [odds ratio [OR]: 0.96; 95% confidence interval [CI]: 0.94-0.98]) and monounsaturated fatty acids (only with aMED, [OR: 1.06; 95% CI: 1.02-1.10]), dairy (with AHEI-P [OR: 0.89; 95% CI: 0.84-0.95] and aMED [OR: 0.86; 95% CI: 0.81-0.91], and with DASH [OR: 1.10; 95% CI: 1.04-1.17]), whole grain (only with aMED [OR: 2.19; 95% CI: 1.61-2.99] and DASH [OR: 4.27; 95% CI: 3.04-5.99]) and fish (with AHEI-P [OR: 1.36; 95% CI: 1.02-1.80] and aMED [OR: 1.79; 95% CI: 1.35-2.38], and with DASH [OR: 0.67; 95% CI: 0.52-0.86]).

Conclusion: Adherence to the three dietary pattern indices was generally associated with a favorable intake of nutrients and food groups. However, the indices captured slightly different aspects of dietary intake. These results show that dietary indices that assess adherence to healthy dietary patterns cannot be used interchangeably.

Keywords: pregnancy nutrition; healthy dietary patterns; dietary indices; food intake; United Arab Emirates

Antenatal anti-D prophylaxis and D antigen negativity in pregnant women of the UAE: a cross-sectional analysis from the Mutaba'ah Study

Authors: Khair, H; Muhallab, S; Al Nuaimi, M; Hilary, S; Awar, S. A; Zaręba, K. T; Maki, S; Sayed Sallam, G; **Ahmed, L. A.**

Journal: BMJ Open | **Year**: 2024 | **DOI**: https://doi.org/10.1177/02601060231224010

Abstract

Objective: This study aimed to determine the prevalence of the negative D antigen phenotype, adherence to routine antenatal anti-D immunoglobulin prophylaxis (RAADP) administration and D antigen sensitisation among pregnant women in the UAE.

Methods: Data was collected from pregnant women enrolled in the Mutaba'ah Study. The Mutaba'ah Study is an ongoing prospective mother and child cohort study in the UAE. Data were extracted from the medical records and baseline questionnaire administered to the participants between May 2017 and January 2021. The study estimated the prevalence of negative D antigen phenotype and the provision of RAADP in this population.

Results: Of the 5080 pregnant women analysed, 4651 (91.6%) had D antigen positive status, while 429 (8.4%) were D-negative. D antigen sensitisation was low at 0.5%, and there was a high uptake of RAADP in the population at 88.8%.

Conclusion: The adherence to RAADP is consistent with published data from other healthcare settings. Knowledge of the prevalence of D antigen negative mothers is crucial to the financial and resource consideration for implementing antenatal foetal cell-free DNA screening to determine foetal D antigen status.

Keywords: blood bank & transfusion medicine; fetal medicine; gynaecology

Qualitative study investigating the health needs of school-aged children and adolescents in Dubai

Authors: **Alrahma, A. M.**; Belal, S. E.; Koko, F. H. M.; Alabady, K.

Journal: BMJ Open | **Year**: 2024 | **DOI**: https://doi.org/10.1136/bmjopen-2023-081653

Abstract

Background: Children's health has been linked with morbidities such as cardiovascular events, type 2 diabetes and obesity in adulthood. Further efforts are needed to understand the current and emerging challenges due to the potential changes in the social context among school-aged children and adolescents at schools. The study aims to investigate the health needs of school-aged children and adolescents in Dubai, United Arab Emirates (UAE).

Methods: 9 semistructured focus groups and 1 in-depth interview among 10 entities and 5 schools were used to investigate current health needs for schools. The participants were selected using purposive sampling. Data were analysed using a content analysis approach. The focus groups and the in-depth interviews were conducted face to face in Dubai, UAE, from February to May 2023.

Results: 52 participants representing different specialties and roles in school health, such as senior employees, managers, teachers, healthcare professionals, principals, social workers/counsellors and parents, participated in this study. Most participants were females, 41 (78.8%) compared with 11 males (21.2%). The study identified six health themes that address the health needs in schools. The themes highlighted the importance of creating new school health services, programmes, health education sessions, policies, data quality measures and innovative technologies. The participants deemed developing and improving health services, programmes, health education sessions, policies in nutrition, social and mental health, physical activity, and health promotion necessary in schools. Training school staff to manage and handle data was also essential to improve data quality. Using innovative technologies such as applications and electronic student files linked to electronic medical systems may further support school health professionals in schools.

Conclusion: The health needs assessment identified the gaps and challenges that must be addressed to improve students' health. Policy-makers could use the key results from the six themes to develop effective school health strategies.

Keywords: community child health; health policy; public health; qualitative research; schools

OTHER RESEARCH AREAS

A qualitative study exploring community pharmacists' awareness, attitudes and perceptions about drive-thru community pharmacy service in Malaysia during COVID-19

Authors: Ababneh, B.F; Ong, S.C; **Elbarazi, I**; Aljamal H.Z; Hussain, R.

Journal: Journal of Pharmaceutical Policy and Practice | **Year**: 2024 |
DOI: https://doi.org/10.1080/20523211.2024.2303752

Abstract

Background: Drive-thru services are not given sufficient focus in the community pharmacy setting which was highlighted during COVID-19, particularly in Malaysia. This study aimed to explore the community pharmacists' perspectives regarding drive-thru community pharmacy service during COVID-19 in Malaysia.

Methods: In-depth online semi-structured individual interviews were conducted among 25 community pharmacists working in Malaysia. All interviews were conducted between March 2022 and May 2022 and were audio-recorded and transcribed verbatim, and then analysed by thematic analysis.

Results: Thematic analysis yielded seven major themes, 1-familiarity with drive-thru community pharmacy service during COVID-19, 2-willingness toward this service during COVID-19, 3-perceived benefits toward drive-thru community pharmacy service during COVID-19, 4-perceived disadvantages toward this service, 5-barriers toward drive-thru community pharmacy service, 6-factors affecting the preference toward this service, and 7-facilitators to drive-thru community pharmacy service. Enhancing social distancing and preventing the spread of COVID-19 were the major perceived benefits of this service during COVID-19 as reported by participants.

Conclusion: Overall, community pharmacists reported positive attitudes toward drive-thru community pharmacy service during COVID-19. However, concerns about poor communication between the pharmacist and the patient, limited counselling, and dispensing errors were acknowledged. These concerns would need to be addressed to improve the provision of drive-thru community pharmacy service.

Keywords: attitudes; awareness; community pharmacists; drive-thru community pharmacy service; COVID-19; Malaysia

A qualitative study exploring community pharmacists' awareness, attitudes and perceptions about drive-thru community pharmacy service in Malaysia during COVID-19

Authors: **Elbarazi, I.; Alam, Z.;** Ali, N.; Loney, T.; **Al-Rifai, R. H.; Al-Maskari, F.; Ahmed, L. A.**

Journal: Women's health | **Year**: 2024 | **DOI**: https://doi.org/10.1177/17455057231224179

Abstract

Background: Health literacy is the degree to which individuals can obtain, process, understand, and communicate health-related information. Health literacy among pregnant women, in particular, may have a significant impact on maternal and child health. In the United Arab Emirates, no previous studies have been carried out to investigate the health literacy levels of pregnant women. This study aimed to investigate antenatal health literacy levels and identify associated factors among pregnant Emirati women in the United Arab Emirates.

Methods: This analysis was based on the baseline cross-sectional data for pregnant women participating in the prospective cohort Mutaba'ah Study, recruited between May 2017 and August 2022. Participants completed a self-administered questionnaire during their antenatal visits that collected sociodemographic and pregnancy-related information. Adequacy of health literacy was assessed using the BRIEF health literacy screening tool with adequate health literacy defined as a score $\geqslant$ 17. Regression modeling investigated the association between the pregnant women characteristics with having adequate health literacy level (ability to read and comprehend most patient education materials).

Results: A total of 2694 responses to the BRIEF health literacy screening tool were analyzed. Approximately, three-quarters (71.6%) of respondents showed adequate health literacy, followed by marginal (22.8%), and limited (5.6%) health literacy levels, respectively. Higher education levels (adjusted odds ratio (aOR) = 1.74, 95% confidence interval = 1.46-2.08), employment (adjusted odds ratio = 1.35, 95% confidence interval = 1.10-1.65), and adequate social support (adjusted odds ratio = 1.69, 95% confidence interval = 1.26-2.28) were associated with adequate health literacy levels. Participants who expressed worry about birth were less likely to have adequate literacy levels (adjusted odds ratio = 0.70, 95% confidence interval = 0.58-0.85).

Conclusion: Nearly three-quarters of pregnant women have adequate health literacy. Nevertheless, measures including policies to sustain and enhance health literacy levels among all expectant mothers are required, with a specific focus on those having limited health literacy.

Keywords: BRIEF; United Arab Emirates; health literacy; pregnancy; pregnant women

Surveillance cues do not enhance altruistic behavior among anonymous strangers in the field

Authors: Koornneef, E.J; Dariel, A; **Elbarazi, I**; Alsuwaidi, A.R; Robben, P.B.M; Nikiforakis, N.

Journal: PLoS ONE | **Year**: 2018 | **DOI**: https://doi.org/10.1371/journal.pone.0197959

Abstract

Background: The degree of altruistic behavior among strangers is an evolutionary puzzle. A prominent explanation is the evolutionary legacy hypothesis according to which an evolved reciprocity-based psychology affects behavior even when reciprocity is impossible, i.e; altruistic behavior in such instances is maladaptive. Empirical support for this explanation comes from laboratory experiments showing that surveillance cues, e.g; photographs of watching eyes, increase altruistic behavior. A competing interpretation for this evidence, however, is that the cues signal the experimenter's expectations and participants, aware of being monitored, intentionally behave more altruistically to boost their reputation.

Methods: Here we report the first results from a field experiment on the topic in which participants are unaware they are being monitored and reciprocity is precluded. The experiment investigates the impact of surveillance cues on a textbook example of altruistic behavior—hand hygiene prior to treating a 'patient'.

Results: We find no evidence surveillance cues affect hand hygiene, despite using different measures of hand-hygiene quality and cues that have been previously shown to be effective.

Conclusion: We argue that surveillance cues may have an effect only when participants have reasons to believe they are actually monitored. Thus, they cannot support claims altruistic behavior between strangers is maladaptive.

Keywords: altruistic behavior, surveillance cues, hand hygiene, reciprocity, field experiment

Exploring variability of teaching & supervision at clinical clerkship teaching sites

Authors: Naeem, N; Elzubeir, M; Al-Houqani, M; **Ahmed, L.A.**

Journal: Pakistan Journal of Medical Sciences | **Year**: 2018 | **DOI**: https://doi.org/10.12669/pjms.342.14656

Abstract

Objective: To explore undergraduate medical students' perception of variation in teaching and supervision at different clinical teaching sites.

Methods: This descriptive cross-sectional study was conducted at the College of Medicine & Health Sciences, United Arab Emirates University, UAE during 2017. Four clinical teaching sites affiliated with CMHS were evaluated namely Shaikh Khalifa Medical City (SKMC), Ambulatory Care Clinics (AC), Tawam Hospital (TH) and Al-Ain Hospital (AH). An online questionnaire was administered to year five and six students.

Results: The response rate was 84.4%. Overall perception of the students about their clinical clerkship experience was positive. SKMC was rated as the best teaching site with mean rating of 3.79±0.97-4.79±0.43. The highest rated item was clinical teacher's promotion of critical thinking in students while the lowest rated item was the opportunity to take responsibility for patient care. Ambulatory Care site had a mean rating of 2.33±1.23-4.13±1.19. The highest rated item at this site was the clinical teacher encouraging students to ask questions and participate actively. At Tawam Hospital, the mean ratings ranged between 2.65±1.64-4.31±0.86 with highest rated item being ability of the students to see cases with positive clinical findings. At the Al-Ain Hospital, the mean rating was in the range of 2.79±1.45-3.81±1.11. The item rated highest here was the ability of students to see cases with positive clinical findings. The lowest rated item at all three sites was the availability of on-call rooms and lockers. Significant variability was seen across training sites in the clinical teacher's ability to act as professional role models, the opportunity for students to apply their previous knowledge to patient care and to independently assess patients before discussion with teachers.

Conclusion: This study tool highlights variation in clinical teaching and supervision at four clinical teaching sites. It provides specific, actionable information which can be utilized to deliver equitable learning experiences across clinical clerkships and teaching sites. It places emphasis on the fact that lack of physical facilities hampers clinical teaching and supervision, hence, on call rooms, lockers and separate rooms for independent student interaction with patients should be provided at all clinical teaching sites.

Keywords: education; medical student; supervision; teaching; variation

Educating the public health workforce: A scoping review

Authors: Tao, D; Evashwick, C.J; **Grivna, M;** Harrison, R.

Journal: Frontiers in Public Health | **Year**: 2018 | **DOI**: https://doi.org/10.3389/fpubh.2018.00027

Abstract

The aim of this scoping review was to identify and characterize the recent literature pertaining to the education of the public health workforce worldwide. The importance of preparing a public health workforce with sufficient capacity and appropriate capabilities has been recognized by major organizations around the world. Champions for public health note that a suitably educated workforce is essential to the delivery of public health services, including emergency response to biological, manmade, and natural disasters, within countries and across the globe. No single repository offers a comprehensive compilation of who is teaching public health, to whom, and for what end. Moreover, no international consensus prevails on what higher education should entail or what pedagogy is optimal for providing the necessary education. Although health agencies, public or private, might project workforce needs, the higher level of education remains the sole responsibility of higher education institutions. The long-term goal of this study is to describe approaches to the education of the public health workforce around the world by identifying the peer-reviewed literature, published primarily by academicians involved in educating those who will perform public health functions. This paper reports on the first phase of the study: identifying and categorizing papers published in peer-reviewed literature between 2000 and 2015.

Keywords: global health workforce; health workforce worldwide; literature search; public health workforce; public health workforce education; public health workforce pedagogy; public health workforce training

Prevalence of, and factors associated with health supplement use in Dubai, United Arab Emirates: A population-based cross-sectional study

Authors: **Abdulla, N.M; Aziz, F; Blair, I; Grivna, M;** Ádám, B; Loney, T.

Journal: BMC Complement Altern Med | **Year**: 2019 | **DOI**: https://doi.org/10.1186/s12906-019-2593-6

Abstract

Background: Health supplement (HS) products that are available in the Emirate of Dubai (United Arab Emirates; UAE) contain chemicals that may adversely affect human health. This study aimed to investigate the prevalence of, and factors associated with HS consumption, knowledge, related adverse events, and reporting practices of adverse events amongst the general population in Dubai, UAE.

Methods: A cross-sectional household telephone survey using a computer-assisted questionnaire was conducted amongst a random representative sample (n = 1203) of the Dubai population that assessed HS use and knowledge. Dependent variables were supplement use and reports of adverse events while independent variables included socio-demographic factors, knowledge, attitudes, and practice. Logistic regression analysis was performed to identify factors independently associated with HS use.

Results: Among the 1203 participants in this study, 455 (37.8%) reported ever using HS. Amongst ever-users, reasons for use were to improve health (66.1%), for bodybuilding (9.9%), disease prevention (6.8%), and weight management (5.3%). The majority of users purchased their HS from pharmacies (88.4%) or were prescribed HS (46.6%). Vitamins were the most commonly used HS (87.9%) followed by minerals (10.5%) and sports nutrition products (10.5%). Only 2.9% of users experienced an adverse event associated with HS use which all resolved when the HS was discontinued. Only three of those affected reported the incident. Multivariate logistic regression analysis revealed that HS use was independently associated with female gender (adjusted odds ratio [AOR]; 3.26, 95% confidence interval [CI]: 2.26-4.70), higher income (AOR 2.41, 95% CI: 1.20-4.83), being a past-smoker (AOR 2.39, 95% CI: 1.27-4.48), having an allergy (AOR 1.75, 95% CI: 1.14-2.66), more frequent doctor visits (AOR 1.86, 95% CI: 1.02-3.39), taking prescribed medications (AOR 1.47, 95% CI: 1.04-2.06), and knowledge about HS (AOR 3.91, 95% CI: 2.26-6.76).

Conclusions: Our study provides the first population-based estimates of HS use and HS-related adverse events in the Gulf region. Adverse events associated with HS are infrequent and this may be due to the well-developed regulatory framework in Dubai and the high level of knowledge amongst consumers who mainly consume vitamins and minerals on the advice of pharmacists or healthcare professionals.

Keywords: attitudes; dietary supplement; drug-related side effects and adverse reactions; Dubai; health knowledge; practice; United Arab Emirates

Use of genomic information in health impact assessment is yet to come: A systematic review

Authors: **Ádám, B;** Lovas, S; Ádány, R.

Journal: Int J Environ Res Public Health | **Year**: 2020 | **DOI**: https://doi.org/10.3390/ijerph17249417

Abstract

Background: Information generated by genetic epidemiology and genomics studies has been accumulating at fast pace, and this knowledge opens new vistas in public health, allowing for the understanding of gene–environment interactions. However, the translation of genome-based knowledge and technologies to the practice of healthcare, and especially of public health, is challenging. Because health impact assessment (HIA) proved to be an effective tool to assist consideration of health issues is sectoral policymaking, this study aimed at exploring its role in the translational process by a systematic literature review on the use of genetic information provided by genetic epidemiology and genomics studies in HIA.

Methods: PubMed, Scopus, and Web of Science electronic databases were searched and the findings systematically reviewed and reported by the PRISMA guidelines.

Results: The review found eight studies that met the inclusion criteria, most of them theoretically discussing the use of HIA for introducing genome-based technologies in healthcare practice, and only two articles considered, in short, the possibility for a generic application of genomic information in HIA.

Conclusion: The findings indicate that HIA should be more extensively utilized in the translation of genome-based knowledge to public health practice, and the use of genomic information should be facilitated in the HIA process.

Keywords: genetic epidemiology; genomics; health impact assessment; public health; public health genomics; translation

Knowledge and attitudes of medical and health science students in the United Arab Emirates toward genomic medicine and pharmacogenomics: A cross-sectional study

Authors: **Rahma, A.T; Elsheik, M; Elbarazi, I;** Ali, B.R; Patrinos, G.P; Kazim, **M.A; Alfalasi, S.S; Ahmed, L.A; Maskari, F.A.**

Journal: Journal of Personalized Medicine | **Year**: 2020 | **DOI**: https://doi.org/10.3390/jpm10040191

Abstract

Background: Medical and health science students represent future health professionals, and their perceptions are essential to increasing awareness on genomic medicine and pharmacogenomics. Lack of education is one of the significant barriers that may affect health professional's ability to interpret and communicate pharmacogenomics information and results to their clients. Our aim was to assess medical and health science students knowledge, attitudes and perception for a better genomic medicine and pharmacogenomics practice in the United Arab Emirates (UAE).

Methods: A cross-sectional study was conducted using a validated questionnaire distributed electronically to students recruited using random and snowball sampling methods. A total of 510 students consented and completed the questionnaire between December 2018 and October 2019. The mean knowledge score (SD) for students was 5.4 (±2.7).

Results: There were significant differences in the levels of knowledge by the year of study of bachelor's degree students, the completion status of training or education in pharmacogenomics (PGX) or pharmacogenetics and the completion of an internship or study abroad program (p-values < 0.05. The top two barriers that students identified in the implementation of genomic medicine and pharmacogenomics were lack of training or education (59.7%) and lack of clinical guidelines (58.7%). Concerns regarding confidentiality and discrimination were stated.

Conclusion: The majority of medical and health science students had positive attitudes but only had a fair level of knowledge. Stakeholders in the UAE must strive to acquaint their students with up-to-date knowledge of genomic medicine and pharmacogenomics.

Keywords: attitudes; barriers; genomic medicine; knowledge; pharmacogenomics; UAE students

Knowledge, attitudes, and perceived barriers toward genetic testing and pharmacogenomics among healthcare workers in the United Arab Emirates: A cross-sectional study

Authors: **Rahma, A.T; Elsheik, M;** Ali, B.R; **Elbarazi, I;** Patrinos, G.P; **Ahmed, L.A; Al Maskari, F.**

Journal: Journal of Personalized Medicine | **Year**: 2020 | **DOI**: https://doi.org/10.3390/jpm10040216

Abstract

Background: In order to successfully translate the scientific models of genetic testing and pharmacogenomics into clinical practice, empowering healthcare workers with the right knowledge and functional understanding on the subject is essential. Limited research in the United Arab Emirates (UAE) have assessed healthcare worker stances towards genomics. This study aimed to assess healthcare workers' knowledge and attitudes on genetic testing.

Methods: A cross-sectional study was conducted among healthcare workers practicing in either public or private hospitals or clinics as pharmacists, nurses, physicians, managers, and allied health. Participants were recruited randomly and via snowball techniques. Surveys were collected between April and September 2019.

Results: Out of 552 respondents, 63.4% were female, the mean age was 38 (±9.6) years old. The mean knowledge score was 5.2 (±2.3) out of nine, which shows a fair level of knowledge. The scores of respondents of pharmacy were 5.1 (±2.5), medicine 6.0 (±2.0), and nursing 4.8 (±2.1). All participants exhibited a fair knowledge level about genetic testing and pharmacogenomics. Of the respondents, 91.9% showed a positive attitude regarding availability of genetic testing. The top identified barrier to implementation was the cost of testing (62%), followed by lack of training or education and insurance coverage (57.8% and 57.2%, respectively).

Conclusion: Building upon the positive attitudes and tackling the barriers and challenges will pave the road for full implementation of genetic testing and pharmacogenomics in the UAE. We recommend empowering healthcare workers by improving needed and tailored competencies related to their area of practice. We strongly urge the stakeholders to streamline and benchmark the workflow, algorithm, and guidelines to standardize the health and electronic system. Lastly, we advocate utilizing technology and electronic decision support as well as the translational report to back up healthcare workers in the UAE.

Keywords: genetic counseling; genetics; health personnel attitudes; medical; pharmacogenomics

Genomics and pharmacogenomics knowledge, attitude and practice of pharmacists working in United Arab Emirates: Findings from focus group discussions—a qualitative study

Authors: **Rahma, A.T; Elbarazi, I;** Ali, B.R; Patrinos, G.P; **Ahmed, L.A; Maskari, F.A.**

Journal: Journal of Personalized Medicine | **Year**: 2020 | **DOI**: https://doi.org/10.3390/jpm10030134

Abstract

Background: Genomics and pharmacogenomics are relatively new fields in medicine in the United Arab Emirates (UAE). Understanding the knowledge, attitudes and current practices among pharmacists is an important pillar to establish the roadmap for implementing genomic medicine and pharmacogenomics.

Methods: A qualitative method was used, with focus group discussions (FGDs) being conducted among pharmacists working in public and private hospitals in Abu Dhabi Emirate. Snowball sampling was used. Thematic inductive analysis was performed by two researchers independently. NVIVO software was used to establish the themes.

Results: Lack of knowledge of genomics and pharmacogenomics among pharmacists was one of the most prominent findings. Therefore, the role of pharmacist in making the right decisions was highlighted to be a barrier for pharmacogenomics implementation in the UAE. Pharmacists have a positive attitude toward pharmacogenomics, but they are preoccupied with concern of confidentiality. In addition, religion and culture shadowed their attitudes toward genetic testing.

Conclusions: It is highly recommended to introduce new courses and training workshops for healthcare providers to improve the opportunities for genomics and pharmacogenomics application in the UAE. Pharmacists agreed that the health authorities should take the lead for improving trust and confidence in the system for a better future in the era of genomics and pharmacogenomics.

Keywords: attitude; implementation; knowledge; pharmacists; pharmacogenomics; practice; United Arab Emirates

Strength of the association between Turner syndrome and coeliac disease: Protocol for a systematic review and meta-analysis

Authors: Al-Bluwi, G.S.M; **Alnababteh, A.H;** Al-Shamsi, S; **Al-Rifai, R.H.**

Journal: BMJ Open | **Year**: 2020 | **DOI**: https://doi.org/10.1136/bmjopen-2020-037478

Abstract

Introduction: Coeliac disease (CD) is a genetic autoimmune disorder characterised by a permanent sensitivity to the gluten contained in some grains. Certain patient groups are considered high risk for the development of CD, including, but not limited to, those with chromosomal disorders such as Turner syndrome (TS). Here, we present a protocol for a systematic review and meta-analysis that aims to comprehensively summarise the literature, and quantitatively estimate the weighted strength of the association between TS and CD.

Methods: and analysis Our protocol follows the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols 2015 guidelines. We will search PubMed, Scopus, Web of Science and Embase databases for relevant articles. Variant and broad search terms will be selected for identifying epidemiological studies reporting on the crude and/or adjusted association between TS and CD. Retrieved citations will be screened, and data from the eligible research reports against specific eligibility criteria will be extracted. We will then assess the risk of bias associated with the eligible studies using the Newcastle-Ottawa Scale. The overall weighted strength of the pooled association will be quantified using the random-effects model. Ethics and dissemination This review will use data from published literature; hence, ethical approval will not be needed. The resulting review will be the first to produce a comprehensive synthesis of the strength of the association between TS and CD. The results will be disseminated through a peer-reviewed journal as well as in local and international conferences and symposiums. Results dissemination would help healthcare providers and policy-makers to make informed decisions regarding the diagnosis and management of CD in high-risk individuals. PROSPERO registration number CRD42019131881, dated 3 September 2019.

Keywords: coeliac disease; epidemiology; gastrointestinal tumours

Nonsteroidal anti-inflammatory drugs utilization patterns and risk of adverse events due to drug-drug interactions among elderly patients: A study from Jordan

Authors: Al-Azayzih, A; Al-Azzam, S.I; Alzoubi, K.H; Jarab, A.S; Kharaba, Z; **Al-Rifai, R.H;** Alnajjar, M.S.

Journal: Saudi Pharmaceutical Journal | **Year**: 2020 | **DOI**: https://doi.org/10.1016/j.jsps.2020.03.001

Abstract

Background: Worldwide, the prescribing pattern of the Nonsteroidal Anti-inflammatory Drugs (NSAIDs) has increased. They are considered highly effective medications in controlling various conditions including inflammatory diseases. They are associated with various adverse effects including gastrointestinal bleeding and ulcer and renal toxicity though. These adverse effects are generally potentiated when NSAIDs are co-prescribed with other drugs that share similar adverse effects and toxicities. Developing severe side effects from NSAIDs is more prone among elderly patients. Hence, it is crucial to evaluate prescribing pattern of these agents to prevent/decrease the number of unwanted side effects caused by NSAIDs. The aim of this study is to assess the prescribing pattern of NSAIDs among elderly and the co-prescribing of NSAIDs and different interacting drugs, which could lead to more incidences of NSAIDs-induced toxicities among Jordanian elderly patients.

Methods: A multicenter retrospective study was performed during a three months period in Jordan. The study involves a total number of (n = 5916) elderly patient's records obtained from Four governmental hospitals in Jordan.

Results: A total number of (n = 20450) drugs were prescribed and dispensed for patient. NSAIDs drugs prescribing percentage was 10.3% of total medications number. Aspirin was the most commonly prescribed NSAIDs among patients (70.4%), followed by Diclofenac sodium in all dosage forms (25.1%) and oral Ibuprofen (3.1%. In addition, Aspirin was the highest NSAIDs co-prescribed with ACEI (e.g; Enalapril), ARBs (e.g. Candesartan and Losartan), Diuretics (Furosemide, Indapamide, Hydrochlorothiazide, Amiloride, and Spironolactone), Warfarin and antiplatelets (Clopidogreal and Ticagrelor) followed by Diclofenac and other NSAIDs.

Conclusion: NSAIDs prescribing rate among elderly patients was high. Additionally, the co-prescribing of NSAIDs especially Aspirin with other agents, which contributes to NSAIDs nephrotoxicity and gastrointestinal toxicity, were high. Strict measurements and action plans should be taken by prescribers to optimize the medical treatment in elderly through maximizing the benefits and decreasing the unwanted side effects.

Keywords: Aspirin; co-prescribing; COX-1; COX-2; elderly; Jordan; NSAIDs

A scoping review of studies evaluating the education of health professional students about public health

Authors: Evashwick, C; Tao, D; Perkiö, M; **Grivna, M;** Harrison, R.

Journal: Public Health | **Year**: 2020 | **DOI**: https://doi.org/10.1016/j.puhe.2019.08.019

Abstract

Background: The purpose of this article is to identify and describe key components of research into the teaching methods of public health to postgraduate students. Study design: This is a systematic review of the published literature.

Methods: A detailed search of the literature based on keywords, Boolean operators, and free-text terms, identified from PubMed, Scopus and ERIC, published in the English language, between January 2000 and December 2017, was made. Teams of independent pairs agreed studies eligible for the review and performed data extraction.

Results: Of the 2,442 potential studies on education of public health professionals, 86 met all the inclusion criteria. Specific study designs, data collection, and techniques for data analysis varied widely across the individual studies, and there was a lack of consistency on the whole. The number of students in each study ranged from ten to 1,300. Forty-seven studies used quantitative methods to assess the effectiveness of teaching. Curriculum evaluation was the most common focus (n = 33), followed by course evaluation (n = 22). Few studies considered inequalities in terms of the types of students registered on the different courses/programs, with just three evaluating strategies to increase students from minority ethnic groups. Most studies evaluated short-term or medium-term outcomes rather than long-term impacts of education on students' careers or the relationship of education in meeting future public health workforce demands.

Conclusions: This comprehensive systematic review identified a dearth of the literature on evaluations of approaches for teaching public health to health professions students. Those studies that had been published varied to such an extent in terms of their aims, methods, analysis, and results such that it was impossible to make any consistent comparisons of the observations reported in the studies. We conclude that evidence-based approaches for teaching public health to health professions students are either not sought by faculty and programs or, if conducted, not shared. As such, there are likely to be missed opportunities for ensuring that future graduates of health professions programs are as well prepared as possible to contribute to the health of the public.

Keywords: evaluation; evidence-based practice; health profession education; pedagogy; public health; public health workforce capacity building

Development of the pharmacogenomics and genomics literacy framework for pharmacists

Authors: **Rahma, A.T; Elbarazi, I;** Ali, B.R; Patrinos, G.P; **Ahmed, L.A;** Elsheik, M; **Al-Maskari, F**.

Journal: Human Genomics | **Year**: 2021 | **DOI**: https://doi.org/10.1186/s40246-021-00361-0

Abstract

Background: Pharmacists play a unique role in integrating genomic medicine and pharmacogenomics into the clinical practice and to translate pharmacogenomics from bench to bedside. However, the literature suggests that the knowledge gap in pharmacogenomics is a major challenge; therefore, developing pharmacists' skills and literacy to achieve this anticipated role is highly important. We aim to conceptualize a personalized literacy framework for the adoption of genomic medicine and pharmacogenomics by pharmacists in the United Arab Emirates with possible regional and global relevance.

Results: A qualitative approach using focus groups was used to design and to guide the development of a pharmacogenomics literacy framework. The Health Literacy Skills framework was used as a guide to conceptualize the pharmacogenomics literacy for pharmacists. The framework included six major components with specific suggested factors to improve pharmacists' pharmacogenomics literacy. Major components include individual inputs, demand, skills, knowledge, attitude and sociocultural factors.

Conclusion: This framework confirms a holistic bottom-up approach toward the implementation of pharmacogenomics. Personalized medicine entails personalized efforts and frameworks. Similar framework can be created for other healthcare providers, patients and stakeholders.

Keywords: attitude; framework; genomics; knowledge; literacy; pharmacists; pharmacogenomics; skills; United Arab Emirates

Identification of public health priorities, barriers, and solutions for Kuwait using the modified Delphi method for stakeholder consensus

Authors: Gasana, J; Vainio, H; Longenecker, J; Loney, T; **Ádám, B;** Al-Zoughool, M.

Journal: Int J Health of Health Planning and Management | **Year**: 2021 | **DOI**: https://doi.org/10.1002/hpm.3270

Abstract

Background: The rapid modernization and economic developments in Kuwait, have been accompanied by substantial lifestyle changes such as unhealthy diet and physical inactivity. These modifiable behaviours have contributed to increased rates of non-communicable diseases including diabetes and cardiovascular diseases.

Methods: Delphi Consensus Method was implemented in the current study to draw stakeholders from all sectors together to develop a consensus on the major public health priorities, barriers and solutions. The process involves administration of a series of questions to selected stakeholders through an iterative process that ends when a consensus has been reached among participants.

Results: Results of the iteration process identified obesity, diabetes, cardiovascular diseases along with lack of enforcement of laws and regulation as priority health issues. Results also identified lack of national vision for the development of a public health system, lack of multidisciplinary research investigating sources of disease and methods of prevention and improving efficiency with existing resources in implementation and efficiency as the main barriers identified were. Solutions suggested included investing in healthcare prevention, strengthening communication between all involved sectors through intersectoral collaboration, awareness at the primary healthcare setting and use of electronic health records.

Conclusion: The results offer an important opportunity for stakeholders in Kuwait to tackle these priority health issues employing the suggested approaches and solution.

Keywords: Delphi consensus method; intersectoral research; Kuwait; non-communicable diseases; policies implementation

Stakeholders' interest and attitudes toward genomic medicine and pharmacogenomics implementation in the United Arab Emirates: A qualitative study

Authors: **Rahma, A.T; Elbarazi, I;** Ali, B.R; Patrinos, G.P; **Ahmed, L.A; Al-Maskari, F.**

Journal: Public Health Genomics | **Year**: 2021 | **DOI**: https://doi.org/10.1159/000513753

Abstract

Background: Mapping the power, interest, and stance of stakeholders is a cornerstone for genomic medicine implementation. In this study, we aimed at mapping the power/interest of various stakeholders in United Arab Emirates (UAE) and exploring their attitudes toward pressing health genomics aspects. The overarching aim of this study is to facilitate the construction of a road map for the full implementation of genomic medicine and pharmacogenomics in the UAE with potential applicability to many healthcare systems around the world.

Methods: A qualitative approach using in-depth interview was employed. Heterogeneous stakeholders were identified by experts in the field. The analysis of the data was a hybrid of deductive and inductive approach using NVivo software for coding and analysis.

Results: 13 interviews were conducted. Following mapping the Mendelow's matrix, we categorized the stakeholders in UAE to promoter, latent, defender, and apathetic. Most of the interviewed stakeholders emphasized the clinical demand for genomic medicine in UAE. However, many of them were less inclined to articulate the need for pharmacogenomics at the moment. The majority of stakeholders in UAE were in favor of building infrastructure for better genetic services in the country. Stakeholder from an insurance sector had contradicting stance about the cost-effectiveness of genomic medicine; the majority were concerned with the legal and ethical aspects of genomic medicine and had an opposing stance on direct-to-consumer kits.

Conclusion: Implementing the Mendelow's model will allow the systematic strategy for implementing genomic medicine in UAE. This can be achieved by engaging the key players (promoters and defenders) as well as engaging and satisfying the latent stakeholder.

Keywords: attitude; barriers; genomic medicine; implementation; Mendelow's matrix; PESTLE; pharmacogenomics

Prevalence of celiac disease in patients with turner syndrome: systematic review and meta-analysis

Authors: Al-Bluwi, G.S.M; **AlNababteh, A.H;** Östlundh, L; Al-Shamsi, S; **Al-Rifai, R.H.**

Journal: Frontiers in Medicine | **Year**: 2021 | **DOI**: https://doi.org/10.3389/fmed.2021.674896

Abstract

Background: Celiac disease (CD) is a multifactorial autoimmune disorder, and studies have reported that patients with Turner syndrome (TS) are at risk for CD. This systematic review and meta-analysis aimed to quantify the weighted prevalence of CD among patients with TS and determine the weighted strength of association between TS and CD.

Methods: Studies published between January 1991 and December 2019 were retrieved from four electronic databases: PubMed, Scopus, Web of Science, and Embase. Eligible studies were identified and relevant data were extracted by two independent reviewers following specific eligibility criteria and a data extraction plan. Using the random-effects model, the pooled, overall and subgroup CD prevalence rates were determined, and sources of heterogeneity were investigated using meta-regression.

Results: Among a total of 1,116 screened citations, 36 eligible studies were included in the quantitative synthesis. Nearly two-thirds of the studies (61.1%) were from European countries. Of the 6,291 patients with TS who were tested for CD, 241 were diagnosed with CD, with a crude CD prevalence of 3.8%. The highest and lowest CD prevalence rates of 20.0 and 0.0% were reported in Sweden and Germany, respectively. The estimated overall weighted CD prevalence was 4.5% (95% confidence interval [CI], 3.3–5.9, I2, 67.4%). The weighted serology-based CD prevalence in patients with TS (3.4%, 95% CI, 1.0–6.6) was similar to the weighted biopsy-based CD prevalence (4.8%; 95% CI, 3.4–6.5). The strength of association between TS and CD was estimated in only four studies (odds ratio 18.1, 95% CI, 1.82–180; odds ratio 4.34, 95% CI, 1.48–12.75; rate ratio 14, 95% CI, 1.48–12.75; rate ratio 42.5, 95% CI, 12.4–144.8). Given the lack of uniformity in the type of reported measures of association and study design, producing a weighted effect measure to evaluate the strength of association between TS and CD was unfeasible.

Conclusion: Nearly 1 in every 22 patients with TS had CD. Regular screening for CD in patients with TS might facilitate early diagnosis and therapeutic management to prevent adverse effects of CD such as being underweight and osteoporosis.

Keywords: celiac disease; meta-analysis; systematic review; Turner syndrome; weighted prevalence

Mapping the educational environment of genomics and pharmacogenomics in the United Arab Emirates: A mixed-methods triangulated design

Authors: **Rahma, A.T; Ahmed, L.A; Elsheik, M; Elbarazi, I;** Ali, B.R; Patrinos, G.P; **Al-Maskari, F.**

Journal: OMICS A Journal of Integrative Biology | **Year**: 2021 | **DOI**: https://doi.org/10.1089/omi.2021.0029

Abstract

Background: Pharmacogenomics (PGx) education is crucial to support the effective delivery of PGx services in any health care system. We mapped the current educational environment of genomics and PGx in the United Arab Emirates (UAE) and assessed the readiness of the accredited higher education system to move forward with the implementation of PGx in the country.

Methods: We employed a mixed-methods triangulated approach to map the PGx educational environment in UAE. We used two qualitative methods and one quantitative method. University curricula inspection, interviews, and questionnaires were the main resources of data. PGx was taught in 6 out of 21 accredited universities, but only for pharmacy majors. Only three out of six PGx courses were stand-Alone.

Results: Majority of academia exhibited positive attitudes toward the availability and accessibility of genetic testing, with 89% agreeing that the government should invest more money into its development. Interviews with academics and, importantly, the commissioners who oversee the accreditation process of universities in UAE revealed recurrent themes that included recognizing the importance of genomic medicine and PGx and called for translational and implementational research, including recruitment of experts in the field.

Conclusion: We recommend, as supported by our findings in this study, the creation of standardized curriculum of genomics and PGx for each health science field, using the blended teaching approach, and benchmarking internationally accredited universities to foster international collaboration and improve the education and practice of genomics in the clinic and public health systems. An 11-item genomics and PGx strategy is presented herein. Finally, the mixed-methods study design employed in this research may also serve as a model conceptual frame for other science education mapping efforts at country or multi-institutional scales in the future.

Keywords: accredited universities; attitude; curriculum; genomics; pharmacogenomics academia

Effect of nitric oxide pathway inhibition on the evolution of anaphylactic shock in animal models: A systematic review

Authors: Alfalasi, M; Alzaabi, S; Östlundh, L; **Al-Rifai, R.H;** Al-Salam, S; Mertes, P.M; Alper, S.L; Aburawi, E.H; Bellou, A.

Journal: Biology | **Year**: 2022 | **DOI**: https://doi.org/10.3390/biology11060919

Abstract

Background: Nitric oxide (NO) induces vasodilation in various types of shock. The effect of pharmacological modulation of the NO pathway in anaphylactic shock (AS) remains poorly understood. Our objective was to assess, through a systematic review, whether inhibition of NO pathways (INOP) was beneficial for the prevention and/or treatment of AS.

Methods: A predesigned protocol for this systematic review was published in PROSPERO (CRD42019132273). A systematic literature search was conducted till March 2022 in the electronic databases PubMed, EMBASE, Scopus, Cochrane and Web of Science. Heterogeneity of the studies did not allow meta-analysis.

Results: Nine hundred ninety unique studies were identified. Of 135 studies screened in full text, 17 were included in the review. Among six inhibitors of NO pathways identified, four blocked NO synthase activity and two blocked guanylate cyclase downstream activity. Pre-treatment was used in nine studies and post-treatment in three studies. Five studies included both pre-treatment and post-treatment models. Overall, seven pre-treatment studies from fourteen showed improvement of survival and/or arterial blood pressure. Four post-treatment studies from eight showed positive outcomes.

Conclusion: Overall, there was no strong evidence to conclude that isolated blockade of the NO/cGMP pathway is sufficient to prevent or restore anaphylactic hypotension. Further studies are needed to analyze the effect of drug combinations in the treatment of AS.

Keywords: anaphylactic shock; cyclic guanosine monophosphate; guanylate cyclase; nitric oxide; nitric oxide synthase

Impact of pharmacological interventions on anthropometric indices in women with polycystic ovary syndrome: A systematic review and meta-analysis of randomized controlled trials

Authors: Abdalla, M.A; Shah, N; Deshmukh, H; Sahebkar, A; Östlundh, L; **Al-Rifai, R.H;** Atkin, S.L; Sathyapalan, T.

Journal: Clinical Endocrinology | **Year**: 2022 | **DOI**: https://doi.org/10.1111/cen.14663

Abstract

Background: Polycystic ovary syndrome (PCOS) is a heterogeneous condition affecting women of reproductive age and is associated with increased body weight. Objective: To review the literature on the effect of different pharmacological interventions on the anthropometric indices in women with PCOS.

Methods: Data sources: We searched PubMed, MEDLINE, Scopus, Embase, Cochrane library, and the Web of Science in April 2020 with an update in PubMed in March 2021. Study selection: The study followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)2020. Data extraction: Reviewers extracted data and assessed the risk of bias using the Cochrane risk of bias tool.

Results: 80 RCTs were included in the meta-analysis. Metformin vs placebo showed significant reduction in the mean body weight (MD: −3.13 kg; 95% confidence interval [CI]: −5.33 to −0.93, I^2 = 5%) and the mean body mass index (BMI) (MD: −0.75 kg/m2; 95% CI: −1.15 to −0.36, I^2 = 0%). There was a significant reduction in the mean BMI with orlistat versus placebo (MD: −1.33 kg/m²; 95% CI: −2.16 to −0.66, I^2 = 0.0%), acarbose versus metformin (MD: −1.26 kg/m²; 95% CI: −2.13 to −0.38, I^2 = 0%), and metformin versus pioglitazone (MD: −0.91 kg/m²; 95% CI: −1.62 to −0.19, I^2 = 0%). A significant increase in the mean BMI was also observed in pioglitazone versus placebo (MD: + 2.59 kg/m²; 95% CI: 1.78–3.38, I^2 = 0%) and in rosiglitazone versus metformin (MD: + 0.80 kg/m²; 95% CI: 0.32–1.27, I^2 = 3%). There was a significant reduction in the mean waist circumference (WC) with metformin versus placebo (MD: −1.21 cm; 95% CI: −3.71 to 1.29, I^2 = 0%) while a significant increase in the mean WC with pioglitazone versus placebo (MD: + 5.45 cm; 95% CI: 2.18–8.71, I^2 = 0%).

Conclusion: Pharmacological interventions including metformin, sitagliptin, pioglitazone, rosiglitazone orlistat, and acarbose have significant effects on the anthropometric indices in women with PCOS.

Keywords: BMI; body weight; pharmacological therapy; polycystic ovary syndrome (PCOS); WC; WHR

Vitamin D deficiency and its associated factors among female migrants in the United Arab Emirates

Authors: Anouti, F.A; **Ahmed, L.A;** Riaz, A; Grant, W.B; Shah, N; Ali, R; Alkaabi, J; **Shah, S.M.**

Journal: Nutrients | **Year**: 2022 | **DOI**: https://doi.org/10.3390/nu14051074

Abstract

Background: Vitamin D is important for bone health, and vitamin D deficiency could be linked to noncommunicable diseases, including cardiovascular disease. The purpose of this study was to determine the prevalence of vitamin D deficiency and its associated risk factors among female migrants from Philippines, Arab, and South Asian countries residing in the United Arab Emirates (UAE).

Methods: We used a cross-sectional study to recruit a random sample (N = 550) of female migrants aged 18 years and over in the city of Al Ain, UAE. Vitamin D deficiency was defined as serum 25-hydroxyvitamin D concentrations ≤20 ng/mL (50 nmol/L). We used multivariable logistic regression analysis to identify risk factors associated with vitamin D deficiency.

Results: The mean age of participants was 35 years (SD ± 10). The overall prevalence rate of vitamin D deficiency was 67% (95% CI 60–73%), with the highest rate seen in Arabs (87%), followed by South Asians (83%) and the lowest in Filipinas (15%). Multivariate analyses showed that low physical activity (adjusted odds ratio (aOR) = 4.59; 95% CI 1.98, 10.63), having more than 5 years duration of residence in the UAE (aOR = 4.65; 95% CI: 1.31, 16.53) and being obese (aOR = 3.56; 95% CI 1.04, 12.20) were independently associated with vitamin D deficiency, after controlling for age and nationality.

Conclusion: In summary, vitamin D deficiency was highly prevalent among female migrants, especially Arabs and South Asians. It is crucial that health professionals in the UAE become aware of this situation among this vulnerable subpopulation and provide intervention strategies aiming to rectify vitamin D deficiency by focusing more on sun exposure, physical activity, and supplementation.

Keywords: female migrants; prevalence; United Arab Emirates; vitamin D status

Mixed data imputation using generative adversarial networks

Authors: Khan, W; Zaki, N; Ahmad, A; Masud, M.M; Ali, L; **Ali, N; Ahmed, L.A.**

Journal: IEEE Access | **Year**: 2022 | **DOI**: https://doi.org/10.1109/ACCESS.2022.3218067

Abstract

Background: Missing values are common in real-world datasets and pose a significant challenge to the performance of statistical and machine learning models. Generally, missing values are imputed using statistical methods, such as the mean, median, mode, or machine learning approaches. These approaches are limited to either numerical or categorical data. Imputation in mixed datasets that contain both numerical and categorical attributes is challenging and has received little attention. Machine learning-based imputation algorithms usually require a large amount of training data. However, obtaining such data is difficult. Furthermore, no considerate work has been conducted in the literature that focuses on the effects of the training and testing size with increasing amounts of missing data. To address this gap, we proposed that increasing the amount of training data will improve imputation performance.

Methods: We first used generative adversarial network (GAN) methods to increase the amount of training data. We considered two state-of-the-art GANs (tabular and conditional tabular) to add synthetic samples using observed data with different synthetic sample ratios. We then used three state-of-the-art imputation models that can handle mixed data: MissForest, multivariate imputation by chained equations, and denoising auto encoder (DAE).

Conclusion: We proposed robust experimental setups on four publicly available datasets with different training-testing data divisions that have increasing missingness ratios. Extensive experimental results show that incorporating synthetic samples with training data achieves better performance compared to the baseline methods for mixed data imputation in both categorical and numerical variables, especially for large missingness ratios.

Keywords: denoising auto encoders; GANs; MICE; miss forest; missing data; mixed data imputation

Influence of religiosity on youths' attitudes towards people with disabilities in the United Arab Emirates

Authors: Hammad, H; **Elbarazi, I;** Bendak, M; Obaideen, K; Amanatullah, A; Khan, B.S.B; Ismail, L; Kieu, A; AB Khan, M.

Journal: Journal of Religion and Health | **Year**: 2022 | **DOI**: https://doi.org/10.1007/s10943-022-01646-x

Abstract

Objective: This cross-sectional survey investigates the influence of youths' religiosity on their attitude towards people with disabilities.

Methods: The Muslim religiosity questionnaire and multidimensional attitudes scale towards persons with disabilities were used to survey 733 youths from the federal university in the United Arab Emirates.

Results: The results indicated that the youths were religious and had positive attitudes towards people with disabilities. An increase in religiosity is associated with a positive attitude towards disability, and both religiosity and total family income positively impacted the attitude towards people with disabilities.

Conclusion: Reducing inequalities by including persons with disabilities is one of the UN 2030 Agenda for Sustainable Development objectives. Policies should aim to enhance curriculum, improvise public guidelines and partner with associated faith-based leaders to build an inclusive society for people with disabilities, thus helping to achieve sustainable development goals.

Keywords: disability; Muslim religiosity; people of determination; social inclusion; Sustainable Development Goals; United Arab Emirates

Medication adherence among patients with multimorbidity in the United Arab Emirates

Authors: Allaham, K.K; Feyasa, M.B; Govender, R.D; Musa, A.M.A; Alkaabi, A.J; **Elbarazi, I;** Alsheryani, S.D; Falasi, R.J.A; Khan, M.A.

Journal: Patient Preference and Adherence | **Year**: 2022 | **DOI**: https://doi.org/10.2147/ppa.s355891

Abstract

Background: Multimorbidity, defined as having two or more chronic diseases, has a major impact on public health and Sustainable Development Goals (SDG). This study aims to assess the prevalence of medication adherence and associated factors among patients with multimorbidity.

Methods: A questionnaire-based, cross-sectional survey was conducted by a trained interviewer across patients with multimorbidity attending outpatient clinics in two tertiary referral hospitals in the United Arab Emirates (UAE). Demographic and social variables and the outcome (self-reported adherence to long-term medication) were measured using the General Medication Adherence Scale (GMAS). Multiple logistic regression was used to assess medication adherence and associated factors.

Results: From a total of 630 participants included in this study, the estimated prevalence of high medication adherence is 78.57% (±1.63478) with a 95% confidence interval (CI) [75.19, 81.61]. The odds of high medication adherence increased with age. The odds of high medication adherence for patients aged 66 years and older than those aged 19–35 years is adjusted odds ratio (AOR) = 3.880, with a 95% CI [1.124, 13.390]. Patients with income more than 50,000 had the odds, AOR = 5.169 with a 95% CI [1.282, 20.843], compared to those earning less than 10,000 Dirhams (AED). Patients aged 36–65 with health insurance coverage had higher medication adherence than groups on the other end. The number of current medications is significantly (p-value = 0.027) associated with high medication adherence with the odds of high medication adherence, AOR = 4.529 with a 95% CI [1.184, 17.326], the highest for those currently taking four medications.

Conclusion: This study highlights younger population having multimorbidity in the context of an increasing life expectancy and suboptimal therapeutic outcomes. Furthermore, the study highlights multimorbidity is associated with low medication adherence and out-of-pocket payment, and non-availability of insurance is a major hindrance to medication adherence.

Keywords: global burden of disease; medication adherence; multimorbidity; Sustainable Development Goals; United Arab Emirates

The attitude and behaviors of the different spheres of the community of the United Arab Emirates toward the clinical utility and bioethics of secondary genetic findings: a cross-sectional study

Authors: **Rahma, A.T; Abdullahi, A.S;** Graziano, G; **Elbarazi, I.**

Journal: Human Genomics | **Year**: 2023 | **DOI**: https://doi.org/10.1186/s40246-023-00548-7

Abstract

Background: Genome sequencing has utility; however, it may reveal secondary findings. While Western bioethicists have been occupied with managing secondary findings, specialists' attention in the Arabic countries has not yet been captured. We aim to explore the attitude of the United Arab Emirates (UAE) population toward secondary findings.

Method: We conducted a cross-sectional study between July and December 2022. The validated questionnaire was administered in English. The questionnaire consists of six sections addressing topics such as demographics, reactions to hypothetical genetic test results, disclosure of mutations to family members, willingness to seek genetic testing, and attitudes toward consanguinity. Chi-squared and Fisher's exact tests were used to investigate associations between categorical variables.

Results: We had 343 participants of which the majority were female (67%). About four-fifths (82%) were willing to know the secondary findings, whether the condition has treatment or not. The most likely action to take among the participants was to know the secondary findings, so they can make life choices (61%).

Conclusion: These results can construct the framework of the bioethics of disclosing secondary findings in the Arab regions.

Keywords: academia; blindness; diabetes; gender; healthcare providers

Knowledge, attitudes, and perceptions of the multi-ethnic population of the United Arab Emirates on genomic medicine and genetic testing

Authors: **Rahma, A.T;** Ali, B.R; Patrinos, G.P; **Ahmed, L.A; Elbarazi, I; Abdullahi, A.S;** Elsheik, M; Abbas, M; Afandi, F; Alnaqbi, A; **Al Maskari, F.**

Journal: Human Genomics | **Year**: 2023 | **DOI**: https://doi.org/10.1186/s40246-023-00509-0

Abstract

Background: The adoption and implementation of genomic medicine and pharmacogenomics (PGx) in healthcare systems have been very slow and limited worldwide. Major barriers to knowledge translation into clinical practice lie in the level of literacy of the public of genetics and genomics. The aim of this study was to assess the knowledge, attitudes, and perceptions of the United Arab Emirates (UAE) multi-ethnic communities toward genomic medicine and genetic testing.

Methods: A cross-sectional study using validated questionnaires was distributed to the participants. Descriptive statistics were performed, and multivariable logistic regression models were used to identify factors associated with knowledge of genomics.

Results: 757 individuals completed the survey. Only 7% of the participants had a good knowledge level in genetics and genomics (95% CI 5.3–9.0%). However, 76.9% of the participants were willing to take a genetic test if their relatives had a genetic disease. In addition, the majority indicated that they would disclose their genetic test results to their spouses (61.5%) and siblings (53.4%).

Conclusions: This study sets the stage for the stakeholders to plan health promotion and educational campaigns to improve the genomic literacy of the community of the UAE as part of their efforts for implementing precision and personalized medicine in the country.

Keywords: disclosure; genetic tests; genomic literacy; implementation; personalized medicine; United Arab Emirates

Burden of disease attributable to risk factors in European countries: a scoping literature review

Authors: Gorasso, V; Morgado, J.N; Charalampous, P; Pires, S.M; Haagsma, J.A; Santos, J.V; Idavain, J; Ngwa, C.H; Noguer, I; Padron-Monedero, A; Sarmiento, R; Pinheiro, V; Von der Lippe, E; Jakobsen, L.S; Devleesschauwer, B; Plass, D; Aasvang, G.M; **Ádám, B;** et al.

Journal: Archives of Public Health | **Year**: 2023 | **DOI**: https://doi.org/10.1186/s13690-023-01119-x

Abstract

Objectives: Within the framework of the burden of disease (BoD) approach, disease and injury burden estimates attributable to risk factors are a useful guide for policy formulation and priority setting in disease prevention. Considering the important differences in methods, and their impact on burden estimates, we conducted a scoping literature review to: (1) map the BoD assessments including risk factors performed across Europe; and (2) identify the methodological choices in comparative risk assessment (CRA) and risk assessment methods.

Methods: We searched multiple literature databases, including grey literature websites and targeted public health agencies websites.

Results: A total of 113 studies were included in the synthesis and further divided into independent BoD assessments (54 studies) and studies linked to the Global Burden of Disease (59 papers). Our results showed that the methods used to perform CRA varied substantially across independent European BoD studies. While there were some methodological choices that were more common than others, we did not observe patterns in terms of country, year or risk factor. Each methodological choice can affect the comparability of estimates between and within countries and/or risk factors, since they might significantly influence the quantification of the attributable burden. From our analysis we observed that the use of CRA was less common for some types of risk factors and outcomes. These included environmental and occupational risk factors, which are more likely to use bottom-up approaches for health outcomes where disease envelopes may not be available.

Conclusions: Our review also highlighted misreporting, the lack of uncertainty analysis and the under-investigation of causal relationships in BoD studies. Development and use of guidelines for performing and reporting BoD studies will help understand differences, avoid misinterpretations thus improving comparability among estimates. Registration: The study protocol has been registered on PROSPERO, CRD42020177477.

Keywords: burden of disease; comparative risk assessment; risk factors

A review of pharmacogenomics studies assessing the knowledge and attitudes of physicians and pharmacists across the Arab and Middle Eastern Region

Authors: Khattab, M; Baguneid, M; Ali, B.R; Sadek, B; Beiram, R; Atallah, B; Akour, A; **Rahma, A.T;** Aburuz, S.

Journal: Pharmacy Practice | **Year**: 2023 | **DOI**: https://doi.org/10.18549/PharmPract.2023.3.2828

Abstract

The principal goal of pharmacogenomics (PGx) is to achieve the highest drug efficacy while maintaining a low toxicity profile. Historically, health care systems used to target treatment for all individuals with the same diagnosis using a standardized medication or dose that fits all. However, a recent pattern in medicine has emerged focusing on personalized and precision medicine. For effective implementation of PGx, there is a need for more collaborations between all the stakeholders in the healthcare system to integrate the pharmacogenetics concept into practice. When it comes to the knowledge and attitudes towards pharmacogenomics, the majority of medical professionals, including pharmacists and physicians, appear to lack appropriate knowledge and training. Across the Middle East and Arab Region, only few studies have addressed this topic. The current review objective is to shed light on pharmacists' and physicians' knowledge and attitudes towards PGx practice in the UAE, Arab and the Middle East region as compared to the rest of the world. Moreover, highlighting the role of the pharmacists in the application of PGx services and the educational challenges that are faced. Proposed solutions to improve the knowledge gaps will also be discussed. We also aim to provide the international readers as well as the local researchers with a summary of the trends and distribution of the results across these countries.

Keywords: Arab; attitude; GCC; knowledge; MENA; pharmacist; pharmacogenetics; pharmacogenomics; physician; UAE

The link between knowledge and practices in relation to herbal supplement use: For a rapid transfer of knowledge in the field of phytovigilance and pharmacovigilance health care systems

Authors: Abdulla, N.M; Blair, I; **Ádám, B;** Oulhaj, A; Jairoun, A.A.

Journal: Journal of Pharmaceutical Health Services Research | **Year**: 2023 | **DOI**: https://doi.org/10.1093/jphsr/rmad021

Abstract

Background: The use of health supplements (HSs) is increasing globally. It is essential to better understand health care providers' knowledge, attitudes and practices (KAP) regarding HS use and their associated adverse events (AEs). Thus, we conducted a cross-sectional study of health care professionals in Dubai.

Methods: Four hundred and twenty-seven health care professionals from hospitals, clinics (public and private) and community pharmacies completed an online questionnaire that collected demographic data and enquired about their experience with HSs. Simple descriptive statistics were used to characterise participants. Based on 10 questions, a summary score was created for the overall KAP of respondents. For each question, an affirmative response scored 1 and a negative response scored 0. A total score of 10 was therefore obtainable; logistic regression was used to identify the correlates of those scores.

Results: The results showed that 18.3% (n = 78) of respondents had good KAP concerning HS, 38.9% (n = 166) had fair KAP and 42.9% (n = 183) had poor KAP. Scores were significantly higher among non-UAE nationals compared with UAE nationals (P = 0.001), among physicians and pharmacists compared with other health care practitioners (P = 0.000), and among practitioners with more than 6 years of experience compared to those with 6 years of experience or less (0.017). No association was found between KAP scores and age, marital status, employment status or educational level.

Conclusion: Despite the popularity and widespread use of HS among the general population in Dubai, knowledge of HSs and their possible adverse effects is limited among health professionals. This was the first study to investigate this topic in the United Arab Emirates. Further policies are needed to reduce the potential for adverse events related to HS use. Additionally, educational programs are required for health care professionals to address current low levels of knowledge.

Keywords: adverse events; attitudes; health supplements; knowledge; practices

A review of medical diagnostic video analysis using deep learning techniques

Authors: Farhad, M; Masud, M.M; Beg, A; Ahmad, A; **Ahmed, L.A.**

Journal: Applied Sciences | **Year**: 2023 | **DOI**: https://doi.org/10.3390/app13116582

Abstract

Background: The automated analysis of medical diagnostic videos, such as ultrasound and endoscopy, provides significant benefits in clinical practice by improving the efficiency and accuracy of diagnosis. Deep learning techniques show remarkable success in analyzing these videos by automating tasks such as classification, detection, and segmentation. In this paper, we review the application of deep learning techniques for analyzing medical diagnostic videos, with a focus on ultrasound and endoscopy.

Methods: The methodology for selecting the papers consists of two major steps. First, we selected around 350 papers based on the relevance of their titles to our topic. Second, we chose the research articles that focus on deep learning and medical diagnostic videos based on our inclusion and exclusion criteria.

Results: We found that convolutional neural networks (CNNs) and long short-term memory (LSTM) are the two most commonly used models that achieve good results in analyzing different types of medical videos. We also found various limitations and open challenges. We highlight the limitations and open challenges in this field, such as labeling and preprocessing of medical videos, class imbalance, and time complexity, as well as incorporating expert knowledge, k-shot learning, live feedback from experts, and medical history with video data.

Conclusion: Our review can encourage collaborative research with domain experts and patients to improve the diagnosis of diseases from medical videos.

Keywords: classification; deep learning; detection; echocardiography; endoscopy; medical diagnostic videos; segmentation; ultrasound

Impact of pharmacological interventions on biochemical hyperandrogenemia in women with polycystic ovary syndrome: a systematic review and meta-analysis of randomised controlled trials

Authors: Abdalla, M.A; Shah, N; Deshmukh, H; Sahebkar, A; Östlundh, L; **Al-Rifai, R.H**; Atkin, S.L; Sathyapalan, T.

Journal: Archives of Gynecology and Obstetrics | **Year**: 2023 | **DOI**: https://doi.org/10.1007/s00404-022-06549-6

Abstract

Background: Polycystic ovary syndrome (PCOS) is a complex endocrine disease that affects women of reproductive age and is characterised by biochemical and clinical androgen excess. Aim: To evaluate the efficacy of pharmacological interventions used to decrease androgen hormones in women with PCOS.

Methods: Data source: We searched PubMed, MEDLINE, Scopus, Embase, Cochrane library and the Web of Science from inception up to March 2021. **Data synthesis**: Two reviewers selected eligible studies and extracted data, and the review is reported according to the 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Results: Of the 814 randomised clinical trials (RCTs) located in the search, 92 met the eligibility criteria. There were significant reductions in total testosterone level with metformin versus (vs) placebo (SMD: − 0.33; 95% CI − 0.49 to − 0.17, p < 0.0001, moderate grade evidence) and dexamethasone vs placebo (MD: -0.86 nmol/L; 95% CI − 1.34 to − 0.39, p = 0.0004, very low-grade evidence). Significant reductions in the free testosterone with sitagliptin vs placebo (SMD: − 0.47; 95% CI − 0.97 to 0.04, p = 0.07, very low-grade evidence), in dehydroepiandrosterone sulphate (DHEAS) with flutamide vs finasteride (MD: − 0.37 µg/dL; 95% CI − 0.05 to − 0.58, p = 0.02, very low-grade evidence), a significant reduction in androstenedione (A4) with rosiglitazone vs placebo (SMD: − 1.67; 95% CI − 2.27 to − 1.06; 59 participants, p < 0.00001, very low-grade evidence), and a significant increase in sex hormone-binding globulin (SHBG) with oral contraceptive pill (OCP) (35 µg Ethinyl Estradiol (EE)/2 mg cyproterone acetate (CPA)) vs placebo (MD: 103.30 nmol/L; 95% CI 55.54–151.05, p < 0.0001, very low-grade evidence) were observed.

Conclusion: Metformin, OCP, dexamethasone, flutamide, and rosiglitazone use were associated with a significant reduction in biochemical hyperandrogenemia in women with PCOS, though their individual use may be limited due to their side effects.

Keywords: DHEAS; FAI; FSH; LH; PCOS; pharmacological therapy; polycystic ovary syndrome

Characterization of fertility clinic attendees in the Abu Dhabi Emirate, United Arab Emirates: A cross-sectional study

Authors: Abdo, N.M; Ahmad, H; Loney, T; Zarmakoupis, P.N; Aslam, I; Irfan, S; **Grivna, M; Ahmed, L.A; Al-Rifai, R.H.**

Journal: Int J Environ Res Public Health | **Year**: 2023 | **DOI**: https://doi.org/10.3390/ijerph20031692

Abstract

Background: This study describes the primary and secondary infertility in patients attending fertility clinics and reports factors associated with primary infertility.

Methods: A cross-sectional survey was conducted in two fertility clinics in Abu Dhabi Emirate, United Arab Emirates (UAE) between December 2020 and May 2021. The collected information covered sociodemographic, lifestyle, medical, and fertility-related characteristics.

Results: The mean age and age at marriage (±SD) of the 928 patients were 35.7 (±6.7) and 25.2 (±6.3) years, respectively. Of the total, 72.0% were obese and overweight, 26.6% reported a consanguineous marriage, and 12.5% were smokers. Secondary infertility (62.5%) was more frequent than primary infertility (37.5%). Primary infertility was inversely associated with age (aOR, 0.94, 95% CI: 0.91–0.98) and not being overweight (aOR, 0.6, 95% CI: 0.4–0.9) while positively associated with a nationality other than Middle Eastern nationality (aOR, 1.9, 95% CI: 1.1–3.3), married for ≤5 years (aOR, 6.0, 95% CI: 3.9–9.3), in a nonconsanguineous marriage (aOR, 2.4, 95% CI: 1.5–3.9), having a respiratory disease (aOR, 2.3, 95% CI: 1.1–4.6), an increased age at puberty (aOR, 1.2, 95% CI: 1.0–1.3), and self-reported 6–<12 months (aOR, 2.4, 95% CI: 1.2–5.1) and ≥12 months (aOR, 3.4, 95% CI: 1.8–6.4) infertility. Patients with primary infertility were more likely to be diagnosed with infertility of an ovulation, tubal, or uterine origin (aOR, 3.9, 95% CI: 1.9–7.9).

Conclusion: Secondary infertility was more common than primary infertility. Several preventable fertility-related risk factors including overweight, smoking, and diabetes were found to be common among the fertility clinic attendees.

Keywords: conception; infertility; pregnancy; primary infertility; reproductive health

Domestic violence against women in Jordan: analysis of the demographic and health survey dataset 2017-2018

Authors: Kheirallah, K.A; Alrawashdeh, A; Alsaleh, A; Megdadi, M; Obeidat, S; Elfauri, K.A; Al-Mistarehi, A.-H; **Elbarazi, I.**

Journal: Journal of Medicine and Life | **Year**: 2023 | **DOI**: https://doi.org/10.25122/jml-2023-0111

Abstract

This study analyzed the 2017-2018 Jordan Demographic and Health Survey (DHS) database to determine the prevalence of domestic violence (DV) against women in Jordan and its associated sociodemographic factors.

The findings revealed that among Jordanian women, the lifetime prevalence of DV by husbands was 25.9%, with emotional (20.6%), physical (17.5%), and sexual (5.1%) violence being prominently reported. DV against women was significantly associated with the age, region, and educational status of women, as well as the wealth index, but not their hus-bands.

While the results suggest a potential reduction in DV estimates compared to the last decade, DV still represents a public health issue in Jordan. The study highlights the direct association of DV with socio-demographic characteristics and provides a gateway to identifying high-risk women and implementing appropriate interventions to reduce DV.

Keywords: DHS; domestic violence; GBV; IPV; Jordan; socio-economic status; wealth index; women

Celiac disease in paediatric patients in the United Arab Emirates: a single-center descriptive study

Authors: AlNababteh, A.H; Tzivinikos, C; Al-Shamsi, S; Govender, R.D; **Al-Rifai, R.H.**

Journal: Frontiers in Pediatrics | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fped.2023.1197612

Abstract

Background: Celiac disease (CD) is an autoimmune disorder that is provoked by the consumption of gluten in genetically vulnerable individuals. CD affects individuals worldwide with an estimated prevalence of 1% and can manifest at any age. Growth retardation and anemia are common presentations in children with CD. The objective of this study is to estimate the prevalence of CD in multiple "at risk groups" and to characterize children with CD, presented to a tertiary hospital in Dubai, United Arab Emirates (UAE).

Methods: The study reviewed medical charts of all patients <18 years who had received serologic testing for CD. The study was conducted at Al Jalila Children's Specialty Hospital in Dubai, UAE, from January 2018 to July 2021. Extracted information from medical records included sociodemographics, laboratory findings, clinical presentation, and any associated co-morbidities. The European Society of Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) criteria were used to identify patients with CD.

Results: During the study period, 851 paediatric patients underwent serological screening for CD, out of which, 23 (2.7%) were confirmed with CD. Of the 23 patients diagnosed with CD, 43.5% had no gastrointestinal symptoms. Diabetes type 1 (30.4%) followed by iron deficiency anaemia (30%) and Hashimoto thyroiditis (9%) were the most commonly associated comorbidities. The prevalence of CD among paediatric patients with autoimmune thyroiditis (12.5%) was 1.92-times higher than that among paediatric patients with diabetes type 1 (6.5%).

Conclusion: The results of this study show that almost three out of every 100 paediatric patients who were screened for CD were confirmed to have the condition. These findings highlight the importance of screening children who are at risk or present symptoms suggestive of CD, to ensure early diagnosis and appropriate management.

Keywords: celiac; celiac disease; gluten; pediatric patients; United Arab Emirates

Association between pediatric asthma and adult polycystic ovarian syndrome (PCOS): A cross-sectional analysis of the UAE healthy future Study (UAEHFS)

Authors: Juber, N.F; Abdulle, A; AlJunaibi, A; AlNaeemi, A; Ahmad, A; Leinberger-Jabari, A; Al Dhaheri, A.S; AlZaabi, E; Mezhal, F; **Al-Maskari, F;** Alanouti, F; Alsafar, H; Alkaabi, J; Wareth, L.A; Aljaber, M; Kazim, M; Weitzman, M; Al-Houqani, M; Hag-Ali, M; Oumeziane, N; El-Shahawy, O; Sherman, S; **Shah, S.M;** Loney, T; Almahmeed, W; Idaghdour, Y; Ali, R.

Journal: Frontiers in Endocrinology | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fendo.2023.1022272

Abstract

Background: Asthma and polycystic ovarian syndrome (PCOS) are linked in several possible ways. To date, there has been no study evaluating whether pediatric asthma is an independent risk factor for adult PCOS. Our study aimed to examine the association between pediatric asthma (diagnosed at 0-19 years) and adult PCOS (diagnosed at ≥20 years). We further assessed whether the aforementioned association differed in two phenotypes of adult PCOS which were diagnosed at 20-25 years (young adult PCOS), and at >25 years (older adult PCOS). We also evaluated whether the age of asthma diagnosis (0-10 vs 11-19 years) modified the association between pediatric asthma and adult PCOS.

Methods: This is a retrospective cross-sectional analysis using the United Arab Emirates Healthy Future Study (UAEHFS) collected from February 2016 to April 2022 involving 1334 Emirati females aged 18-49 years. We fitted a Poisson regression model to estimate the risk ratio (RR) and its 95% confidence interval (95% CI) to assess the association between pediatric asthma and adult PCOS adjusting for age, urbanicity at birth, and parental smoking at birth.

Results: After adjusting for confounding factors and comparing to non-asthmatic counterparts, we found that females with pediatric asthma had a statistically significant association with adult PCOS diagnosed at ≥20 years (RR=1.56, 95% CI: 1.02-2.41), with a stronger magnitude of the association found in the older adult PCOS phenotype diagnosed at >25 years (RR=2.06, 95% CI: 1.16-3.65). Further, we also found females reported thinner childhood body size had a two-fold to three-fold increased risk of adult PCOS diagnosed at ≥20 years in main analysis and stratified analyses by age of asthma and PCOS diagnoses (RR=2.06, 95% CI: 1.08-3.93 in main analysis; RR=2.74, 95% CI: 1.22-6.15 among those diagnosed with PCOS > 25 years; and RR=3.50, 95% CI: 1.38-8.43 among those diagnosed with asthma at 11-19 years).

Conclusions: Pediatric asthma was found to be an independent risk factor for adult PCOS. More targeted surveillance for those at risk of adult PCOS among pediatric asthmatics may prevent or delay PCOS in this at-risk group. Future studies with robust longitudinal designs aimed to elucidate the exact mechanism between pediatric asthma and PCOS are warranted.

Keywords: asthma; epidemiology; PCOS; pediatric asthma; polycystic ovarian syndrome; public health; risk factors

Mode of presentation and performance of serology assays for diagnosing celiac disease: A single-center study in the United Arab Emirates

Authors: Shatnawei, A; **AlNababteh, A.H;** Govender, R.D; Al-Shamsi, S; AlJarrah, A; **Al-Rifai, R.H.**

Journal: Frontiers in Nutrition | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fnut.2023.1107017

Abstract

Objective: To characterize patients with celiac disease (CD), examines the clinical spectrum of CD, and evaluate the performance of serologic tests used for CD screening, in the United Arab Emirates (UAE).

Methods: Medical charts of patients received at the Digestive Diseases Institute of Cleveland Clinic Abu Dhabi from January 2015 to December 2020 were reviewed. Patients who were screened for four serologic biomarkers (anti-tissue transglutaminase IgA [Anti-tTG-IgA], anti-tissue transglutaminase IgG [Anti-TtG-IgG], anti-deamidated gliadin peptide IgG [Anti-DGP-IgG], and anti-deamidated gliadin peptide IgA [Anti-DGP-IgA]) were included. Histopathology was performed on patients with the seropositive test. Marsh score > 1 considered to confirm CD. Characteristics of the Anti-tTG-IgA seropositive patients were described and that correlated with histopathologically confirmed CD were explored.

Results: Of the 6,239 patients, 1.4, 2.9, 4.7, and 4.9%, were seropositive to Anti-tTG-IgG, Anti-TtG-IgA, Anti-DGP-IgA, and Anti-DGP-IgG, respectively. Overall, 7.7% were seropositive to either of the four biomarkers. Of the biopsy-screened 300 patients, 38.7% (1.9% of the total serologically screened) were confirmed with CD. The mean age of Anti-TtG-IgA seropositive patients was 32.1 ± 10.3 SD years, 72% of them were females, and 93.4% were Emirati. In those patients, overweight (28.7%) and obesity (24.7%) were common while 5.8% of patients were underweight. Anemia prevalence was 46.7%, 21.3% had Gastroesophageal reflux disease (GERD), 7.7% with autoimmune thyroid disease, 5.5% (type 1), and 3.3% (type 2) were diabetic. Vitamin D deficiency was observed in 47.8% of the Anti-TtG IgA seropositive patients. Twelve (10.3%) histopathologically confirmed CD patients were seronegative to Anti-TtG-IgA but seropositive to anti-DGP-IgA and/or Anti-DGP-IgG. Body mass index, GERD, autoimmune thyroid disease, type 1 diabetes, asthma, hemoglobin, and vitamin D concentration, were all correlated with biopsy-confirmed CD ($P < 0.05$). Compared to the gold-standard biopsy test, Anti-TtG-IgA had the highest sensitivity (89.7%) and specificity (83.7%).

Conclusion: Three and two of every 100 patients were serologically (anti-tTG-IgA positive) and histopathologically diagnosed with CD, respectively. Although Anti-TtG-IgA is the most sensitive, specific, and commonly used test, one of every ten histopathologically confirmed patients and Anti-tTG-IgA seronegative were seropositive to Anti-DGP. To avoid missing patients with CD, a comprehensive serological investigation covering DGP-IgG/IgA is warranted.

Keywords: celiac disease; serologic biomarkers; histopathology; diagnostic sensitivity

Polycystic ovarian syndrome among women diagnosed with infertility in the Gulf Cooperation Council countries: A protocol for systematic review and meta-analysis of prevalence studies

Authors: **Alam, Z;** Abdalla, M.A; Alseiari, S; Alameemi, M; Alzaabi, M; Alkhoori, R; Östlundh, L; **Al-Rifai, R.H.**

Journal: Women's Health | **Year**: 2023 | **DOI**: https://doi.org/10.1177/17455057231160940

Abstract

Background: Polycystic ovarian syndrome, a common endocrine disorder, is an important cause of infertility among women of reproductive age. Within the Gulf Cooperation Council countries, polycystic ovarian syndrome is found to affect women increasingly. No study has been carried out to critically summarize the evidence on the prevalence of polycystic ovarian syndrome among women suffering from infertility in these countries.

Objective: This protocol aims to conduct a systematic review and meta-analysis of the studies reporting the prevalence of polycystic ovarian syndrome among women seeking infertility treatment in the six Gulf Cooperation Council countries (Bahrain, Kuwait, Oman, Saudi Arabia, Qatar, and United Arab Emirates). Design/Methods and analysis: The systematic review and meta-analysis will follow the following method.

Data source: Five databases, including PubMed, Embase, CINAHL, Web of Science, and SCOPUS, will be searched for observational studies using a combination of relevant keywords and Medical Subject Headings from inception of databases. **Data extraction**: Two reviewers will screen titles and abstracts, followed by a full-text search based on the eligibility criteria. The main outcome is to measure the proportion of women who have polycystic ovarian syndrome among infertility-diagnosed patients. In addition, the risk of bias in the included studies will be assessed using the national institute of health quality assessment tool for observational studies. **Data synthesis**: The random-effects method of the analysis with the inverse variance will be used to calculate the pooled prevalence of polycystic ovarian syndrome–attributed infertility. Variation in prevalence estimates will be calculated using subgroup analysis based on study and patients' characteristics and publication bias will be assessed via funnel plot inspection and Eggar's test.

Discussion: A critical assessment of evidence on the prevalence of polycystic ovarian syndrome in women attending fertility clinics is helpful in risk quantification, enabling better planning for managing infertility in women with polycystic ovarian syndrome. Registration: This protocol has been registered with PROSPERO, protocol registration number (CRD42022355087).

Keywords: Gulf Cooperation Council; infertile; meta-analysis; polycystic ovarian syndrome; prevalence; review

Examination of sleep in relation to dietary and lifestyle behaviors during Ramadan: A multi-national study using structural equation modeling among 24,500 adults amid COVID-19

Authors: Ramadan Intermittent Fasting Collaborators (**Elbarazi, I.**)

Journal: Frontiers in Nutrition | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fnut.2023.1040355

Abstract

Background: Of around 2 billion Muslims worldwide, approximately 1.5 billion observe Ramadan fasting (RF) month. Those that observe RF have diverse cultural, ethnic, social, and economic backgrounds and are distributed over a wide geographical area. Sleep is known to be significantly altered during the month of Ramadan, which has a profound impact on human health. Moreover, sleep is closely connected to dietary and lifestyle behaviors.

Methods: This cross-sectional study collected data using a structured, self-administered electronic questionnaire that was translated into 13 languages and disseminated to Muslim populations across 27 countries. The questionnaire assessed dietary and lifestyle factors as independent variables, and three sleep parameters (quality, duration, and disturbance) as dependent variables. We performed structural equation modeling (SEM) to examine how dietary and lifestyle factors affected these sleep parameters.

Results: In total, 24,541 adults were enrolled in this study. SEM analysis revealed that during RF, optimum sleep duration (7–9 h) was significantly associated with sufficient physical activity (PA) and consuming plant-based proteins. In addition, smoking was significantly associated with greater sleep disturbance and lower sleep quality. Participants that consumed vegetables, fruits, dates, and plant-based proteins reported better sleep quality. Infrequent consumption of delivered food and infrequent screen time were also associated with better sleep quality. Conflicting results were found regarding the impact of dining at home versus dining out on the three sleep parameters.

Conclusion: Increasing the intake of fruits, vegetables, and plant-based proteins are important factors that could help improve healthy sleep for those observing RF. In addition, regular PA and avoiding smoking may contribute to improving sleep during RF.

Keywords: diet; fasting; intermittent fasting; lifestyle and behavior; Ramadan; sleep

Reflections on medical student evaluations of a public health clerkship

Authors: **Rahma, A.T; Ádám, B; Abdullahi, A.S; Sheek-Hussein, M;** Shaban, S; AlShamsi, M; AlKhori, S; **Nauman, J; Grivna, M.**

Journal: Frontiers in Public Health | **Year**: 2023 | **DOI**: https://doi.org/10.3389/fpubh.2023.1121206

Abstract

Background: The COVID-19 pandemic demonstrated the need for skilled medical practitioners in public health, and outbreak investigations. The College of Medicine and Health Sciences at the United Arab Emirates University (UAEU) introduced a clerkship in public health constituting theoretical and practical sessions to 5th year medical students in 2015. The aim of this study is to explore the satisfaction of the students with the public health clerkship which is crucial for the assessment and reformation of the taught curriculum.

Methods: A cross-sectional, post-evaluation analysis was conducted from the period 2015–2022. The evaluation questionnaire was conducted via an online university system. The survey contained 5 themes: pre-course instructions, structure of the clerkship, academic staff, activities, and learning outcomes. Ethics approval was secured from the Social-IRB of the UAEU. We used SPSS version 26 to analyze the data using independent t-test and ANOVA.

Results: One hundred and seventy-four students (27.4% response rate) participated in the study. Overall, the students had an average satisfaction score of 2.86 out of 4. The majority of the students reported having a good understanding of public health (93.7%), improving their oral presentation skills (91.2%), and developing new skills (87.2%). Furthermore, more than 9 in 10 students (96.1%) reported that the program expanded their knowledge, skills, and confidence. The mass (90.2%) of students agreed that the clerkship content was covered in sufficient depth, majority of the students agreed that they had received enough information about the clerkship before it started (74.6%), majority of the students agreed that the faculty were interested in their personal development (86.1%) The students who completed the clerkship prior to the COVID-19 pandemic had a statistically significant (P = 0.02) higher average rating (72.8%) than students who completed the clerkship during the pandemic (71.1%).

Conclusion: Medical students at the UAEU were satisfied with the activities and delivery of the public health clerkship and found it rewarding. Conducting needs assessment and proposal writing provided them with the knowledge, skills, and confidence to conduct research in their career. These findings may be useful in helping and support other institutes to plan and develop a clerkship in the public health.

Keywords: clerkship; public health; reflection; student evaluations; UAE

School bullying prevention and intervention strategies in the United Arab Emirates: a scoping review

Authors: **Al-Ketbi, A.; Paulo, M. S.; Östlundh, L.; Elbarazi, I.; Abu-Hamada, B.; Elkonaisi, I.; Al-Rifai, R. H.;** Al Aleeli, S.**; Grivna, M.**

Journal: Injury Prevention | **Year**: 2024 | **DOI**: https://doi.org/10.1136/ip-2023-045039

Abstract

Background: Schools in the United Arab Emirates (UAE) witnessed an increase of 7% in bullying prevalence since 2005. This review aimed to map antibullying interventions in the UAE.

Methods: A systematic search was performed in five electronic databases (EMBASE, PubMed, PsycINFO, Scopus and Eric) using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review. Studies addressing antibullying interventions and grey literature in the UAE from 2010 to 2021 were included. Interventions were mapped using distribution across key sectors, public health practice levels, and organisation types.

Results: Of the 2122 identified papers, only 2 were included. Both articles were published in 2019 and used qualitative methods. From the search of governmental and non-governmental websites, 22 multilevel interventions were included and presented on the three levels of public health practice across the different sectors and target stakeholders. Eight interventions were at the federal level, and six were by private stakeholders. The government-funded 59% of all interventions. Four interventions addressed cyberbullying, and three used multisectoral collaboration.

Conclusion: Although the UAE is building capacity for bullying prevention, we found limited knowledge of antibullying prevention efforts. Further studies are needed to assess current interventions, strategies and policies.

Keywords: adolescent; child; policy analysis; school; violence

Haemodynamic effects of intravenous acetaminophen in critically ill paediatric patients: a retrospective chart review

Authors: Mohammad, L; Al Naeem, W; Ramsi, M; Al Neyadi, S; **Abdullahi, A; Rahma, A;** Dawoud, T. H.

Journal: European Journal of Hospital Pharmacy | **Year**: 2024 |
DOI: https://doi.org/10.1136/ejhpharm-2023-004048

Abstract

Background: Haemodynamic changes following intravenous acetaminophen are well studied in adults. Limited data are published in critically ill paediatric patients, especially from the Middle East. We aim to investigate haemodynamic effects and incidence of hypotension with intravenous acetaminophen in critically ill children, with a focus on understanding factors influencing these effects.

Methods: We retrospectively reviewed patients who received intravenous acetaminophen between July and December 2022. A haemodynamic event was defined as drop of >15% in systolic blood pressure (SBP) or mean arterial blood pressure (MAP) within 120 min after drug administration. Hypotension was defined as either drop in SBP below the 5th percentile for age, or a haemodynamic event associated with tachycardia, increased lactate or treatment with fluid/vasopressors. Logistic regression was performed to quantify relationships between patients' characteristics and the occurrence of haemodynamic event and hypotension.

Results: A haemodynamic event was observed in 50/156 patients (32%) post-acetaminophen. Mean MAP (SD) before and after acetaminophen was 69.6 mm Hg (14.8) and 67.4 mm Hg (13.9), respectively (p=0.001). Mean SBP (SD) before and after acetaminophen was 95.4 mm Hg (18.2) and 92.8 mm Hg (19.2), respectively (p=0.006). Baseline MAP, median (interquartile range (IQR)) was 76.0 (64.0-85.3) and 66.0 (57.0-74.5) in patients with and without haemodynamic events, respectively (p=0.004). Only 38/156 patients (24%) met the definition for hypotension. Baseline MAP, median (IQR) was 62.0 (51.8-79.0) in patients with, and 68.5 (62.0, 79.3) in patients without hypotension (p=0.036). Baseline shock, vasoactives, mechanical ventilation and paediatric sequential organ failure assessment were not significantly associated with hypotension. Only MAP was found to be associated with both haemodynamic event (adjusted odds ratio (AOR) 1.05, 95% CI 1.02-1.10) and hypotension (AOR 1.06, 95% CI 1.02-1.10) even after controlling for other confounders.

Conclusion: Administration of intravenous acetaminophen in critically ill children can lead to haemodynamic changes, including clinically significant hypotensive events.

Keywords: anesthesia and analgesia; cardiology; critical care; drug-related side effects and adverse reactions; pediatrics

The effect of thiazolidinediones in polycystic ovary syndrome: a systematic review and meta-analysis of randomised controlled trials

Authors: Abdalla, M. A; Shah, N; Deshmukh, H; Sahebkar, A; Östlundh, L; **Al-Rifai, R. H**; Atkin, S. L; Sathyapalan, T.

Journal: Advances in Therapy | **Year**: 2024 | **DOI**: https://doi.org/10.1007/s12325-024-02848-3

Abstract

Background: Polycystic ovary syndrome (PCOS) is a complex endocrine condition affecting women of reproductive age. It is characterised by insulin resistance and is a risk for type 2 diabetes mellitus (T2DM). The aim of this study was to review the literature on the effect of pioglitazone and rosiglitazone in women with PCOS.

Methods: We searched PubMed, MEDLINE, Scopus, Embase, Cochrane Library and the Web of Science in April 2020 and updated in March 2023. Studies were deemed eligible if they were randomised controlled trials (RCTs) reporting the effect of pioglitazone and rosiglitazone in PCOS. The study follows the 2020 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Two reviewers independently extracted data and assessed the risk of bias using the Cochrane risk of bias tool.

Results: Out of 814 initially retrieved citations, 24 randomised clinical trials (RCTs) involving 976 participants were deemed eligible. Among women with PCOS, treatment with rosiglitazone compared to metformin resulted in a significant increase in the mean body weight (mean difference (MD) 1.95 kg; 95% CI 0.03-3.87, p = 0.05). Metformin treatment was associated with a reduction in mean body mass index (BMI) compared to pioglitazone (MD 0.85 kg/m2; 95% CI 0.13-1.57, p = 0.02). Both pioglitazone compared to placebo (MD 2.56 kg/m2; 95% CI 1.77-3.34, p < 0.00001) and rosiglitazone compared to metformin (MD 0.74 kg/m2; 95% CI 0.07-1.41, p = 0.03) were associated with a significant increase in BMI. Treatment with pioglitazone compared to placebo showed a significant reduction in triglycerides (MD - 0.20 mmol/L; 95% CI - 0.38 to - 0.03, p = 0.02) and fasting insulin levels (MD - 11.47 mmol/L; 95% CI - 20.20, - 2.27, p = 0.01). Rosiglitazone compared to metformin was marginally significantly associated with a reduction in the luteinising hormone (LH) (MD - 0.62; 95% CI - 1.25-0.00, p = 0.05).

Conclusion: Both pioglitazone and rosiglitazone were associated with significant increases in body weight and BMI when compared with metformin or placebo. Pioglitazone significantly reduced triglycerides and fasting insulin when compared with placebo while rosiglitazone showed a modest reduction of LH when compared with metformin.

Keywords: FBG; FI; Glitazones; HOMA-B; HOMA-IR; metformin; PCOS; pharmacological therapy; pioglitazone; polycystic ovary syndrome; rosiglitazone

Prevalence of adverse childhood experiences and their cumulative impact associated lifetime health outcomes in the Emirate of Abu-Dhabi, United Arab Emirates

Authors: Long, T; Murphy, A; **Elbarazi, I**; Ismail-Allouche, Z; Horen, N; **Masuadi, E**; Trevithick, C; Arafat, C.

Journal: Child Abuse & Neglect | **Year**: 2024 | **DOI**: https://doi.org/10.1016/j.chiabu.2024.106734

Abstract

Background: Adverse Childhood Experiences have been associated with poor health outcomes later in life. The objective of the study was to determine the relationship between cumulative ACEs, risky health behaviors, chronic diseases, and mental health among a large-scale sample from the Emirate of Abu Dhabi.

Methods: A retrospective cross-sectional study was performed with 922 participants over the age of 18, living in Abu Dhabi. The Adverse Childhood Experiences International Questionnaire (ACE-IQ) was used to assess ACEs, alongside a survey of adult health outcomes, mental health outcomes, and risk-taking behaviors.

Results: Logistic regression models examined the association between retrospective ACEs and these outcomes. The respondents reported an average of 1.74 ACEs. The most prevalent ACEs were household violence, parental death or divorce, and community violence. The accumulation of ACEs significantly predicts increases in the risk of a variety of adult-onset health morbidities, all measured mental health morbidities, and all measured risk-taking behaviors, with evidence of thresholds of ACE accumulation dictating risk.

Conclusion: The baseline presence of ACEs among this Abu Dhabi sample, along with the associated risks of physical and mental health morbidities, and risk-taking behaviors play a significant role in understanding the extent, nature, and associated sequalae of ACEs in this population; providing nuanced context for early intervention. Our findings will inform the planning and implementation of specific prevention and awareness raising programs while promoting safe environments where children are healthy and can thrive.

Keywords: ACE-IQ; adverse childhood experiences; health; stress; trauma

Cancer health literacy and its correlated factors in the United Arab Emirates - a cross sectional study

Authors: **Elbarazi, I**; Aziz, F; **Ahmed, L. A; Abdullahi, A. S; Al-Maskari, F.**

Journal: Cancer Control | **Year**: 2024 | **DOI**: https://doi.org/10.1177/10732748241248032

Abstract

Background: Cancer Health literacy (CHL) is the health literacy related to cancer knowledge, prevention, treatment, screening, and access to services. It is an important indicator of people's adherence to screening and preventive measures, which helps to reduce the incidence and prevalence of cancer. The study assessed the CHL level and its association with relevant socio-demographic characteristics and sources of information among primary health care patients and visitors in the United Arab Emirates (UAE).

Methods: A cross-sectional study recruited survey participants who consented to respond to an interviewer-administered questionnaire. The assessment of CHL was done by using 15 questions. CHL level was measured as a median score and also categorized as poor/inadequate, moderate, good/excellent. Nominal logistic regression was used to analyze the relationship between CHL categories and participants' sociodemographic characteristics and CHL sources of information.

Results: Of the total 492 participants, 45.5% were young adults (30-39 years old), 32.9% were males, and 70.8% were UAE nationals. The overall median CHL score was 8.0 (IQR = 5.0-10). 33.7% of the participants had a poor/inadequate level of CHL, 49.6% had a moderate level and 16.7% had a good to excellent level of CHL. 76.9% of the participants knew the importance of early cancer screening tests, 72.7% acknowledged the metastatic capacity of cancer, and the protective factors of cancer, especially, in colon cancer (71.7%). A high proportion of participants received health information about cancer via the internet (50.7%), television (45.3%), social media (40.2%), and doctors (43.6%). Nationality other than UAE (aOR = 1.62, 95% CI = 1.03-2.56, P = .038), having university education (aOR = 2.20, 95% CI = 1.21-3.99, P = .010) compared to those with lower than high school, and having a family history of cancer (aOR = 2.42, 95% CI = 1.33-4.41, P = .004) were positively associated with CHL. Older age (aOR = .36, 95% CI = .17-.75, P = .007 for 50-59 years, and aOR = .29, 95% CI = .11-.82, P = .019) for 60-69 years, higher-income (aOR = .57, 95% CI = .33-.99, P = .047 for 10,000-19,999 AED; aOR = .53, 95% CI = .33-.88, P = .013 for ≥20,000) compared with those earning <10,000 AED were negatively associated with CHL.

Conclusion: CHL among the resident UAE population was moderately adequate, therefore implementation of awareness campaigns seems to be warranted. Moreover, evaluation research targeting the CHL impact on cancer prevention practices and screening is also advocated.

Keywords: United Arab Emirates; cancer health literacy; cancer screening; health literacy; knowledge

Tutor assessment of medical students in problem-based learning sessions

Authors: Khawaji, B; **Masuadi, E;** Alraddadi, A; Khan, M. A; Aga, S. S; Al-Jifree, H; Magzoub, M. E.

Journal: Journal of Education and Health Promotion | **Year**: 2024 |
DOI: https://doi.org/10.4103/jehp.jehp_1413_23

Abstract

Background: Problem-based learning (PBL) is a method of learning that has been adopted in different curricula of different disciplines for more than 30 years; the assessment of the students in PBL sessions in medical schools is fundamental to ensure students' attainment of the expected outcomes of conducting PBL sessions and in providing the students with the feedback that help them to develop and encourage their learning. This study investigated the inter-rater reliability of the tutor assessment in assessing medical students' performance in their PBL tutorial sessions.

Methods: This study was conducted in the College of Medicine (COM), in the academic year 2021-2022. The study involved ten raters (tutors) of two genders who assessed 33 students in three separate PBL tutorial sessions. The PBL sessions were prerecorded and shown to the 10 raters for their assessment of PBL sessions.

Results: This study showed that male raters gave higher scores to students compared with female raters. In addition, this investigation showed low inter-rater reliability and poor agreement among the raters in assessing students' performance in PBL tutorial sessions.

Conclusion: This study suggests that PBL tutor assessment should be reviewed and evaluated; this should be performed with consideration of using assessment domains and criteria of performance. Thus, we recommend that 360-degree assessment including tutor, self, and peer assessment should be used to provide effective feedback to students in PBL tutorial sessions.

Keywords: assessment; medical curriculum; problem-based learning (PBL)

Public Health Ambassadors: A novel participatory community health awareness program in Abu Dhabi

Authors: **Elbarazi, I;** Al-Balushi, J; Al-Dhaheri, A; Meeran, M; Peyroteo, M; Paulo, M. S; **Grivna, M.**

Journal: Inquiry | **Year**: 2024 | **DOI**: https://doi.org/10.1177/00469580241241268

Abstract

Community-based intervention (CBI) programs promote lifestyle changes, modify risk factors, and substantially improve public health. Social mobilization and community involvement improve health outcomes, reduce health disparities, and improve access to care and services. Health intervention program evaluations are essential to provide evidence-based strategies that can enhance the design and implementation of successful health promotion programs. Interventions that enable the United Arab Emirates (UAE) community to change and modify unhealthy behaviors were the priority of the last decade and are the health authorities' objectives. The Department of Health Abu Dhabi launched a wellness program to enable the community to adopt healthy behaviors. The Public Health Ambassadors program is a community-based health intervention program under the Abu Dhabi Public Health Centre, inaugurated in 2019. This paper describes the Public Health Ambassadors CBI conducted in Abu Dhabi. The implementation science framework was used to develop the intervention. The Public Health Ambassadors is one of the UAE's earliest and most successful CBIs. The program can be used as a model to encourage more health promotion interventions in the country and the region. The role of the program was highlighted during the COVID-19 pandemic. Voluntary community participation and social responsibilities are essential competencies promoted by this program.

Keywords: public health ambassadors; community participation; community-based interventions (CBI); intervention mapping; social mobilization

Opportunities and challenges in leveraging digital technology for mental health system strengthening: a systematic review to inform interventions in the United Arab Emirates

Authors: Al Dweik, R; Ajaj, R; Kotb, R; Halabi, D. E; Sadier, N. S; Sarsour, H; **Elhadi, Y. A. M.**

Journal: BMC Public Health | **Year**: 2024 | **DOI**: https://doi.org/10.1186/s12889-024-19980-y

Abstract

Digital technology offers scalable, real-time interventions for mental health promotion and treatment. This systematic review explores the opportunities and challenges associated with the use of digital technology in mental health, with a focus on informing mental health system strengthening interventions in the United Arab Emirates (UAE). Following PRISMA guidelines, a systematic search of databases was conducted up to August 2023 and identified a total of 8479 citations of which 114 studies were included in the qualitative analysis. The included studies encompass diverse digital interventions, platforms, and modalities used across various mental health conditions. The review identifies feasible, acceptable, and efficacious interventions, ranging from telehealth and mobile apps to virtual reality and machine learning models. Opportunities for improving access to care, reducing patients' transfers, and utilizing real-world interaction data for symptom monitoring are highlighted. However, challenges such as digital exclusion, privacy concerns, and potential service replacement caution policymakers. This study serves as a valuable evidence base for policymakers and mental health stakeholders in the UAE to navigate the integration of digital technology in mental health services effectively.

Keywords: digital mental health; health policy; health system strengthening; public health

Evaluation of knowledge and attitude concerning augmented renal clearance among physicians and clinical pharmacists in Al-Ain, UAE: A cross-sectional study

Authors: Alshouli, B.; **Abbas, M. O.;** Alsharji, R.; Jaber, A. A. S.

Journal: PLoS One | **Year**: 2024 | **DOI**: https://doi.org/10.1371/journal.pone.0310081

Abstract

Background: Kidney function assessment is crucial in critical illness patients and is required before administering renally excreted medication, especially antibiotics and antiepileptics. Conventional clinical practice often focuses on renal impairment with low creatinine clearance (CrCl) and overlooks the augmented renal clearance (ARC), which is defined by (CrCl) more than 130 ml/min. This typical demonstration neglects individuals who experience hyperfunctioning kidneys. Among critically ill patients, the prevalence of (ARC) is approximately 20% to 65% of cases. This study aims to evaluate physicians' and clinical pharmacists' knowledge about ARC-associated risk factors, antibiotic regimen modification in ARC patients, and attitudes towards ARC workshops and guidelines in Al-Ain, UAE.

Methods: A cross-sectional, online self-administered survey-based study was designed to achieve this study's aim. The questionnaire was constructed on profound literature analysis, validated, and piloted. The survey was emailed to physicians and pharmacists working in two hospitals, private and governmental, and distributed through different social media platforms over three months, December 2022-February 2023.

Results: Of the 92 complete responses (32 clinical pharmacists, 60 physicians), 57 (61.9%), were aware of ARC, but 72 (78%) demonstrated poor knowledge overall. Clinical pharmacists had a higher mean rank of knowledge than the physician's group. Meanwhile, 70 (76.1%) participants were unaware of the eGFR threshold to determine ARC. There is a noticeable positive attitude toward seeking more information about antibiotic dose adjustment in ARC patients at 85 (92%) of the respondents. Remarkably, only 28 (30.4%) were directly involved with ARC patients' treatment plans.

Conclusion: In conclusion, clinical pharmacists showed better knowledge than physicians. However, overall, the participating healthcare providers lacked knowledge about ARC, so a reliable source of information regarding ARC should be utilized. Future research could explore the implementation of professional development workshops for healthcare providers and national guidelines and then assess their impact on patient outcomes.

Keywords: augmented renal clearance; critical illness; antibiotic dose adjustment; healthcare provider knowledge; professional development workshops

Pharmacists' knowledge, perception, and prescribing practice of probiotics in the UAE: A cross-sectional study

Authors: **Abbas, M. O**; Ahmed, H; Hamid, E; Padayachee, D; Abdulbadia, M. T; Khalid, S; Abuelhana, A; Abdul Rasool, B. K.

Journal: Antibiotics | **Year**: 2024 | **DOI**: https://doi.org/10.3390/antibiotics13100967

Abstract

Background: The human body is a complex and interconnected system where trillions of microorganisms, collectively known as the gut microbiota, coexist with these cells. Besides maintaining digestive health, this relationship also impacts well-being, including immune function, metabolism, and mental health. As frontline healthcare providers, pharmacists are pivotal in promoting the benefits of probiotics for immune support. This study explored pharmacists' knowledge, perception, and practice behavior in the UAE towards the implication of probiotic application beyond digestive health, such as cardiovascular and mental health impacts and their diverse dosage forms.

Methods: An online self-administered survey was distributed among pharmacists in the UAE. Data were collected through personal visits to pharmacies, where pharmacists were approached and asked to complete the questionnaire. The sample size included 407 pharmacists, determined using the formula for proportions with a 95% confidence level and a 5% margin of error. Statistical analysis was performed using SPSS version 29. Descriptive statistics were used to summarize demographic characteristics and survey responses. The knowledge levels were categorized into poor, moderate, and good. Chi-square analysis was employed to investigate associations between demographic factors and knowledge levels, with a significance level set at $p < 0.05$, enhancing the robustness of the study's findings.

Results: This study included 407 completed eligible responses. About 63.56% of participants were female, with 52.1% employed in pharmacy chains. While 91.2% of pharmacists recognized probiotics' role in immune support, only 30% were aware of their cardiovascular benefits. Moreover, chewing gum was the least known dosage form of probiotics, recognized by only 16.7% of respondents. Additionally, only 57% of the participants recognized liposomes as a dosage form. In practice, most pharmacists recommended storing probiotics at room temperature, accounting for 66.6%. The most prevalent misconception encountered in the pharmacy setting was the belief that probiotics are primarily intended for gastrointestinal tract problems, at 79.1% of the respondents. Regarding perception, the agreement was observed regarding the safety of probiotics for all ages. Perceived barriers included the high cost of probiotics, with the majority (86.5%) indicating this as a significant obstacle, while lack of demand was identified as the minor barrier by 64.6%. Additionally, an association was found at a significance level of $p < 0.05$ with knowledge, gender, educational level, type and location of pharmacy, and source of information.

Conclusion: The study highlights knowledge gaps in pharmacists' understanding of probiotic applications beyond digestive health, particularly cardiovascular health and depression. Targeted educational interventions are necessary to address these gaps. The findings underscore the importance of ongoing professional development for pharmacists, enhancing their role in patient education and the promotion of probiotics for overall health.

Keywords: UAE; gastrointestinal health; immune support; pharmacists' knowledge; prescribing practices; probiotics

Bullying victimization in schools in the United Arab Emirates: a cross-sectional study

Authors: **Al-Ketbi, A; Elkonaisi, I; Abdullahi, A. S; Elbarazi, I; Hamada, B. A; Grivna, M.**

Journal: BMC Public Health | **Year**: 2024 | **DOI**: https://doi.org/10.1186/s12889-024-20392-1

Abstract

Background: Despite the implementation of antibullying policies, schools in the United Arab Emirates (UAE) witnessed an increase in bullying prevalence. The aim of our study was to assess bullying victimization in schools in the UAE, types of bullying, and factors and outcomes related to bullying behavior.

Methods: A cross-sectional survey was conducted in randomly selected private and public schools in Al Ain City. A structured, self-administered questionnaire was used to collect data from students in grades 6-8 (Ages 10-15). We adapted the US CDC 'Bully Survey' for cultural relevance in the UAE through feedback from focus group meetings with teachers. Data analysis, conducted using R software, involved stratified analysis by school type and utilized Chi-Squared and Fisher's exact tests to identify factors associated with school bullying.

Results: The study sample consisted of 723 students of whom 68% were males, and 58% were Emirati nationals. The overall prevalence of bullying victimization in schools was 37%, with 40% in private schools and 35% in public schools. Cyberbullying was more prevalent in private schools (37%). Physical bullying was reported by 20% and verbal bullying by 12%, with a higher prevalence of physical bullying in private schools (24%) and among males (23%). The study's findings showed significant emotional and academic impacts of bullying, including feelings of sadness and learning difficulties, contributing to a rise in school absenteeism.

Conclusion: The study reveals widespread bullying victimization in UAE schools, mainly in classrooms, with group exclusion and verbal abuse as key forms. It underscores bullying's psychological impact and the greater awareness of parents compared to teachers. The effective intervention strategies should not only involve students, teachers, and school staff, but also actively engage parents by fostering stronger communication channels between schools and families, and providing parents with resources and training to recognize and address bullying. These strategies should aim to create a cohesive network involving the entire school community, thus fostering a safer and more inclusive environment for students. The findings stress the need for inclusive antibullying programs involving the entire school community to foster a safer environment.

Keywords: adolescent; bullying; children; mental health; school; school health; United Arab Emirates; victimization; violence

CONTACT: IPH@UAEUE.AC.AE

SOCIAL MEDIA PLATFORMS

UAEU IPH	Uaeu_iph	IPH CMHS	UAEU-IPH	@UAEU_IPH