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# Assessment of the influence of Facebook on eating out at fast food restaurants: a cross-sectional study of Palestinian college students

Lina Abdul-Samad, Dina Zidan, Mary Odette-Abedrabbo

## Abstract

**Background** Eating at fast food restaurants has become a worldwide phenomenon. To understand the factors that influence such behaviour is an important part of modern nutritional research. Social media may influence human eating behaviours in ways that have yet to be investigated. This study tests the possible relationship between two modern trends: social media usage and eating at fast food restaurants.

**Findings** A cross-sectional study was conducted in April, 2017. Undergraduate students aged 17–30 years in the West Bank, occupied Palestinian territory, completed a self-administered online Google Forms survey of 18 questions. Four universities were chosen to represent the four areas of interest; Birzeit University (central West Bank), Al-Quds University (East Jerusalem), An-Najah University (northern West Bank), and Hebron University (southern West Bank). Permission was sought from the administrators of the two most popular Facebook groups for each university (those with the highest number of members). After permission was granted, the survey was posted on each Facebook group. We used convenience sampling; students were requested to complete the survey on a voluntary basis. The surveys were closed when 150 students had filled forms or when the completion rate stagnated despite the survey being reposted up to five times. The settings on Google Forms were adjusted so that every question had to be answered to complete the survey. The survey aimed to measure the types of social media that students used (use of Facebook services, and of the four other most popular social media platforms), the time spent on social media, and behaviour relating to eating at restaurants. A five-point Likert-type scale was used to record responses to the questions. Descriptive statistics were gathered, and Pearson's chi squared test was used to test for associations. Ethical approval for the project was obtained from Birzeit University, and informed written consent was obtained from all participants.

**Findings** In total, 399 students completed the survey; a completion rate of 67% (399 of 600). 26% (105 of 399) were male and 76% (294) were female. There were 150 participants at Birzeit University, 136 participants at Al-Quds University, 83 participants at An-Najah University, and 32 participants at Hebron University. Significant associations were found between using Facebook Messenger to call or message Facebook friends to invite them to eat at fast food restaurants, and uploading pictures of fast food meals ( $p=0.0010$ ), and eating out at fast food restaurants ( $p=0.027$ ). Furthermore, there was a significant association between time spent on Facebook and eating at restaurants ( $p=0.050$ ). However, there was no significant association between time spent on Facebook and eating at fast food restaurants ( $p=0.21$ ).

**Interpretation** The findings suggest that aspects of food-related lifestyle for students, such as eating at restaurants, are influenced by their use of Facebook as both a communication tool and as a visual platform. Whether social media can be used in interventions to promote healthy eating should be investigated.

**Funding** None.

## Contributors

LA-S wrote the abstract. LA-S, DZ, and MO-A designed the study. LA-S and DZ collected data. LA-S, DZ, and MO-A contributed to the statistical analysis. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Antibiotic use in acute upper respiratory tract infections and uncomplicated lacerations in the Gaza Strip: clinical audit and re-audit

Maha Alfaqawi, Yousef Abuowda, Bettina Böttcher, Khaled Alserr, Alaa Eldeen Elmassry

## Abstract

**Background** Overuse of antibiotics is increasing worldwide and has led to a marked increase in multidrug-resistant pathogens. Acute upper respiratory tract infections and uncomplicated lacerations do not require antibiotics. We assessed adherence to the best international standards of antibiotic prescribing for these conditions.

**Methods** We did an audit and reaudit at Nasser Hospital in the Gaza Strip. The audit included patients presenting from January to March, 2017, with acute upper respiratory tract infections or uncomplicated lacerations. Random selection, stratified by condition, was used to assign patients to the audit or reaudit. After the audit an action plan was implemented focusing on education of health-care providers and patients for one year. The reaudit was done in 2018, from January to March. Ethics approval was obtained from the Palestinian Ministry of Health.

**Findings** 240 patients were included overall, 60 with each condition in the audit and 60 with each condition in the reaudit. The 60 patients in the first audit with acute upper respiratory tract infections had a mean age of 32·1 (SD 6·4) years. 25 (42%) had throat examinations, of which 20 (33%) were normal. 52 (87%) of these 60 patients were prescribed antibiotics, which were used by 29 (48%) who cited that they believed it was important to do so. The 60 patients presenting with uncomplicated lacerations had a mean age of 14·5 (SD 10·3) years. Injuries were closed by sutures in 59 (98%) patients, who all received antibiotics. 52 (87%) of 60 patients with lacerations believed that antibiotics accelerate healing. Reaudit after the action plan was implemented showed that antibiotics were prescribed to 43 (71%) patients with acute upper respiratory tract infections ( $p=0\cdot002$ ) for difference and to 50 (84%) with uncomplicated lacerations.

**Interpretation** Despite some improvement in appropriate antibiotic use for acute upper respiratory tract infections after hospital-based quality improvement efforts, physicians did not generally follow international guidelines for appropriate antibiotic use and patients believed that their use was important. Development of evidence-based guidelines and education of patients are needed.

**Funding** None.

### Contributors

MF designed the study, MF, YA, and KS collected the data. MF and YA did the data analysis and interpretation. MF, YA, and BB wrote the Abstract. All authors approved the final version.

### Declaration of interests

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# A cross-sectional survey of the prevalence and determinants of comorbid psychological distress in attendees at two general hospitals in Gaza

Mohammad Yaghi, Sudipto Chatterjee, Fouad Alissawi, Mahmoud Daher, Yehia Khader, Mohammad Abu Shawish, Osama Imad

## Abstract

**Background** There is an absence of mental health services within general hospitals in Gaza. As part of the Ministry of Health plan to develop mental health liaison services, a cross-sectional survey of the prevalence of and risk factors for psychological distress in attendees at two general hospitals was undertaken to estimate and highlight the need for establishing such services.

**Methods** 20 volunteers aged 24–30 years with a degree in psychological or social science from a university accredited by the Palestinian Ministry of Education and Higher Education, and with experience in field data collection for studies in mental health, were selected and trained in the use of the Arabic version of the 12-item General Health Questionnaire (GHQ-12), an internationally and well validated tool for measuring psychological distress in adults. The volunteers were supervised as they screened adult attendees at emergency rooms, inpatient wards and outpatient departments, and women attending the maternity units at two of the largest general hospitals in Gaza (Nasser and Indonesian) over seven consecutive days (March 18–23, 2018). Attendees at emergency and outpatient departments were included if they were on repeat visits with medically unexplained somatic complaints, if they attended with complaints resulting from any kind of social problem, physical or sexual violence, or had a history of any kind of chronic disease. All patients from the internal medicine and inpatient departments were included. The data from the questionnaires were collated and analysed with descriptive and inferential statistics.

**Findings** 1789 attendees (791 men and 998 women) were screened using the GHQ-12. Of these attendees, 23·8% (426 of 1789) had a GHQ-12 score of 6 or 7, indicating the presence of significant psychological distress with a high possibility of caseness (ie, meeting the diagnostic threshold for clinical depression). 36·2% (648 of 1789) scored 8 or above, indicating the presence of moderate to severe depression or anxiety disorders that require immediate clinical intervention. For all of the hospital departments surveyed, individuals with scores of 6 or greater made up a large proportion of the attendees (385 of 660 [58·3%] in emergency rooms, 197 of 306 [64·4%] in inpatient wards, 430 of 711 [60·5%] in outpatient departments, and 62 of 112 [55·4%] in maternity units), in both hospitals. In addition, a set of risk factors were found to be significantly associated with GHQ-12 scores of 6 or greater. These were being a woman ( $p=0\cdot020$ ), living in villages adjoining the most conflict prone areas ( $p<0\cdot0001$ ), no or low formal education ( $p<0\cdot0001$ ), being divorced ( $p<0\cdot001$ ) or widowed ( $p<0\cdot0001$ ), being unemployed ( $p<0\cdot0001$ ), and low family income (monthly income of <1000 ILS;  $p<0\cdot0001$ ). On further stepwise regression analysis, unemployment and low family income were found to be the most important risk factors associated with GHQ-12 scores of 6 or greater.

**Interpretation** In general hospital attendees there was a very high rate of significant psychological distress. Given the absence of mental health services within general hospitals in Gaza, the findings indicate an urgent need to make mental health interventions routinely available through general hospital liaison units in Gaza. The risk factors that were identified indicate that psychosocial interventions and access to developmental support are key components of such clinical services, and will be required to reduce the very large, and mostly unmet, population burden of mental health problems in Gaza.

**Funding** WHO, occupied Palestinian territory, as part of the EU project “Building Palestinian resilience: improving psychosocial and mental health responses in emergency”.

## Contributors

MY and SC designed the study, carried out data entry and data analysis, interpreted the findings, and contributed to the training of data collectors. FA contributed to the study design and interpretation of the findings. MD initiated the study and contributed to the data interpretation. YK, MA, and OI led the data collection teams, and contributed to the interpretation of the findings. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

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# Integration of mental health and psychosocial support services into primary health care in Gaza: a cross-sectional evaluation

Mohammad Ubaid, Ghada Jadba, Hala Mughari, Hana Tabash, Mohammad Yaghi, Amal Aljaish, Umar Shahin

## Abstract

**Background** Integration of mental health and psychosocial support (MHPSS) into primary health care in the Gaza Strip involves the delivery of mental health services within the essential service package provided by UNRWA, as recommended by WHO to fill the treatment gap. In early 2016, a successful pilot demonstrated that the integration is achievable in limited resource settings, and resulted in the adoption of a stepped care model to screen, identify, support, and treat patients. This study aimed to evaluate the MHPSS integration process and outcomes at UNRWA health centres in the Gaza Strip.

**Methods** We used a descriptive analytical study design, with quantitative and qualitative data collected from records, and individual feedback from patients and health care providers (HCPs). The study was performed in the 22 UNRWA health centres of the Gaza Strip and all participants agreed to participate either verbally or by written consent. Approval was also obtained from the UNRWA Health Program Gaza Field Office.

**Findings** The integration process started with the comprehensive training of 460 medical and nursing HCPs, in accordance with the Mental Health Gap Action Programme (mhGAP) Intervention Guide. On completion of training, the HCPs put into practice their learning, under close supervision for the first month and with only technical support thereafter. During the period of technical support, MHPSS activities, referral pathways, and proper reporting were ensured and standardised in all health centres. Overall, the integration process achieved success in training, implementation, and supervision. The success of training was assessed with an evaluation form and participants' feedback, the success of implementation by the numbers of people who benefitted, their response to the intervention, and their feedback, and the success of supervision by the standardisation of the process and the technical validity of the intervention. By the end of September, 2018, 80 857 high-risk patients were screened using the General Health Questionnaire 12 (GHQ-12) and 9.0% (7327) were identified as requiring intervention and support, and were assisted using the UNRWA stepped care approach. Of the individuals who were assisted, 30.2% (2212 of 7327) showed significant improvement and 38.9% (2849) were identified as having mental health issues according to the mhGAP. In the same period, 1020 patients benefited from 113 support groups, with excellent effects on their physical and mental health as assessed with qualitative data, patients' testimonies and, in some cases, laboratory investigations. The challenges that were faced were due to manual documentation and reporting, sociopolitical uncertainty, an increase in the number and needs of patients, and the imposed burden on HCPs. In addition, during implementation many individuals who were screened and identified required an urgent response: individuals who were suicidal and individuals whose mental health had been affected by the Great March of Return.

**Interpretation** The integration showed remarkable success in a short time as a result of the collective effort of all participants. However, there are challenges to overcome, and observation, further evaluation, and refinement of the process are needed to stabilise and sustain the integration of MHPSS services into primary health care for maximum benefit.

**Funding** WHO, and UNRWA resources.

### Contributors

MU, GJ, HM, HT, MY, AA, and US contributed to the study design, validation, data collection, data entry, data analysis, and interpretation. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

The authors are employees of UN agencies. We declare no other competing interests.

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# The effect of home-based care on housebound patients and their caregivers in two Palestinian refugee camps in Lebanon: a qualitative study

Mohammad Sunallah, Wilma van den Boogaard, Chantal Lakis, Laura Rinchey, Luz Saavedra

## Abstract

**Background** The incidence of non-communicable diseases (NCDs) increases annually by approximately 5% among older (age 50 years and older) Palestinian refugees in Lebanon, of whom around 10% are housebound. Care for housebound patients does not exist in the over-medicalised and highly privatised Lebanese health system or within the health system for Palestinian refugees in Lebanon. This has led to a neglected population. In 2016, Médecins Sans Frontières (MSF) started to provide home-based care (HBC) for housebound patients in two Palestinian camps: Bourj-el-Barajneh and Ain-al-Hilweh. HBC is carried out by a team comprising a doctor, nurse, and social worker, and includes basic medical monitoring, health literacy educational sessions, support for treatment adherence, as well as networking with relevant social service providers.

**Methods** A qualitative study was carried out between January and October, 2018, nine patients, ten caregivers, and personnel from two main international non-governmental organisations providing health care for refugees were interviewed, and one focus group discussion was conducted with MSF HBC staff. Thematic content analysis was carried out manually, with investigators' observations for triangulation. The study was approved by the MSF ethical review board.

**Findings** The housebound patients described various ways in which they felt socially isolated, useless, and unproductive. These are underserved needs. Caregivers reported feeling burdened socially, mentally, and financially. They also reported that they assumed full responsibility for the housebound relative, as there was no alternative. HBC was appreciated by patients and caregivers for providing psychosocial and medical support; patients viewed MSF staff as a "friend in care", a temporary escape from isolation, and caregivers expressed appreciation for sharing the burden of caring for the housebound person. There was a decrease in anxiety expressed by caregivers and patients, as well as a declining sense of burden described by caregivers, during the provision of HBC by the MSF staff. To a lesser extent, patients and caregivers sensed improved self management as their disease literacy and treatment adherence increased, and as caregivers became more efficient in handling toilet care, bathing, and wound dressing. Missing components of HBC were perceived to be "outdoor" activities and mental health services.

**Interpretation** HBC had an effect in reducing patients' social isolation, decreasing caregivers' burden and anxiety, and enhancing self management of disease for both. HBC should be considered for replication by all refugee health care providers as well as by the Lebanese Ministry of Public Health. This model of care needs to adopt a more holistic approach by including provision of mental health care and by increasing the focus on social isolation.

**Funding** None.

## Contributors

MS designed the study, conducted the in-depth interviews, and participated in data analysis and in writing of the manuscript. WvdB contributed to the study design, and participated in data analysis and in writing of the manuscript. CL conducted the focus group discussion and participated in data analysis. LR and LS provided input to the study design and the protocols, and contributed to the final draft of the manuscript. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Daily experiences and strategies for psychological survival during the 2014 assaults in Gaza: a retrospective analysis of chronological diaries

Cindy Sousa, Guido Veronese, Alaa Jaradah, Husam Hamdouna

## Abstract

**Background** Public health research suggests that multiple factors contribute to the mental health sequelae of political violence, but the daily experiences and ongoing strategies of psychological survival during active warfare are not clearly understood. We analysed retrospective chronological diaries from Palestinian women in Gaza, occupied Palestinian territory, to explore their lives during Operation Protective Edge in 2014, when a series of aerial bombardments killed over 2000 Palestinians and left around 500 000 displaced from their homes.

**Methods** 20 Palestinian female teachers in Gaza were recruited via an intervention for trauma recovery 1 month after the end of Operation Protective Edge, in September, 2014. Following the experience sampling method, women were asked to chronicle specific memories and affective responses associated with their experiences. Data were imported into qualitative data analysis software, coded line by line, and analysed using content analysis, with special attention to the causes of mental distress associated with political violence.

**Findings** The women's narratives included memories of exposure to bombings, injuries, death, and destruction of vital infrastructure and systems. Their experiences of flight were described as exhausting and demoralising. Their temporary shelters lacked their basic needs for sanitation, food, and privacy. These experiences resulted in intense terror, grief, exhaustion, hopelessness, and isolation. Strategies of psychological survival included reframing; trying to appreciate "being able to escape death", a sense of solidarity within families and neighbourhoods, and pride and satisfaction found in a context of resistance and global attention to the suffering in Gaza.

**Interpretation** Our results reveal the importance of tracing the events of warfare, its psychosocial consequences, and the distinct patterns of emotional and logistical survival in Gaza. This study was limited by the representativeness of our study population and the small sample size. Future studies should explore this topic in larger populations. Limitations notwithstanding, in drawing out the unique contribution of reflective narratives of women survivors of war, our study highlights the need to solicit and analyse reflective and chronologically grounded narratives within global mental health epidemiology.

**Funding** None.

## Contributors

GV, AJ, and HH conceptualised the study, recruited participants, and collected the data. CS and GV did the data analysis. CS and GV wrote the abstract.

## Declaration of interests

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# Assessment of health-related quality of life in patients with inflammatory bowel disease in occupied Palestinian territory: a correlation cross-sectional study

Tasneem Smerat, Maher Khmour, Qusay Abdoh, Hussein Hallak

## Abstract

**Background** Disease activity is suggested to be an important indicator for quality of life (QoL) in patients with inflammatory bowel disease (IBD). Few studies of the association between adherence to medication and QoL in patients with IBD are available, and their findings are conflicting. We examined associations between disease activity, medication adherence, and QoL in patients with IBD in occupied Palestinian territory.

**Methods** This correlation cross-sectional study was done from July 1, 2017, to Feb 30, 2018. We used convenience sampling to recruit patients from three major hospitals in southern and northern regions of occupied Palestinian territory. The disease-specific inflammatory bowel disease questionnaire (IBDQ) was used to examine QoL. Medication adherence was measured with the modified Morisky adherence scale. Associations were assessed by regression analysis. Results were analysed with SPSS version 20. The study was approved by the Al-Quds University Research Ethics Committee. Informed verbal consent was obtained from the participants before the start of the study.

**Interpretation** 132 patients were enrolled. The mean age was 34 years (SD 13) and 77 (58%) patients were men. Active disease in the previous 6 months was reported in 81 participants (61%). Low adherence to medication (score <6) was reported in 52 (39%) of participants. The average IBDQ score was low (150·72 [SD 30·08]), with the emotional and bowel domains being most affected. Active disease was the most significant factor associated with patients' QoL overall ( $p < 0\cdot001$ ). No significant association was found between medication adherence and QoL. Regression analysis revealed significant independent associations between QoL and disease remission ( $p < 0\cdot001$ ), high educational status ( $p = 0\cdot009$ ), and using azathioprine ( $p = 0\cdot034$ ).

**Interpretation** Our results provides baseline data about Palestinian IBD patients' QoL and medication use and adherence, and might help health-care providers to identify patients with IBD at risk of low QoL, especially those with relapse and active symptoms. Attention should be given by health-care providers and strategists to increasing knowledge about IBD. The importance of treatment adherence should be explored further. Some limitations were encountered during the study period; it was conducted in only three hospitals and the results might not be generalisable. The cross-sectional type of this study might prevent the identification of any cause-and-effect relationships, especially between medication and post-treatment improvements in QoL.

**Funding** None.

## Contributors

MK and HH had the idea for the study. QA facilitated the interviews with patients. TS led the study design, interviewed all patients, led data analysis and data interpretation, and drafted the abstract. MK, QA, and HH supervised the project. All authors approved the final version of the abstract for publication.

## Declaration of interests

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# A multidimensional measure of wellbeing among youth: a cross-sectional study of the Palestinian refugee youth in Lebanon

Nisreen Salti, Jad Chaaban, Alexandra Irani, Rima Al-Mokdad

## Abstract

**Background** Increasing refugee populations worldwide highlight the need for development indicators that cover refugees, especially as they tend to be excluded from national statistics. Refugee youth face double exclusion, as most wellbeing indices are not youth-specific. We developed a youth wellbeing index (YWI) for Palestinian refugees in Lebanon (PRL) and Palestinian refugees from Syria (PRS) living in Lebanon, with the aim of providing a snapshot of youth wellbeing to inform evidence-based youth-specific development strategies.

**Methods** The YWI was developed and its data generated using information from the 2015 survey of PRL and PRS, which was approved by the American University of Beirut Institutional Review Board. The wellbeing of PRL (n=3940) and PRS (n=1581) aged 15–29 was measured using the YWI, which examines five wellbeing dimensions: educational attainment, health, housing, active education or employment, and access to information. Scores for each of the five dimensions are scaled to [0, 1], and YWI is their arithmetic mean. The data enable us to look at the YWI by gender, by camp residence, and by narrower age bands to detect any generational differences within youth. Findings are reported using sampling weights for representativeness.

**Findings** 4 years after displacement (2011–2015), PRS youth showed lower levels of wellbeing (YWI=0.56, 95% CI 0.55–0.57) than PRL youth (YWI=0.65, 95% CI 0.64–0.67). Although money-metric poverty was significantly higher inside than outside camps for both PRL youth (inside camps, 75.00%, 95% CI 71.55–78.15; outside camps, 61.98%, 55.26–68.27) and PRS youth (inside camps, 93.89%, 90.56–96.1; ; outside camps, 88.72%, 85.35–91.39), there was no such disparity in the YWI for PRL youth (inside camps, YWI=0.65, 95% CI 0.63–0.66; outside camps, 0.66, 0.62–0.69) or PRS youth (inside camps, 0.55, 0.54–0.56; outside camps, 0.57, 0.54–0.59). Young male refugees had significantly higher YWI (PRL, 0.66, 95% CI 0.65–0.68; PRS, 0.57, 0.56–0.59) than young female refugees (PRL, 0.64, 0.62–0.66; PRS, 0.55, 0.53–0.56). Young female PRL and PRS scored significantly higher for education (PRL, YWI=0.60; PRS, 0.61) than young male refugees from these populations (PRL, 0.48; PRS, 0.47), but significantly lower on active education or employment (PRL, 0.45; PRS, 0.18) than the young male refugees (PRL, 0.72; PRS, 0.47). Older PRS scored higher on the YWI education dimension (20–24 years age group, 0.61; 25–29 years age group, 0.50) than their PRL peers (20–24 years age group, 0.53; 25–29 years age group, 0.45), but the reverse was true for the 15–19 years age group (PRL, 0.60; PRS, 0.53).

**Interpretation** Residence inside versus outside camps showed no significant differences in wellbeing based on the YWI, whereas money-metric poverty was higher inside camps, which suggests a need to move beyond assistance policies based on money-metric measures alone. The female edge in educational attainment is reversed when considering active education or employment, signalling the need for gender-specific strategies for the school-to-work transition for both PRL and PRS. The reversal of the educational edge of PRS over PRL in the 15–19 years age group is another concerning indicator of the cost of conflict for PRS that persists even four years after their displacement.

**Funding** UNRWA funded the 2015 survey data collection and the Economic Research Forum funded the development of the YWI.

## Contributors

NS, JC, and AI contributed to the conceptualization of the study. RA and AI wrote the abstract and did the statistical analysis. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Prevalence of overweight, obesity, and associated factors among adolescents in the occupied Palestinian territory: a cross-sectional study

Razan Ousama Salah, Rula Ghandour, Abdullatif Hussein

## Abstract

**Background** Overweight and obesity are multifactorial conditions that are spreading fast in both developing and developed countries. They are emerging as a major public health threat among children and adolescents, and present a serious morbidity and mortality burden. Adolescence is a critical period in which lifestyle and dietary behaviours are shaped that persist into adulthood. Therefore, adolescents are an ideal study target in terms of estimating the magnitude of the problem, understanding its risk factors and investigating potential effective intervention programmes. This study assesses the prevalence of overweight, obesity, and associated factors among adolescents in Palestinian schools.

**Methods** Weighted analysis was conducted on data from the Palestinian Micronutrient Survey, a national cross-sectional study carried out in 2013 by the Palestinian Ministry of Health in collaboration with UNICEF. For sample selection, stratified cluster random sampling was used. This school-based survey involved 2400 male and female adolescents aged 15–18 years in government schools in the West Bank and Gaza Strip. Data were analysed at univariate, bivariate, and multivariate levels, by the use of proportions, confidence intervals, and logistic regression. In the original survey, written informed consent was obtained from parents and guardians of the participants. A letter of approval to use the study data was obtained from the Ministry of Health (who own the data). The study was also approved by the Ethics Committee of the Institute of Community and Public Health.

**Findings** The analysis indicates a prevalence of 23·6% (95% CI 20·6–26·5) for overweight and obesity, with a prevalence of 26·1% in the West Bank and 19·5% in the Gaza Strip. The multivariate analysis revealed that the likelihood of overweight and obesity was significantly higher for adolescents from the West Bank than from the Gaza Strip, for those eating two main meals or less than for those eating three meals, for those who reported a high frequency of vegetable intake, and those who observed a diet for weight loss.

**Interpretation** The data suggest that one in every four adolescents is overweight or obese, which is an alarming statistic and calls for attention. The high prevalence can be attributed to different lifestyles, eating behaviours, and dietary intake, which affect energy balance. These factors should be investigated within social, political, and economic contexts, and addressed comprehensively, first at the level of individuals and family, and then at the level of schools and the community. It should be noted that the original study included students in the 10th grade and 11th grade only, whereas adolescence covers a wider age group (10–19 years).

**Funding** None.

## Contributors

ROS wrote the abstract and performed the statistical analysis with input from RG and AH. RG and AH reviewed the analysis and edited the drafts of the Abstract. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Knowledge and attitude of Palestinian women to contraceptives: a cross-sectional study

Beesan Warasna, Naeema Rajabi, Balqees Mustafa, Anas Najjar, Sojod Daraghme, Anwar Ma'ali, Maryam Sawalha, Abrar Ali, Aya Ateeq, Bara'a Ghannam, Belal Ashhab, Georgette Kharoufeh, Muhannad Qiq, Salam Abu Sharar, Samaa Al-atrash, Ahmad Amro

## Abstract

**Background** Contraceptives have documented efficiency, but outcomes are highly dependent on women's understanding of how they should be used. We assessed the knowledge and attitudes of married Palestinian women about contraceptives and understanding of use of the available methods and side-effects.

**Methods** This cross-sectional study involved married Palestinian women of childbearing age (18–50 years), and was done between Jan 20, 2017, and Jan, 1, 2018. A stratified random sample of 900 women was selected from each Palestinian governorate in the West Bank and East Jerusalem, with the number selected based on population size. An interviewer-assisted questionnaire was completed by each participant.

**Findings** 833 women were selected to participate and 771 (93%) completed the questionnaire. 123 (16%) of women reported not using any method of contraception. Among those who used contraception, intrauterine devices were most commonly used (312 [41%] of 771), followed by oral contraceptives (162 [21%]). Progestagen-only pills were the most frequently used type of oral contraceptive (45 [28%] of 162). Female sterilisation was used as a birth control method by 19 (3%) of 771 women. Investigation of the reasons behind contraception use showed that organisation of pregnancies was most common (511 [79%] of 648), followed by having too many children (131 [20%]) and economic reasons (73 [11%]). Regarding attitudes and beliefs towards contraceptive use, of the 771 participants, 49 (6%) believed that religion forbids their use and 112 (14.5%) considered them socially unacceptable. The study revealed poor scores for knowledge about use and possible side effects of contraceptives (mean 8.2 [SD 2.9] correct answers to 14 questions).

**Interpretation** Most Palestinian women have used contraceptives, but poor knowledge of how to use them and side-effects is apparent. The attitudes of Palestinian women and their partners towards contraceptives indicates general acceptance of their use. A strength of our study is that it included representative sample of Palestinian women and our results and conclusions reflect the knowledge and attitudes towards contraceptives in Palestinian society.

**Funding** None.

## Contributors

BW, AN, and AhA conceived the sl. BW, NR, BM, AN, SD, AM, MS, AbA, AyA, BG, BA, GK, MQ, SAS, and SA-S collected the data. BW and AN did the data analysis. BW, AN, and AhA wrote the abstract.

## Declaration of interests

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# Wellbeing, symptoms of trauma, and personal resources in Palestinian professional helpers: a cross-sectional quantitative survey

Alessandro Pepe, Federica Cavazzoni, Loredana Addimando, Alaa Jaradah, Hania Obaid, Guido Veronese.

## Abstract

**Background** Professional helpers working in adverse circumstances are at risk of developing psychosocial stress and signs of primary and secondary trauma (eg, anxiety and hyperarousal). We used modelling to investigate whether and to what extent personal resources (ie, post-traumatic growth, sense of coherence, and wellbeing) of Palestinian helpers affected their experience of psychological distress and trauma symptoms.

**Methods** Eligible participants were professional health-care providers working in Gaza and the West Bank, occupied Palestinian territory, between June and October, 2018. We used the following quantitative measures: WHO Well Being Index (WHO-5), General Health Questionnaire (GHQ-12), Impact of Event Scale (IES-13), Sense of Coherence Scale (SOC-3), and Post-traumatic Growth Index (PTGI-10). Data were analysed by multivariate structural equation modelling with latent and empirical indicators to test the fit of these constructs to the empirical data. The model was specified to evaluate whether and to what extent mental resources may be interpreted as a set of protective factors mitigating risk factors. The study was approved by the ethics board of the University of Milano-Bicocca, Milan, Italy. Written consent was obtained from participants.

**Findings** 181 participants were enrolled, ranging in age from 18 to 65 years (mean 31·1, SD 8·7). 135 (75%) were men. The mean GHQ-12 score was 17·7 (SD 7·5), revealing a medium to high degree of psychological trauma. 60 (33%) participants reported low mood (although not necessarily depression) on WHO-5. The structural model showed an excellent fit ( $\chi^2$  [24] 31·8,  $p=0\cdot132$ , root mean square error of approximation 0·043, 90% CI 0·019–0·077). Stronger personal resources were associated with lower levels of both psychological distress ( $\beta=-0\cdot25$ ,  $p<0\cdot01$ ) and trauma ( $\beta=-0\cdot16$ ,  $p<0\cdot01$ ). Personal resources were especially associated with reduced levels of anxiety ( $\beta=-0\cdot23$ ,  $p<0\cdot01$ ) and intrusion symptoms ( $\beta=-0\cdot22$ ,  $p<0\cdot01$ ).

**Interpretation** Our integrated model showed that, despite heavy psychological burden, perceptions of post-traumatic growth, coherence, and wellbeing are associated with reduced psychological distress. Targeted training of health-care providers focused on self-awareness of their personal skills and survival resources could improve their psychological health. The study was limited by the cross-sectional research design, and the outcomes of the structural model should be read in terms of probabilistic associations rather than cause-effect relationships. A second limitation concerns the kind of data collected. All the research instruments yielded self-reported quantitative scores, meaning that the standardised  $\beta$  weights in the model could potentially be an artifact of common method variance (ie, attributable to the measurement method rather than to the constructs themselves).

**Funding** None.

## Contributors

GV planned the research. AP and LA did the statistical analysis. AP, LA, and GV wrote the Abstract. FC, AJ, HO collected data and revised the Abstract. All authors approved the final version.

## Declaration of interests

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# Morbidity patterns among hospitalised Palestine refugees from Syria in Jordan: a population-based study

Akiko Kitamura, Gloria Paolucci, Ishtaiwi Abu-Zayed, Akihiro Seita

## Abstract

**Background** Palestine refugees from Syria (PRS) are among the most vulnerable refugee groups for adverse health outcomes and require assistance from humanitarian agencies. As the armed conflict in Syria has continued, most Palestinians have been displaced from that country to neighbouring countries, where they have experienced difficulties in accessing essential services. More than 17 000 PRS are in Jordan as of 2018 and have received assistance from the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), including free primary care and subsidised secondary and tertiary care through contracted governmental hospitals. In this study, we investigated the morbidity patterns among PRS in Jordan receiving UNRWA-supported hospital care.

**Methods** We assessed cross-sectional data extracted from the UNRWA Hospitalization Database in Jordan on Oct 18, 2018, for PRS who used UNRWA hospitalisation support between May 31, 2012, and Dec 9, 2017. The database records demographic and medical characteristics of patients and financial information for the care sought. We used descriptive statistics to reveal morbidity patterns. Analyses were done with Microsoft Excel 2016 and Stata/IC (version 15). No ethics approval was required for this study as it was conducted as a part of routine internal monitoring by UNRWA.

**Findings** 889 PRS were included in analysis, among whom 637 (72%) were girls or women and 252 (28%) were boys or men. The age range was 1–78 years, with girls and women being younger than boys and men (28·1 years [SD 15·1] vs 31·0 years [SD 21·3],  $p=0\cdot02$ ). The most common reasons for seeking care were pregnancy, childbirth, and the puerperium (381 [60%] of 637 girls and women). Diseases of the circulatory system, digestive system, and musculoskeletal system and connective tissue were the most common diagnoses among boys and men (34 cases [14%] of 252 for each diagnosis). The mean length of stay for women (1·8 days [SD 2·0]) was slightly shorter than that for men (2·0 days [SD 2·2]) but the difference was not significant. The cost was significantly higher for boys and men (mean US\$729·7 [SD 557·4] per person) than for girls and women (\$326·0 [SD 1190·4],  $p<0\cdot001$ ). Of all, 886 (>99%) patients were discharged from hospital, two died, and one was transferred to another hospital.

**Interpretation** More girls and women than boys and men sought care through the UNRWA support programme during the study period, mostly for pregnancy, childbirth, and the puerperium. However, the conditions seen in boys and men led to longer stays in hospitals and significantly higher costs. Diagnoses based on International Classification of Diseases standards should be investigated further, but this study highlights the demand for health-care services and types of care required by the PRS population. Future research should focus on identifying similarities and differences in hospital admissions for PRS compared with other Palestine refugees to inform future preventive public health efforts by UNRWA. The study examined PRS who accessed to UNRWA services only, thus the findings are not representative of PRS in general. However, this is to our knowledge the first study to present morbidity patterns and differences in female and male PRS patients receiving care at UNRWA in Jordan.

**Funding** None.

### Contributors

AK and GP conceptualised the study, AK analysed the data with support from GP and IA-Z, and AK wrote the abstract with GP. All authors approved the final version of the abstract.

### Declaration of interests

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# The prevalence and risk factors of urinary incontinence among women with type 2 diabetes in the north West Bank: a cross-sectional study

Zaher Nazzal, Batool Khatib, Bayan Al-Quqa, Lina Abu-Taha, Ahmad Jaradat

## Abstract

**Background** Diabetes is one of the most common chronic illnesses worldwide, and it is increasing in prevalence. Urinary incontinence is another worldwide health problem, with a reported prevalence that ranges from 9% to 67%. It decreases quality of life for men and women and has been associated with many poor outcomes, such as longer hospital stays, recurrent or persistent urinary tract infection, and a higher mortality rate. Previous studies have suggested that diabetes is an independent risk factor for urinary incontinence. In addition, the patients' background and clinical characteristics such as age, obesity, and child-bearing history have been found to increase the risk. The aim of this study was to determine the prevalence of urinary incontinence in women with type 2 diabetes in the north West Bank and to assess the role of potential risk factors, including age, marital status, weight, and diabetes control.

**Methods** Women with diabetes attending the six governmental primary health care centres in the north West Bank (Jenin, Tubas, Tulkarem, Nablus, Qalqilya, and Salfit) were interviewed using the CDC National Health and Nutrition Examination Survey (NHANES) standardised incontinence questionnaire. SPSS version 22 was used for data entry and analysis. The prevalence of urinary incontinence was estimated and differences between groups (variables of interest) were evaluated using the chi squared test. The study was approved by the Institutional Review Board of An-Najah National University, and permission to conduct the study was obtained from the Ministry of Health.

**Findings** 400 Palestinian women with diabetes were invited to participate in the study by convenience sampling, of whom 381 were recruited (a sample size that was chosen with a sample size formula, based on the population of the north West Bank). The participants were aged 30–83 years, and 44% (165 of 381; 95% CI 39–49) reported incontinence, regardless of the type. The prevalence of stress and urge incontinence were 34% (128) and 35% (133), respectively. 30% of women with urinary incontinence (49 of 165) reported that it did not affect their quality of life, and 34% (56 of 165) stated that it did not affect their daily activity. The presence or absence of urinary incontinence was studied in relation to the background and clinical variables by use of the chi squared test. The analysis showed a significant relationship between urinary incontinence status and age ( $p=0.0011$ ), previous abdominal and genitourinary surgeries ( $p=0.0037$ ), and caffeine consumption ( $p=0.041$ ). There was no relationship between urinary incontinence and the duration, type of treatment, or complications of diabetes.

**Interpretation** The prevalence of urinary incontinence (regardless of the type) is high among Palestinian women with diabetes. This is similar to reported prevalence in women with diabetes in neighbouring countries, such as Jordan (44%) and Qatar (21%). The majority of participants in this study (70%) reported that urinary incontinence did not affect their quality of life. This may suggest that patients consider the problem to be ordinary, that it does not require medical advice, or that the symptoms are mild. The findings highlight the importance of educating women with diabetes about urinary incontinence. The primary health care medical teams, general practitioners, and nurses who care for patients with diabetes should focus on this neglected problem, and physicians should be alert to urinary incontinence as it may often go unreported and therefore undertreated. To understand whether non-reporting of urinary incontinence reflects mild symptoms, investigating a potential association between non-reporting and the severity or frequency of urinary incontinence may be of interest for future study.

**Funding** None.

## Contributors

ZN, BK, BL, and IT contributed to the development of the study protocol, revised the methodology, carried out data analysis and interpreted the data, and drafted the manuscript. AJ contributed to the development of the study protocol and to data interpretation. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Life conditions and quality of life of Palestinians living in the Biddu Enclave: a qualitative study

Shiraz Nasr, Ahmad Heneiti, Weeam Hammoudeh

## Abstract

**Background** Palestinians have been exposed to long-term violence, displacement, and conflict since the 1940s. Continued expropriation and fragmentation of the region has affected people's quality of life. The Biddu Enclave communities, located northwest of Jerusalem, are behind a barrier wall that detaches them from Jerusalem and the rest of the West Bank other than by access through a tunnel controlled by the Israeli authorities. The enclave is fully or partially under Israeli administration. We explored the effects of socioeconomic and geographical transformations and isolation on the quality of life of these communities, specifically on daily uncertainty, stress, and overall wellbeing of residents.

**Methods** We included four communities—Beit Iksa, Qatanna, Biddu, and Beit A'nan—that have varied characteristics and circumstances. Between early October, 2018, and the end of November, 2019, we did in-depth interviews with 20 key informants, such as mayors, village council members, municipality employees, and teachers, and 16 residents older than 20 years and from a range backgrounds, including activists, retirees, and housewives. We also did two focus groups involving young adults from all four communities. Questions were asked about living conditions and consequences of the socioeconomic and geographic transformations in the study area. We analysed the data by repeated readings to identify patterns and themes.

**Findings** We found poor overall quality of life, characterised by chronic daily uncertainty, insecurity and heightened vulnerability, leading to stress and reduced wellbeing. The main negative determinants of quality of life were poor infrastructure, dependence on work in the Israeli labour market, a precarious permit system, increasing land expropriation and expansion of Israeli settlements, separation from Jerusalem, and marginalisation by the Palestinian National Authority. Community characteristics, such as social solidarity and active community organisations were important in mediating some of these effects. Other variations in the characteristics of the communities, such as topography, having relatives living in the USA, levels of education, unemployment rate, and proximity to Israeli settlements seemed to play a role in the abilities of residents to endure conditions.

**Interpretation** Our findings highlight the importance of political and socioeconomic transformations in the wellbeing of residents in the Biddu Enclave. Sustained insecurity and uncertainty, marginalisation, and isolation of the communities have negative effects on quality of life. More research focusing on these communities is needed to better understand the mechanisms by which these factors affect health and how they may lead to ill health and disease in the long term.

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## Contributors

All authors contributed equally in the literature review, data collection, data analysis, and writing of this Abstract.

## Declaration of interests

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# Prevalence of chronic diseases in older Palestinian adults and common pharmacological interventions: a cross-sectional study

Anas Najjar, Beesan Warasna, Islam Kitaneh, Salam Abu-Sharar, Maryam Sawalha, Abrar Jamous, Muhannad Qiq, Wafa Amro, Enas Makharzeh, Yazan Amro, Bayan Subb Laban, Ahmad Amro

## Abstract

**Background** Older people (aged 60 years and older) are more susceptible than younger people to multiple medical disorders and are therefore more frequently exposed to polypharmacy. We investigated prevalence of chronic diseases and medical conditions, medications used, and associated sociodemographic factors among older adults of the Palestinian population.

**Methods** A cross-sectional study was done between June, 2013, and January, 2014. The study population was Palestinians aged 60 years and older living in the West Bank and East Jerusalem. Study participants were selected in a stratified random manner. The sample was selected from all governorates (strata) according to the size of the population of each governorate on the basis of census data from the Palestinian Central Bureau of Statistics. The research team visited and interviewed older residents in their houses. Questionnaire items were explained in informal language to participants by the interviewer, to ensure complete understanding, and answers were recorded by the interviewer. Informed written consent was obtained from each participant. The study design and protocols were revised and approved by the Research Ethics Committee at Al-Quds University.

**Findings** 1574 older Palestinian adults were invited to participate, of whom 1192 (76%) enlisted. The mean age was 70·3 years (SD 8·58, range 60–110 years). 55% (659 of 1192) were female and 45% (533) were male. The majority (84%; 996) were non-workers or retired; monthly income for 78% of participants (930) was less than 2500 NIS, which falls in the low-income group. More participants (78%; 934) had governmental health insurance than had private insurance (8%; 89) or no insurance (14%; 169). 40 chronic diseases and conditions were reported. The mean number of diseases reported per participant was 2·33 (SD 1·68, range 0–11). Cardiovascular, endocrine, and musculoskeletal conditions were the most frequently reported. 66% of participants (787 of 1192) reported at least one cardiovascular condition, 40% (480) at least one endocrine condition, and 32% (385) at least one musculoskeletal condition. The most prevalent cardiovascular condition was hypertension, which affected 54% of participants (647); the most prevalent endocrine condition was diabetes (38·2%, 455); and the most prevalent musculoskeletal condition was arthritis (13·7%, 163). The total number of different types of medication (both prescribed and over-the-counter drugs) was 175. The mean number of medications per participant was 4·54 (SD 2·83), and the highest number of different medications being taken by one participant was 17. Commonly prescribed therapeutic agents were aspirin (prescribed to 48% of participants, 575 of 1192), angiotensin-converting-enzyme inhibitors (34%, 403), diuretics (34%, 409), metformin (27%, 323), paracetamol (23%, 270), and protein pump inhibitors (23%, 275).

**Interpretation** The findings provide insights into the most prevalent chronic diseases and conditions, as well as the most commonly used medications among older Palestinians. Cardiovascular, endocrine, and musculoskeletal conditions were the most prevalent diseases. Older Palestinians adults are subjected to polypharmacy, which should be assessed whenever they are evaluated for health problems, and drug interactions should be carefully checked. Physicians, pharmacists, health professionals, and health policymakers in Palestine should consider increasing citizens' health awareness and encourage healthy lifestyles to decrease the incidence of these diseases. In addition, intersectoral cooperation between the governmental and non-governmental organisations will be key in the fight against chronic diseases in older Palestinian adults.

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### Contributors

AN, BW, and AA conceived and designed the study. AN, YA, IK, SAS, MS, AJ, MQ, EM, BSL, and WA collected data. AN and BW analysed data. AN, BW, and AA wrote the abstract. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

We declare no competing interests.

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# Self-perceived health among children with spina bifida in the West Bank: a cross-sectional study

Maha Sudki Nahal, Åsa B. Axelsson, Asma Imam, Helena Wigert

## Abstract

**Background** Children born with spina bifida endure constant physical disability, which is challenging for themselves and their families. To date, the impact of spina bifida on the health-related quality of life (HRQOL; eg, physical, psychological, and social wellbeing) of these children has been assessed mainly through parent proxy reports, and self-perceived health among these children is rarely measured. This study aimed to measure self-perceived health in children with spina bifida in the West Bank, to compare this with that in a healthy reference group also from the West Bank, and to assess the potential association between self-perceived health and the level of disability in children with spina bifida.

**Methods** A cross-sectional study was conducted in the West Bank. The Paediatric Quality of Life Inventory (PedsQL) was administered to a convenience sample of 200 children aged 8–12 years, of whom 50 have spina bifida and 150 are healthy. For the children with spina bifida, their disability was categorised and ranked according to four aspects of impairment (mobility, bowel function, bladder function, and hydrocephaly). Data were analysed with SPSS version 24. Difference in PedsQL scores between the two groups of children was tested with the Mann-Whitney U-test. The Spearman's rank correlation coefficient was used to evaluate the association between the level of physical impairment in children with spina bifida and their self-perceived health. Written informed consent was obtained from the children's parents. The children's verbal assent was also obtained, and their right to withdraw from the study at any time was emphasised.

**Findings** Children with spina bifida had lower overall PedsQL scores (mean 45·5, SD 14·5) than those reported by the reference group of healthy children (mean 80·0, SD 12·8). For children with spina bifida, social functioning had the lowest mean score (30·5, SD 20·8), followed by physical functioning (37·5, SD 16·6), emotional functioning (56·0, SD 17·2), and school functioning (62·6, SD 17·8), whereas the range for all of the PedsQL scores in the reference group was 71·7–84·5. The results demonstrate significant inverse associations between self-perceived health (overall PedsQL score) in children with spina bifida and both the level of mobility impairment ( $r_s = -0·65$ ,  $p < 0·0001$ ) and the presence of hydrocephalus ( $r_s = -0·53$ ,  $p < 0·0001$ ). A weak inverse association was found between self-perceived health and both bladder and bowel dysfunction. For both groups, no associations were found between demographic characteristics (age, gender, type of settlement of residence [city, village, camp]) and self-perceived health.

**Interpretation** The findings provide insights into the importance of social support and rehabilitation services for children with spina bifida in the occupied Palestinian territory. In particular, community awareness, and education of health care providers and family members, may be important.

**Funding** None.

### Contributors

MN carried out data collection and statistical analysis, and wrote the abstract with input from ÅBA. AI, HW, and ÅBA reviewed the results. All authors have seen and approved the final version of the Abstract for publication.

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We declare no competing interests.

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# Clinical and pathological characteristics and hormone receptor status of women with breast cancer in the European Gaza Hospital: a retrospective chart-based review

Rami Musallam, Mohammed Alnajjar, Ahmad Al-Shurafa, Bettina Bottcher

## Abstract

**Background** Breast cancer is the most common cancer (accounting for 31·3% of all cancers) among women in the Gaza Strip. This audit examines clinical and pathological characteristics of women presenting with breast carcinoma to the European Gaza Hospital (EGH), a governmental hospital and oncological centre serving 600 000 people in the southern Gaza Strip.

**Methods** Data were collected from the records of patients with breast cancer treated at the EGH from March, 2015, to Sept, 2017. 397 cases were identified, including 218 patients with full hormone receptor status (oestrogen, progesterone, and Her2/neu receptor status). Data were analysed using Student's *t* test.

**Findings** The mean age was 54 years (SD 11·2). 64% of the women (139 of 218) were older than 50 years, and 16% (33 of 218) were younger than 40 years. Histological grade was assessed for 56% of the women (122 of 218), and 55% of these women (67 of 122) presented with grade II tumours. Tumour size was documented in 82% of the files (178 of 218), and tumours were 2–5 cm in 47% of the documented cases (83 of 178). Furthermore, 51% of women (112 of 218) tested positive for the presence of cancer cells in lymph nodes, and 6% (14 of 218) had distant metastasis at presentation. The clinical stage at diagnosis was recorded in 56% of cases (122 of 218), of whom 4% (five of 122) presented at stage I, 54% (66 of 122) presented at stage II, and 42% (51 of 122) presented at stage III/IV. Pre-operative histopathology was carried out for 120 women, of whom 85% (102 of 120) had intraductal carcinoma. Only 81% of women (177 of 218) had post-operative histopathology, of whom 79% (139 of 177) had intraductal carcinoma. The histopathological type was significantly different for pre-operative and post-operative specimens ( $p < 0\cdot0001$ ). Oestrogen receptor status was positive in 58% of patients (127 of 218), progesterone receptor status was positive in 57% of patients (124), and HER2/neu receptor was overexpressed in 33% of patients (65). Triple-negative breast cancer (testing negative for oestrogen, progesterone, and HER2/neu) was found in 23% of the women (49) and double-negative breast cancer (testing negative for oestrogen and progesterone but positive for HER2) in 11% of the women (24).

**Interpretation** Patients with breast cancer present with advanced disease in the Gaza Strip. HER2/neu overexpression was approximately 10% higher than the percentages reported in the literature for the USA. The significant difference between pre-operative and post-operative specimens' histopathological type could be due to use of fine-needle aspiration. Guidance from the Royal College of Radiologists recommends pre-operative core biopsy. It should be noted that documentation in the patient medical files was incomplete, which is a common obstacle in Gaza that must be tackled for effective improvement in the quality of care.

**Funding** None.

### Contributors

RM, MA, AA, and BB designed the study. RM and AA collected data. RM and MA carried out data analysis and interpretation. RM, MA, and BB drafted the Abstract. RM, MA, AA, and BB revised the Abstract. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

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# Perceptions of health-care professionals about quality of care and barriers to management of war injuries in Gaza Strip: a qualitative analysis

Marwan Mosleh, Yousef Al Jeesh, Koustuv Dalal, Heidi Carlerby, Eija Viitasara

## Abstract

**Background** War-related injury is a growing clinical and public health concern in occupied Palestinian territory, especially in the Gaza Strip. However, little research has been done into the quality of care and management of war injuries in public hospitals. We explored the perceptions of health-care workers about these factors in Palestinian health-care facilities in Gaza.

**Methods** This was a qualitative descriptive study. Data were obtained in four focus group discussions attended at public health facilities by 30 purposively selected health-care providers, comprising 14 head surgeons, and 16 head nurses, aged 38–55 years. A semi-structured topic guide was developed by the authors for the study based on earliest literature, and was critically reviewed by a panel of experts to ensure the trustworthiness of the qualitative guide and to minimise complexity and enhance clarity of the questions for participants. Audio recordings of discussions were transcribed verbatim, translated, and analysed with a thematic analysis approach. The study was approved by the Palestinian Health Research Council and facilitated by the Ministry of Health.

**Findings** A consensus was expressed that, despite some positive aspects in the system, fundamental changes and essential improvements were needed to advance the care and facilitation of war injury management. Some respondents had serious concerns about the health-care system, suggesting that it needs to be comprehensively rebuilt. Unanimous views were expressed about the important barriers to effective management and quality of care: shortages of resources, medicines, and funding; underuse or absence of specific and unified clinical practice guidelines; no official commitment by the Ministry of Health to adopt updated clinical guidelines; few incentives and poor motivation, poor communications; blockade and siege; division of health systems in the country; overcrowding of patients with war injuries in hospitals with limited capacity; spreading of infection due to poor cleanliness; shortages in fuel and power supply; and low wages, which negatively affected staff motivation. Respondents also reported inadequate sharing of care and cooperation between different health-care facilities.

**Interpretation** The perceptions about barriers to management of war injuries and the quality of care provided were similar across Palestinian health-care facilities in the Gaza strip. Our findings suggest that fundamental changes and comprehensive reform of the health-care system are needed to make the care of patients with war injuries more effective and efficient. One of the important strengths of this study is that it addressed the perspective and opinions of different key health professionals, which made it possible gain deeper and better understanding of how war injuries are managed in the Palestinian health system. In addition, the outcomes of the study were based on diverse information. However, the analysis of the qualitative data may represent challenges, and be more complicated and time consuming than a quantitative approach.

**Funding** None.

## Contributors

MM, YAJ, and KD planned and designed the study, analysed the data, and wrote the Abstract. MM and YAJ collected the data. HC and EV critically reviewed the Abstract. All authors approved the final version of the Abstract.

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# Pain management in adults during long-bone fracture reduction in the Gaza Strip: a clinical audit

Mohammed Lubbad, Mohammed Ahmad, Hassan Adwan, Abed al-Ra'of Sammor, Bettina Böttcher

## Abstract

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**Background** Ongoing protests in Gaza have led to numerous injuries, including long-bone fractures. We investigated assessment of pain severity and strategies for pain management in the emergency department. As no local guidelines exist, delivered care was compared with the guidance of the UK National Institute for Health and Care Excellence (NICE).

**Methods** A clinical audit was conducted at the emergency department in Dar Al Shifa Medical Complex, Gaza, among patients who attended the emergency department with acute long-bone fractures between April 15 and July 15, 2018. Data were collected on pain assessment methods and strategies for pain management and analgesia administration. Ethics approval was obtained from the Palestinian Ministry of Health. The purpose of the audit was explained to patients and their written consent was obtained before inclusion.

**Findings** Of 79 patients invited to participate, 50 gave consent. 25 patients (50%) were aged 16–24 years, 20 (40%) 25–64 years, and five (10%) 65 years and older. Structured pain assessments were performed in only three patients (6%). No analgesia was administered to patients in the emergency department, except for two patients (4%) received infiltration of lidocaine as analgesia for haematoma.

**Interpretation** No local guidelines for acute pain management in emergency departments exist in the Gaza Strip. Clinical practice showed no adherence to international standards, such as the NICE guidelines for pain management. Factors contributing to such poor management might be large numbers of patients presenting at the time during conflict and protests and that only one room was available in the Shifa' Medical Complex emergency department for examining, assessment, prescribing, and cast application. A limitation of the study is the small sample size is relatively small, but strengths were the 3-month period and prospective enrolment in the emergency department.

**Funding** None.

### Contributors

MA, HA, and AaRS collected the data. ML analysed the data and wrote the Abstract. All authors approved the final version of the Abstract for publication.

### Declaration of interests

We declare no competing interests.

# Food insecurity in the context of conflict: analysis of survey data in the occupied Palestinian territory

Tracy Kuo Lin, Rawan Kafri, Weeam Hammoudeh, Suzan Mitwalli, Zeina Jamaluddine, Hala Ghattas, Rita Giacaman, Tiziana Leone

## Abstract

**Background** Conflict impacts food security and decreases household dietary diversity. However, few studies have explored the routes by which prolonged conflict and social stressors affect food insecurity experience and food diversity. This study examines the influence of political, economic, and agricultural stressors on food insecurity and food diversity, and evaluates variations in food insecurity and food diversity with location of residence for households in the occupied Palestinian territory.

**Methods** A secondary data analysis with structural equation modelling was carried out on data from the Socio-Economic & Food Security Survey 2014 of the Palestinian Central Bureau of Statistics. The survey was completed by a representative sample of the Palestinian population in the occupied Palestinian territory at governorate and locality levels, and consisted of 4215 households in the West Bank and 2916 households in the Gaza Strip. The primary outcomes were food diversity (measured with a food consumption score) and food insecurity (assessed with a composite experience-based measure of food security). We used structural equation models to examine the relationships between location of residence (in the West Bank, living in Area C versus not Area C; in the Gaza Strip, proximity of residence to the buffer zone), the number of political stressors, economic stressors, and agricultural stressors (eg, restricted access to land), and the primary outcomes. We controlled for demographic characteristics, including education, governorate, and wealth.

**Findings** In the West Bank, there was no statistically significant direct association between living in Area C and food insecurity. Living in Area C is associated with a higher number of agricultural stressors than not Area C ( $p=0.032$ ), and a higher number of agricultural stressors is in turn associated with lower food diversity ( $p=0.0080$ ) and higher food insecurity ( $p=0.040$ ). In the Gaza Strip, proximity to the buffer zone is directly associated with higher food insecurity ( $p=0.041$ ) and lower food diversity ( $p=0.019$ ) and a higher number of political stressors ( $p=0.057$ ). A higher number of political stressors is associated with a higher number of economic stressors ( $p=0.026$ ) and higher food insecurity ( $p=0.034$ ).

**Interpretation** The findings suggest that political, economic, and agricultural factors contribute to food insecurity and food diversity, and that their interactions are complex. Conflict and occupation affect food availability through both direct and indirect channels. In the Gaza Strip, living in close proximity to the buffer zone is associated with lower food diversity and higher food insecurity. In the West Bank, although residing in Area C may not directly increase food insecurity, the hardship generated by the conditions in Area C contributes to higher food insecurity.

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### Contributors

TKL, RK, WH, SM, ZJ, HG, and TL conducted statistical analysis. TKL and RK drafted the manuscript. TKL, RK, WH, SM, RG, and TL designed the research. TL and RG were joint principal investigators on the project. TKL, RK, WH, SM, ZJ, HG, RG, and TL interpreted the results, and reviewed and commented on the manuscript. All authors have seen and approved the final version of the Abstract for publication.

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# Enhancing the quality of maternal and neonatal care by the Safe Childbirth Project in Al Shifa Hospital, Gaza occupied Palestinian territory (oPt): a descriptive retrospective study

Itimad Abu Ward, Amani Jouda, Suha Balousha, Signe Egenberg, Naila Al Masri, Ellen Blix

## Abstract

**Background** The Safe Childbirth Project is a campaign, launched by WHO in 2012, to improve the quality of care for women and babies during childbirth by promoting evidence-based practice and a midwifery-led approach to care. It was intended to contribute towards achieving UN Sustainable Development Goal 3: ensure healthy lives and promote wellbeing for all at all ages. In September, 2015, the project was launched in the maternity ward of Dar Al-Shifa Hospital, Gaza City, to promote midwifery-led care for low-risk deliveries, with de-medicalisation of normal birth, early initiation of breastfeeding, and early detection of complications during the postpartum period.

**Methods** Dar Al-Shifa Hospital is the largest Ministry of Health hospital in the Gaza Strip, is the referral hospital for the whole area, and includes medical, surgical, and maternity departments. Most women who attend the maternity department (70%) have high-risk pregnancies. The caesarean section rate in 2016 was 27%. 88 midwives and 82 doctors are employed on the maternity wards. We did a descriptive retrospective analysis of all women admitted in labour to the maternity hospital from the start of the Safe Childbirth Project on Sept 1, 2015, to June 30, 2018. Data were extracted from patients' files then aggregated and analysed. Six indicators of quality of care were assessed: risk assessment on admission to the labour ward; use of partograms; oxytocin augmentation of labour; babies delivered by a midwife; breastfeeding initiation within 1 h of birth; and the number of postnatal examinations. Ethics approval was obtained from the Helsinki Committee, at the Palestinian Health Research Council.

**Findings** Of 16 400 births at Dar Al-Shifa Hospital during the study period, 11 480 (70%) were normal vaginal deliveries. The percentages of women risk assessed on admission increased from 65% at the start of the study to 100% at the end, but the proportions of pregnancies classified as being at low risk or high risk remained at roughly one-third to two-thirds (low risk 20% and high risk 45% at the start of the study vs 30% and 70%, respectively, at the end of the study). Partograms were used in all women throughout the study period. Use of oxytocin augmentation of labour decreased from 24% to 8%. Midwives delivered 53% of low-risk women at the beginning of the study and 100% at the end. The proportion of women who initiated breastfeeding within 1 h of birth increased from 45% to 81% and the percentage of women who had five or more postpartum examinations increased from 27% to 81%.

**Interpretation** Implementation of the Safe Childbirth Project in Dar Al-Shifa Hospital improved most of our indicators of quality of care and was maintained along with regular clinical auditing. Management commitment and close clinical supervision have been the cornerstones of success.

**Funding** None.

## Acknowledgments

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## Contributors

IAW led the study team. AJ analysed the data and drafted the Abstract. SB, SE, and NA reviewed the drafts and EB had overall responsibility for review and editing.

## Acknowledgements

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# Associations between stressful working conditions and psychosomatic symptoms among Palestinian nurses: a cross-sectional survey

Yousef Jaradat, Espen Bjertness, Morten Birkeland Nielsen, Rita Bast-Pettersen

## Abstract

**Background** Stressful working conditions among nurses have adverse effects on their physical and mental health. We investigated associations between self-reported stressful working conditions and psychosomatic symptoms among nurses in the Hebron district, occupied Palestinian Territory, and whether there are differences the sexes in the perceptions of working conditions and psychosomatic symptoms.

**Methods** We did a cross-sectional survey between Oct 7 and Dec 10, 2012, among registered nurses in all health sectors in Hebron district. A nine-point ordinal scale of working conditions was used to categorise perception of stress as low, medium, or high, and seven psychosomatic symptoms were recorded on a checklist coded as never (0), seldom (1), occasionally (2), or often (3), allowing for a total score between 0 and 21. All analyses were done with STATA (version 10). P values of less than 0.05 were significant. Participation in the study was voluntary, and written informed consent was obtained from each participant. The study was approved by the Regional Committee for Medical and Health Research Ethics, Norway. Permission to do the study was obtained from the Palestinian Ministry of Health.

**Findings** Among 372 eligible nurses, ten were on extended leave from work, 16 declined to participate, and four had incomplete data, giving a final sample of 342 nurses (92% response rate). 212 (62%) were women and 130 (38%) were men. Low levels of stress were reported by 42 (12%) nurses, medium levels by 206 (60%), and high levels by 94 (28%). The mean score of psychosomatic symptoms for the group was 10.4 (SD 4.02, range 0–21). Scores did not differ significantly between men and women. Mean symptom scores differed between nurses with self-reported highly stressful working conditions and those with low levels of stress (12.6 vs 8.4, difference 4.1, 95% CI 2.7–5.5;  $p < 0.001$ ). Among male nurses, those with self-reported highly stressful working conditions had a mean psychosomatic symptom score of 13.0, compared with that was 7.7 among those working in low-stress conditions (difference 5.3 units,  $p < 0.001$ ). This effect remained significant after adjustment for the covariates age, education, number of children, work schedule, and years of experience (12.6 vs 7.7, difference 4.9 units, 95% CI 2.6–7.2). Among female nurses, the scores among those with high-stress working conditions was 12.4 and for those with low-stress working conditions was 9.0 (difference 3.4 units,  $p < 0.001$ ). After adjustment the difference remained similar (12.4 vs 9.0, difference 3.5 units, 95% CI 1.7–5.3,  $p < 0.001$ ).

**Interpretation** We found that psychosomatic symptoms increased as self-reported perception of stressful working conditions increased, irrespective of sex. The study had a cross-sectional design and both exposure and outcomes were measured using self-report and, therefore, interpretation of the results should be made with caution. Longitudinal epidemiological studies are recommended. Future studies should investigate whether stressful working conditions affect the quality of patients' care in health services.

**Funding** Norwegian Programme for Development, Research and Education.

### Contributors

YJ, EB, and RB-P, designed the study. YJ was responsible for the collection and monitoring of data. YJ, MBN, and RB-P prepared the datasets and did the preliminary analysis. All authors participated in the interpretation of the results. All authors participated in the writing of the Abstract and approved the final version.

### Declaration of interests

We declare no competing interests.

### Acknowledgments

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# Child deprivation among Palestinian refugees in Lebanon and Palestinian refugees from Syria living in Lebanon: a cross-sectional analysis of co-occurrence of deprivation indicators

Zeina Jamaluddine, Alexandra Irani, Nisreen Salti, Sawsan Abdulrahim, Jad Chaaban, Khalil El-Asmar, Hala Ghattas

## Abstract

**Background** Palestinian refugees in Lebanon (PRL) and Palestinian refugees from Syria (PRS) living in Lebanon have high poverty rates. As the social, economic, and physical environment in which a child develops is a strong determinant of health and wellbeing, a comprehensive approach that recognises the influence of multidimensional deprivation on child wellbeing is needed. This study investigates overlaps (co-occurrences) in deprivation indicators experienced by Palestinian children compared to those experienced by other vulnerable children living alongside them in Lebanon; children who are Syrian refugees (SYR) and children who are Lebanese nationals (LBN).

**Methods** This analysis adopted a life-cycle approach using data from the UNICEF 2016 Lebanon Household Survey, and included data on children aged 2–17 years (PRL, n=7106; PRS, n=2768; LBN, n=10555; SYR n=5891). We report on indicators relating to early childhood (24–59 months) and school age (6–17 years), including child survival (nutrition, health, water, sanitation, and overcrowding), child development (education), and child protection (labour, exposure to violence, and early marriage), as well as the co-occurrence of these deprivation indicators. Socio-demographic and geographical correlates of child deprivation were explored using univariate and multivariable logistic regression analysis, a using sampling weights and clustering for children in the same households. Analyses were conducted using Stata 15.

**Findings** Among children aged 24–59 months, 28·9% (347 of 1202) of PRL and 46·2% (260 of 563) of PRS children were deprived in at least two dimensions, compared with 13·2% (67 of 508) of LBN and 68·5% (915 of 1335) of SYR children. Co-occurring deprivations were highest across the protection and overcrowding dimensions in Palestinian refugee children aged 6–17 years (PRL, 14·2% [769 of 5421]; PRS, 26·7% [531 of 1985]). Across all ages, PRS children were more likely to be deprived in two dimensions than PRL children. However, indicators of health and education deprivation were lower in PRL and PRS children than in SYR children. Geographical disparities in deprivation existed within all four populations, with the highest disparity among those living in North Lebanon and the Bekaa. Higher maternal education (completed intermediate education) was consistently associated with lower odds of having at least two concurrent deprivations among children aged 6–17 years (LBN odds ratio [OR] 0·1, 95% CI 0·1–0·2, p<0·0001; PRL OR 0·3, 95% CI 0·3–0·5, p<0·0001; PRS OR 0·5, 95% CI 0·3–0·7, p=0·0002; SYR OR 0·4, 95% CI 0·2–0·7, p=0·0004).

**Interpretation** The most common overlaps in deprivation indicators were in housing (overcrowding) and protection (exposure to violence) among PRL and PRS children, highlighting the need to focus simultaneously on housing improvements and protection programmes. Deprivation in health and education were relatively low as PRS children have been included in the well-established UNRWA health and education systems, largely protecting them from poor health and education outcomes.

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## Contributors

HG, NS, SA, JA, and KE designed the study. ZJ and AI conducted the analysis under the supervision of HG. ZJ and HG drafted the Abstract. All authors have seen and approved the final version of the Abstract for publication.

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# Gestational age recorded at delivery versus estimations using antenatal care data from the Electronic Maternal and Child Health Registry in the West Bank: a comparative analysis

Mervett Isbeih, Mahima Venkateswaran, Eatimad Abbas, Khadija Abu-Khader, Tamara Awwad, Mohammad Baniode, Buthaina Ghanem, Taghreed Hijaz, Asad Ramlawi, Rand Salman, Richard White, J Frederik Frøen

## Abstract

**Background** Estimated dates of delivery have important consequences for clinical decisions during pregnancy and labour. The Electronic Maternal and Child Health Registry (MCH eRegistry) in Palestine includes antenatal care data and birth data from hospitals. Our objective was to compare computed best estimates of gestational age in the MCH eRegistry with the gestational ages recorded by health-care providers in hospital delivery units.

**Methods** We obtained data for pregnant women in the West Bank registered in the MCH eRegistry from Jan 1, 2017 to March 31, 2017. Best estimates of gestational age in the registry are automated and based on a standard pregnancy duration of 280 days and ultrasound-based pregnancy dating before 20 weeks' gestation or the woman's last menstrual period date. Hospital recorded gestational ages are reported by care providers in delivery units and are rounded to the nearest week. We calculated proportions of gestational ages (with 95% CIs) from both sources that fell into the categories of term, very preterm (24–32 weeks' gestation), preterm (33–37 weeks), or post-term (>42 weeks).

**Findings** 1924 women were included in the study. The median hospital recorded gestational age was 39 weeks (IQR 38–40 weeks) and according to MCH eRegistry estimates was 39 weeks and 5 days (IQR 38 weeks and 1 day to 40 weeks and 5 days). Proportions of very preterm, preterm, and post-term deliveries were higher based on MCH eRegistry estimates than on hospital recorded gestational ages (very preterm 3%, 95% CI 2–4 vs 2%, 1–2; preterm 6%, 5–7 vs 5%, 3–6; post-term 6%, 5–7 vs 1%, 1–2).

**Interpretation** In addition to clinical care, the proportions of term, very preterm, preterm, and post-term births can have implications for public health monitoring. The proportion of deliveries within the normal range of term gestation was calculated to be higher by care providers in delivery units than by MCH eRegistry estimates. Extending the access of hospitals to information from antenatal care in the MCH e-Registry could improve continuity of data and better care for pregnant women.

**Funding** European Research Council, Research Council of Norway.

## Contributors

JFF conceptualised the study. MI and JFF managed the data. MI and RW did the data analysis. MV, RW, and JFF interpreted the data. MI and MV wrote the Abstract. EA, KAK, TA, MB, BG, TH, AR, RS, and JFF revised the Abstract. AR and RS provided administrative support for data management. All authors approved the final version of the Abstract.

## Declaration of interests

We declare no competing interests.

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# Long-term health effects after conflict-related traumatic amputation among patients in Gaza

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## Abstract

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**Background** In the past 10–15 years, thousands of civilians in Gaza have experienced conflict-related traumatic injuries. How injuries affect survivors' risks of negative long-term health effects and serious illness is unclear. We report follow-up findings in a group of patients with traumatic amputations.

**Methods** Eligible patients had traumatically amputated limbs and showed signs and symptoms of possible serious illness on standardised clinical examination. The patients were all receiving rehabilitation treatment at the Artificial Limbs and Polio Centre, Gaza, which is the main provider of rehabilitation and prostheses. All patients had suffered from at least one amputation during Israeli military incursions between 2006 and 2016. All were offered referral to the Al-Shifa Hospital, Gaza, for further diagnostic clinical, radiological, and laboratory tests. Each patient was examined by CT of the abdomen (or ultrasonography if CT could not be performed) and chest and MRI of the amputation stump or stumps. Laboratory analyses included ESR, complete blood count, kidney and liver function tests, serum glucose, creatine kinase, lactate dehydrogenase, and hepatitis B and hepatitis C virus infections.

**Findings** Of 254 traumatically amputated patients assessed, 105 had signs and symptoms of possible serious illness, among whom 94 accepted referrals. 88 (93%) of 94 were men and the median age was 31.5 years, mean age 34 years (SD 9.6). Of 90 patients who had imaging, 19 (21%) patients had fatty liver infiltration, three (<1%) had lung nodules, and ten had lung atelectasis. Shrapnel was found in the chest of 12 patients (13%), the abdomen of five patients (6%), the scrotum of one patient (<1%), in the amputation stumps of 26 patients (29%), and the non-amputated limbs of eight patients (1%). Three (<1%) of 90 patients had liver lesions. 32 (34%) of 94 patients had elevated ESR, 19 (20%) had elevated liver enzyme concentrations, and 12 (13%) were anaemic. Two patients tested positive for hepatitis C virus and three were positive for hepatitis B virus (one with fatty liver changes). Two of the 19 patients with fatty liver infiltration were diagnosed as having type 2 diabetes. A limitation of this study is that, owing to conflict-related supply-chain issues in Gaza, we were unable to collect complete data in four (5%) of patients.

**Interpretation** As well as residual shrapnel in more than half of patients, a notable proportion of patients had fatty liver infiltration, for which we have no clear hypothesis. We recommend close medical follow-up for trauma patients in injured by explosives.

**Funding** The Norwegian street-artist AFK provided €1,500 to this project, which was used to cover patients' transportation costs.

## Contributors

All authors contributed to the design of the methodology, project administration, investigation and data collection. MG supervised the research project. HH-L and AI did the data analysis. HH-L wrote the original draft, all authors contributed to editing, and MG validated the final Abstract.

## Declaration of interests

We declare no competing interests.

# The psychological impact of deprivation in regions affected by conflict: a multilevel analysis of a cross-sectional survey in the occupied Palestinian territory

Weeam Hammoudeh, Suzan Mitwalli, Rawan Kafri, Tracy Kuo Lin, Rita Giacaman, Tiziana Leone

## Abstract

**Background** Deprivation is an important determinant of poor health. Locality can be key in understanding variation in deprivation across a population. This study aimed to analyse how different forms of deprivation affect mental health among Palestinians, and how they account for locality effects in the occupied Palestinian territory.

**Methods** We used multilevel modelling to analyse data from the Socio-Economic & Food Security Survey 2014 conducted by the Palestinian Central Bureau of Statistics, which had a sample size of 7827 adults representing the same number of households. The main outcome is a General Health Questionnaire (GHQ) score, in which a higher score signifies worse mental health. Deprivation variables include subjective deprivation, material deprivation, food deprivation, and political deprivation (which was measured by use of the human insecurity scale). For the analysis, we included data on experience of different stressors (economic, political, health-related, and weather-related stress) reported at the household level in the 6 months preceding the survey, and we controlled for demographic characteristics, including age, gender, education, wealth, and region. We also conducted a two-level random effects multilevel regression, with locality as a proxy for neighbourhood.

**Findings** The model indicates significant variance at the locality (neighbourhood) level. There is a significant association between poor mental health and subjective, economic, political, and food deprivation; health, economic, and political stressors; age, and being a woman. Education beyond secondary school level and wealth have a significant inverse association with poor mental health. Individuals who indicated that they felt somewhat or very deprived have significantly higher GHQ scores than individuals who indicated that they did not feel deprived ( $\beta=1.73$  and  $4.33$  for those who felt deprived and who did not feel deprived, respectively,  $p<0.0001$ ). Food consumption was inversely associated with GHQ score ( $\beta=-0.01$ ,  $p<0.0001$ ) and food insecurity was positively associated with GHQ score ( $\beta=0.19$ ,  $p<0.0001$ ). Political deprivation, and health-related, political, and economic stressors were significantly positively associated with GHQ scores ( $\beta=0.043$ ,  $0.23$ ,  $0.35$ , and  $0.19$  respectively,  $p<0.0001$ ). Age ( $\beta=0.079$ ,  $p<0.0001$ ) and being a woman were positively associated with GHQ score ( $\beta=0.26$ ,  $p=0.0040$ ), whereas education beyond secondary school level was inversely associated with GHQ score ( $\beta=-0.54$ ,  $p<0.0001$ ).

**Interpretation** The findings that the mental health of Palestinians is associated with various forms of deprivation and stressors, provide further evidence that political and social factors are determinants of health. Correlated factors include both subjective and objective measures, and suggest that although material conditions are important, people's subjective experiences are also important. Feeling deprived is an important correlate of mental health. The community effect suggests that services (or lack thereof), checkpoints and blockades, political situations, and other factors that vary across localities, may influence mental health issues at the neighbourhood level.

**Funding** This project is part of the study "Re-conceptualising health in wars and conflicts: a new focus on deprivation and suffering" funded by the Middle East Centre at the London School of Economics and Political Science.

## Contributors

WH, SM, RG, and TL conceived the study. WH worked on the analysis, and drafted and revised the abstract. RK and TKL assisted with the analysis, and reviewed and edited the abstract. RG reviewed the abstract. SM and TL worked on the analysis, and reviewed and edited the abstract. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Prevalence and characteristics of Palestine refugee mothers at risk of postpartum depression in Amman, Jordan: a cross-sectional study

Kyoko Yoneda, Majed Hababeh, Akiko Kitamura, Akihiro Seita, Yasuhiko Kamiya

## Abstract

**Background** Postpartum depression (PPD) is a major public health concern because it adversely affects maternal health and children's physical and mental development. The prevalence of PPD in Arab countries is higher than the worldwide prevalence. Additionally, refugee women are more likely to develop PPD than women in the general population, but little research of refugee women in Arab countries is available. The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), Amman, Jordan (KYoneda MPH, M Hababeh MPH, A Kitamura MHS, A Seita MD); and Nagasaki University School of Tropical Medicine and Global Health, Nagasaki, Japan (KYoneda, Prof Y Kamiya PhD)

**Methods** This cross-sectional descriptive study was done between April 21 and May 21, 2018. Eligible participants were Palestine refugee mothers who had given birth 3–16 weeks previously and were attending any of five UNRWA health centres in Amman that were launching the MHPSS programme. Data were gathered in face-to-face structured interviews that included the Edinburgh Postpartum Depression Scale (EPDS) to assess PPD, the Maternal Social Support Scale to assess levels of perceived social support, and a structured questionnaire about sociodemographic, obstetric or paediatric, psychological, and social factors. Participants with scores greater than 12 in the EPDS were classified as having depressive symptoms. Logistic regression was used to identify factors associated with depressive symptoms. The study protocol was approved by the Department of Health, UNRWA Headquarters, Amman, Jordan, and Nagasaki University. Each participant provided written informed consent.

**Findings** 251 women participated in the study, with a mean age of 27·2 years (range 18–42, SD 5·43). 123 (49%) women were classified as having PPD. Logistic regression showed that factors associated with PPD were perceived low levels of social support (adjusted odds ratio 3·76, 95% CI 1·92–10·93) and experiencing stressful life events (one event 3·92, 1·51–9·91; two events 5·77, 2·33–14·27; and three or more events 14·8, 5·23–41·89).

**Interpretation** The prevalence of PPD among Palestine refugee women in Amman was higher than that reported in a previous study of the general childbearing population (women aged 18–45 years) in Irbid in Jordan (22%, Mohammad et al. *Midwifery* 2011; 27: e238–45) but similar to findings in the West Bank (47%, Quandil et al. *BMC Pregnancy Childbirth* 2016; 16: 375) and in Syrian refugee women in Jordan (49·6%, Mohammad et al. *Res Nurs Health* 2011; 41: 519–245). Our findings highlight the need to address this disorder in Palestine refugee mothers. Periodical PPD screening, raising awareness about PPD, providing information to husbands and families, and building a support system for mothers could alleviate the risk of PPD. Future studies should examine whether factors of antenatal depression, which were not assessed in this study, correlate with having PPD to clarify the need for early intervention in mothers.

**Funding** Nagasaki University.

### Contributors

KY conceptualised the study, analysed the data, and wrote the Abstract under the supervision of MH, AK, AS, and YK. AK revised the Abstract. All authors approved the final version.

### Declaration of interests

We declare no competing interests.

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# Assessment of the surveillance system for adverse events following immunisation in the Gaza Strip: a cross-sectional study

Jehad A Awad, Majdi I Dhair, Nedal I Ghuneim, Khaled Abu Ali, Yousef S Al-Yaqoubi, Maysoon Abu Rabee`, Amal Sarsour

## Abstract

**Background** In the occupied Palestinian territory, the expanded programme on immunisation (EPI) has successfully targeted 13 diseases through vaccination and achieved high population coverage. However, surveillance of adverse events following immunisation (AEFI) is inadequate in the Gaza Strip, as only post-BCG lymphadenitis is reported. This study assessed the adherence of health-care workers (HCWs) to the AEFI surveillance system in the Gaza Strip.

**Methods** Data were collected by four methods: 105 HCWs answered a questionnaire; 24 health facilities completed a checklist enquiry; 17 medical health officers and information system managers from Ministry of Health (MOH) and UNRWA health centres and hospitals underwent in-depth interviews; and a focus group was held with 22 epidemiologists, stakeholders, consultants, and managers of the EPI. The 24 health facilities comprised seven MOH primary health-care centres (PHCs) providing vaccination, five MOH PHCs not providing vaccination, seven UNRWA PHCs, and the five hospitals of the Gaza Strip with paediatric departments. Data collected from June, 2015, to August, 2015, were analysed with SPSS version 19. Relationships among variables were assessed by independent *t* tests, chi squared tests and one-way ANOVA. Verbal informed consent was obtained from all participants, and written approval for the study was obtained from MOH and UNRWA directorates.

**Findings** AEFI are reported infrequently; approximately half of the 105 HCWs (51%; 53) report AEFI, but there were conflicting views as to whom they should report. 65% (68) thought that they should report all AEFI. Participants' educational background, participation in workshops, and number of years of employment affected AEFI recognition and reporting. The majority (74%; 78) participate in immunisation workshops. There is an ineffective structure in MOH centres, and the UNRWA has a well-established internal system for reporting AEFI but a poor system for external reporting to the MOH epidemiology department. A lack of HCW awareness of responsibilities may also have a role. The majority of HCWs (95%; 100) reported a need for further training, and all reported a lack of cooperation or coordination between hospitals and PHCs regarding AEFI notification. All individuals (17) who were interviewed knew that they must report AEFI. A majority (65%; 11) stated no difficulties, whereas some (35%; six) reported difficulties due to absence of guidelines, protocols, or notification forms, and to fear of punishment. Focus group participants felt that all AEFI should be reported. They agreed that HCWs face obstacles such as fear of consequences, lack of knowledge and training, high workloads, not considering AEFI as related to immunisation, and absence or shortage of notification forms, protocols, and guidelines. Some felt that certain AEFI should be reported only to treating doctors, but all agreed that there is no cooperation or coordination among PHCs and between hospitals and PHCs regarding AEFI reporting.

**Interpretation** Common themes may explain poor adherence of HCWs to AEFI surveillance. The system is ineffective in MOH centres, and UNRWA PHCs have well-established internal but poor external reporting systems. Absence of monitoring may have a role, and a lack of guidelines, protocols, and forms for reporting were mentioned by HCWs, medical health officers and information system managers, and the focus group. Some HCWs may not know their responsibilities (eg, to whom AEFI should be reported). Many other obstacles face HCWs, including fear of punishment and accountability. Therefore, HCWs must be encouraged to report adverse events without fear of penalty. In addition, lack of education on AEFI and lack of experience in identifying AEFI may affect reporting. Training of HCWs, development of guidelines and protocols, database construction and design, and monitoring of the AEFI surveillance system are highly recommended.

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### Contributors

KAAA, AS, JAA, and NIG were responsible for writing the proposal, seeking funding, data management and writing the results. MID, YSA-Y, and MAR were responsible for data collection and field work. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

We declare no competing interests.

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# Effect of hypertension on pregnancy outcomes at UNRWA health centres in Gaza governorates: a comparative study

Khalil Jamil El-Qatrawi

## Abstract

**Background** Hypertensive disorders affect 10% of all pregnant women and increase the risk of adverse maternal and neonatal outcomes and the psychological wellbeing and quality of life of women. This study is to the best of my knowledge the first to investigate these issues in the Gaza Strip. I compared adverse effects in pregnancy between hypertensive and non-hypertensive women.

**Methods** In this comparative study, eligible participants were hypertensive and non-hypertensive women attending health centres for postnatal care between August, 2016, and May, 2017. Six UNRWA health centres of 21 in Gaza Strip were selected randomly and quota sampling was applied after written informed consent was obtained. Data were collected by face-to-face interview and completion of the WHOQOL-BREF scale and SF-36 to assess quality of life. Additionally, data were extracted from patients' electronic primary medical records. Differences were analysed with Student's *t* test and the  $\chi^2$  test, using SPSS version 22.

**Findings** 430 mothers were enrolled, including 215 with hypertension and 215 without. Mean age was 28.0 years (SD 6.15). The mean gravidity and parity were 4.3 and 3.4, respectively, in the hypertensive group and 3.6 and 2.7 in the non-hypertensive group. Compared with the non-hypertensive group, the hypertensive group had a greater mean body-mass index (30.7 kg/m<sup>2</sup> vs 25.8 kg/m<sup>2</sup>), number of antenatal care visits (8.6 vs 6.6), and rate of pre-eclampsia (29%). 45 (21%) women in the hypertensive group had persistent hypertension after the postnatal period. Hypertensive mothers had higher rates of caesarean section (80 [37%] vs 35 [16%], *p*=0.001), delivery induction (58 [27%] vs 18 [8%], *p*=0.001), antepartum haemorrhage (30 [14%] vs six [3%], *p*=0.001), and postpartum haemorrhage (15 [7%] vs three [1.4%], *p*=0.003). Neonates born to women in the hypertensive group were at increased risk of having preterm birth (32 [15%] of 213 vs 16 [8%] of 215, *p*=0.013), low birthweight (21 [10%] vs 6 [3%], *p*=0.003), and neonatal admissions (26 [13%] vs 14 [7%], *p*=0.044) compared with those born to women in the non-hypertensive group. Hypertensive mothers had a lower mean quality of life score than women in the non-hypertensive group (64.2 vs 71.3, *p*=0.001).

**Interpretation** Neonatal admission in the hypertensive group and the caesarean section rates were lower than expected given the rates of preterm birth and low birthweight. These findings might be attributed to inadequate specialised management due to limited resources, blockade, receiving specialist treatment outside Gaza Strip, and political context. However, higher number of antenatal care visits suggests that hypertensive women receive more antenatal care from health-care providers at UNRWA clinics than non-hypertensive women. Secondary and tertiary maternal care in Gaza Strip need to be improved. A limitation of this study was poor documentation of some secondary health care data in electronic primary medical records but was overcome by reviewing hospital records.

**Funding** None.

### Contributors

KJQ designed the study, did the data collection and data analysis, and wrote the Abstract.

### Declaration of interests

I declare no competing interests.

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# Anti-D immunoglobulin versus immunoglobulin G for the treatment of acute immune thrombocytopenia in children: a 10-year retrospective study

Mohammed K El-Habil

## Abstract

**Background** Anti-D immunoglobulin (anti-D) therapy is cheaper and has a shorter infusion time than intravenous immunoglobulin G (IgG), but their comparative effects in the treatment of acute immune thrombocytopenia (ITP) have not been studied thoroughly. The aim of this study was to compare the effect of anti-D and intravenous IgG in the treatment of acute ITP in children.

**Methods** The medical records of children diagnosed with acute ITP between January, 2008, and January, 2018, at Al-Rantisy Specialized Pediatric Hospital (a tertiary care centre) in Gaza were reviewed. Patients who received either intravenous anti-D (75 µg/kg, single dose) or intravenous IgG (2 g/kg, divided doses) as initial treatment for ITP were included in this retrospective study. Data on patient demographics, hospital stay period, and adverse drug reactions were collected for analysis. Laboratory results, including platelet counts and haemoglobin levels, were evaluated before treatment, and after 1, 3, 5, and 7 days of treatment. The therapy response was defined as the time taken to increase the platelet count to at least 20,000 platelets per µL.

**Findings** Data from 134 patients (mean age, 5·8 years; range, 1·1–10·4 years) were included for analysis. 32% of patients (43 of 134) received anti-D and 68% of patients (91) received intravenous IgG. Mean pre-treatment platelet counts were 6420 platelets per µL and 8750 platelets per µL for anti-D and intravenous IgG groups, respectively. The platelet count increased significantly after 1, 3, 5, and 7 days of treatment in both groups ( $p < 0\cdot001$ ). After 24 h of treatment, 58% of patients (25 of 43) in the anti-D group and 55% of patients (50 of 91) in the intravenous IgG group had platelet counts of over 20000 platelets per µL. Moreover, all of the patients in both groups had more than 20000 platelets per µL after 7 days of therapy. There were no significant differences in platelet count after treatment between the two groups. Haemoglobin levels decreased during the 72 h after treatment (anti-D group, mean 0·8 g/dL, range, 0·1–1·4 g/dL; intravenous IgG group, mean 0·5 g/dL, range, 0·2–1·2 g/dL;  $p = 0\cdot237$ ), but increased on days 5 and 7 in both groups. The changes in haemoglobin after treatment were similar in both study groups. No patient developed severe anaemia requiring medical intervention. The average length of hospital stay was significantly shorter in the anti-D group than in the intravenous IgG group (1·8 days and 3·2 days, respectively;  $p < 0\cdot0001$ ). Fewer adverse effects (headache, vomiting, chills) were reported in children who received anti-D therapy.

**Interpretation** In this analysis, anti-D was as effective as intravenous IgG in the treatment of children with acute ITP. Given that patients in the anti-D group experienced fewer adverse effects and shorter hospitalisation times than patients in the intravenous IgG group, this suggests that anti-D is a good substitute for intravenous IgG in the treatment of children with acute ITP.

**Funding** None.

**Declaration of interests**

I declare no competing interests.

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# Effect of nurse-supported care on pain management in women undergoing caesarean delivery: a comparative study

Samar El Hams, Noor El Najjar, Khaled Abu El-Aish

## Abstract

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**Background** Pain management after caesarean delivery is important because acute pain in the postoperative period is associated with persistent pain, increased opioid use and postpartum depression, and delayed functional recovery. We investigated the role of nurse-supported care in acute pain management after caesarean delivery, which as far as we know has not previously been investigated in Gaza.

**Methods** This was a comparative study done from March, 2018, to October, 2018, among women assigned to undergo caesarean delivery. Research nurses at the Al-Helal Al-Emirati Hospital, Rafah, Gaza Strip, occupied Palestinian territory, were trained to give supportive pain management care to women after caesarean delivery, including individualised care and educational sessions on pain, nutrition, exercise, and wound care. Women were randomly assigned to receive nurse-supported care or usual care. Pain assessment scales (range 1–5, where 1=no pain and 5=pain as bad as it could be) were used to record pain at 1, 6, 12, 18, and 24 h after caesarean delivery. The time from the end of the caesarean delivery to the first request for analgesia and the total amounts and types of analgesics (pethidine ampules, diclofenac ampules, or indometacin suppositories) used in the first 24 h were recorded as primary outcomes. Secondary outcomes were nausea and vomiting scores (0–3, where 0=no nausea or vomiting and 3=severe and unresponsive to antiemetic drugs), sedation scores (0–3, where 0=patient awake and 3=severe sedation and patient difficult to rouse), and pruritis scores (0–2, where 0=no pruritis and 2=severe pruritis needing treatment). Data were analysed with SPSS (version 22.0). Groups were compared by using the Student's *t*-test and  $\chi^2$ . P values less than 0.05 were significant. The study was approved by the Ministry of Health and Helsinki Committee, Gaza Strip. Women provided verbal informed consent for inclusion in the study when they were assigned to the caesarean delivery.

**Findings** 108 women participated, with a mean age of 29.2 years (SD 5.50). 49 women were randomly assigned to nurse-supported care and 59 to usual care. Pain was reduced in the nurse-supported care group compared with in the usual care group at 12 h (mean score 1.15 [SD 0.25] vs 1.60 [0.67],  $p=0.002$ ) and at 18 h (1.08 [0.22] vs 1.26 [0.21],  $p=0.049$ ) but did not differ significantly at other times. The time to first requesting analgesia was shorter in the nurse-supported care group than in the usual care group (mean 3.38 h [SD 1.01] vs 6.16 h [2.01],  $p=0.038$ ). The proportions of women who asked for a first analgesic were similar in the two groups (30 [61%] and 36 [61%]), whereas seven (14%) women in the nurse-supported care group requested a second analgesic compared with 13 (22%) in the usual care group ( $p=0.045$ ). There were no significant differences between the two groups for nausea and vomiting, sedation, or pruritis.

**Interpretation** Nurse-supported care provided better analgesia than usual care in women who had undergone caesarean delivery. A multicentre study is needed to explore the types, duration, and repeatability of the effects of nurse supportive care on pain perception and duration of hospital stay after caesarean delivery.

**Funding** None.

### Contributors

SHE, NEN, and KAE-A. conceptualised the study. KAE-A designed the study. SHE and NEN contributed to the study procedures. SHE, NEN, and KAE-A collected the data. KAE-A input and analysed and managed the data and wrote and revised the Abstract. All authors approved the final version of the Abstract for publication.

### Declaration of interests

We declare no competing interests.



# Effects of change in hospital treatment payment policy for Palestinian refugees in Lebanon: a health economics analysis

Sara V de Almeida, Gloria Paolucci, Akihiro Seita, Hala Ghattas

## Abstract

**Background** In 2016, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) changed from covering the full cost of secondary care in contracted public and private hospitals in Lebanon, Jordan, to requesting that these hospitals pay 10% of the costs. Meanwhile, services at UNRWA-contracted Palestine Red Crescent Society (PRCS) hospitals remained fully covered. We did a health economics analysis to assess the effects this policy change on the demand for secondary care in UNRWA hospitals.

**Methods** We assessed the difference in use of different types of hospital (demand) from January to May, 2016, and June, 2016, to October, 2017, before and after the payment policy change. Data were collected by UNRWA from each hospital's database, including individual-level inpatient information for 22 193 Palestinian refugees in Lebanon who were admitted to secondary care at UNRWA-contracted hospitals (public, private, and PRCS). We used regression analyses to estimate the effects on demand for the different hospital types, length of stay, and total costs of treatment to UNRWA and patients.

**Findings** Around 64% of patients attended PRCS, 26% private, and 9% public hospitals. According to our econometric estimations, after June, 2016, patients were 16% more likely to choose a PRCS hospital over the other types of hospital. Mean length of stay in PRCS hospitals increased, leading to a 20% chance of patients staying 1 day longer in PRCS hospitals than in public or private hospitals. However, the length of stay in public and private hospitals decreased (by an average of 22% at public and 28% at private hospitals), giving an overall decrease in length of stay of 13%. In terms of bill value (ie, total costs to UNRWA and to patients), we found no difference between before and after the policy change.

**Interpretation** The introduction of the UNRWA cost-sharing component for secondary care led patients to attend PRCS hospitals more often and for longer periods of time. The finding that no effect was seen on costs for UNRWA or patients suggests that the 10% cut in cover at public and private hospitals did not save any money for UNRWA because patients managed to accommodate the increase by changing their hospital preference. The study is limited in that it cannot argue causality between the policy and the results found because there is no control group. Nevertheless, robustness testing, including assessing the year 2017, supports our results. This study contributes to the literature on the impacts of co-payments in health care in a very specific context of poverty and conflict that has rarely been subject to scrutiny and provides feedback to UNRWA on a health-care system measure, relevant for future policy designs.

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## Contributors

SVdA conceptualised the study and analysed the data with support from GP and AS. AS and HG reviewed and provided advice on the analyses. All authors approved the final version of the abstract for publication.

## Declaration of interests

GP and AS are employees of UNRWA. The other authors declare no competing interests.

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# Non-communicable diseases among Palestinian refugees from Syria: a cross-sectional study on prevalence, case management, access to and utilisation of UNRWA Health Services

Monique Chaaya, Lilian A Ghandour, Fouad M. Fouad, Aline Germani, Rana Charide, Yousef Shahin, Suha Ismail, Saleh Fahd

## Abstract

**Background** As of Feb 14, 2014, UNRWA had registered almost 53 000 Palestinian refugees from Syria (PRS) who had fled to Lebanon as the result of the conflict in Syria. Half of the PRS had gone to one of the 12 Palestinian camps, which are overcrowded and of poor infrastructure. Consequently, there is concern for the wellbeing of PRS; in particular, their health status and access to medical care. Little attention has been given to non-communicable diseases (NCDs) in the acute phases of emergencies. Therefore, an assessment of the prevalence of NCDs among PRS, as well as the patterns of use of available health care services by PRS, is warranted.

**Methods** A cross-sectional study was conducted in April, 2018, with 1100 PRS residing inside and outside refugee camps across all governorates of Lebanon. A listing of all PRS families was the sampling frame. A random sample of families was selected and contacted, and then one adult randomly selected from each family was approached for data collection. Pregnant women and participants who were too ill to participate were excluded. After obtaining informed verbal consent, we did face-to-face interviews to collect data on household details (such as type of settlement, source of income) and sociodemographic information, major NCDs (for the household representative), lifestyle behaviours, and health-care use. We invited all participants to UNRWA clinics for physical and biochemical measurements. The study protocol was approved by the Institutional Review Board of the American University of Beirut.

**Findings** We surveyed 959 PRS (59% male [465], 82% married [785], mean age 43 years [SD 12]). A quarter of those interviewed had at least one NCD; the most prevalent were hypertension (23%; 221 of 959), rheumatic diseases (17%; 166), cardiovascular diseases (CVDs, 13%; 126), diabetes (13%; 124), and chronic respiratory diseases (CRDs) (10%; 100). All these NCDs were more prevalent among PRS inside camps than in those residing outside camps, except for diabetes. Most participants who had been diagnosed with NCDs were adhering to their prescribed medications (90–98%). However, of those reporting CVDs, only 56% (71 of 126) had attended at least one follow-up appointment, and of those reporting rheumatic diseases, only 33% (55 of 166) had attended at least one follow-up appointment. About half of participants reported that they checked their blood pressure (55%; 528 of 959) or blood glucose (45%; 430). 111 of 221 (50%) participants with hypertension monitored their blood pressure, and 78 of 124 (63%) participants with diabetes monitored their blood glucose. 133 participants attended UNRWA clinics for measurements; 40% (54) had obesity (>30 kg/cm<sup>2</sup>), 10% (13) had elevated blood pressure, 12% (16) had stage 1 hypertension, and 8% (10) had stage 2 hypertension. Most participants had normal glucose (67%; 89 of 133), cholesterol (65%; 87), triglyceride (58%; 77), and glycosylated haemoglobin levels (64; 85). A substantial proportion of participants who were tested had undiagnosed diabetes (14%; 33 of 108 reporting no diabetes), undiagnosed hypertension (23%; 19 of 81), uncontrolled diabetes (79% of participants with diabetes; 19 of 24), or uncontrolled hypertension (64% of participants with hypertension; 29 of 45).

**Interpretation** Further study is needed to understand why the prevalence of NCDs among PRS residing in Palestinian camps is higher than among those living outside, and to understand whether and why access to medicines is a problem, particularly outside camps. The burden of NCDs among PRS is high and their access to services is not optimal; therefore UNRWA should pay special attention to NCD services in this population. UNRWA should invest in efforts to increase awareness of free blood pressure and blood glucose monitoring services in its clinics, and could actively offer free testing in public areas inside camps. Doctors at UNRWA clinics should recommend that patients monitor their disease more frequently and educate them on how to do so. A limitation of the study was the low percentage of participants who attended UNRWA clinics for physical and biochemical measurements.

## Funding UNRWA.

### Contributors

MC, LG, and FMF conceived the study, MC wrote the abstract with input from FMF, LG, RC, AG, YS, SI, and SF. MC, LG, FMF and RC did the statistical analysis. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

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# Spatial agency among children living in the Dheisheh refugee camp in the West Bank: a qualitative investigation of space and place as risk and protection factors from political and military violence

Federica Cavazzoni, Hala Kittaneh, Guido Veronese

## Abstract

**Background** In Palestine, the ongoing Israeli occupation shapes and endangers all spaces that are used by children in their everyday lives. In this study, Palestinian children were considered active agents in their lives, both affecting and being affected by the world around them. Our research aimed to explore the role of resources, competencies, and attitudes of spatial agency in the lives of children in the occupied Palestinian territory. Specifically, we investigated how children use domestic and social spaces to actively maintain positive function and wellbeing despite an environmental backdrop of military violence.

**Methods** A convenience sample of 29 children aged 7–13 years (mean 9·66, SD 1·63) attending the primary school in Dheisheh refugee camp, West Bank, was selected. 17% (5 of 29) were boys and 83% (24) were girls. All children were asked to draw and describe a map of safe and unsafe places in the camp. Ten children were asked to continue the conversation outdoors using a “walk-along” technique, showing familiar places and narrating their experiences. Data were collected in April, 2018. All of the children’s narratives were audiotaped, transcribed, and translated by a local bilingual researcher. Thematic content analysis was applied. Children who have been diagnosed with a physical or psychological disease were excluded from the sample. The study was approved by the ethical board of the University of Milano-Bicocca. Written informed consent was obtained from children and their families, who were informed of the scope of the research.

**Findings** Five themes emerged: using the mosque and the school to access spiritual and educational resources for subjective wellbeing; internal spaces as a safe place for growth and development (including domestic spaces to experience a sense of protection and security); community spaces to have fun and play an active part in the social and political life of the camp; enjoying the outdoor spaces of the camp despite environmental dangers and the violence of the occupation. Some children perceived risks and lack of safety in their lives. Children’s narratives made plain the ways in which their ability to mobilise functioning resources (such as playing and socialising) were constrained by military and community violence, and environmental degradation. Overall, social and external places as spaces to restore a sense of normality and happiness were valorised more by boys than by girls, and girls were more active in internal spaces than in external spaces.

**Interpretation** Spatial agency is a key factor that potentiates wellbeing in children. Psychosocial interventions should aim to promote children’s participation in transforming and reshaping spaces and places for their own protection and to improve the psychological wellbeing of the community.

**Funding** None.

## Contributors

FC and GV conducted the research and thematic content analysis. HK translated the narratives. FC, GV, and HK wrote the Abstract. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Survival analysis for patients with cancer in Gaza applying for Israeli permits to exit the Gaza Strip for health care: a retrospective cohort study of patients from 2008 to 2017

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## Abstract

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**Background** Gaza has been under land, sea, and aerial blockade for more than 13 years, during which time Israel has continued its permit regime to control access for Palestinian patients from Gaza to health facilities in the West Bank (including East Jerusalem), Israel, and Jordan. Specific groups, such as patients with cancer, have a high need for permits owing to a lack of services in Gaza. The approval rate for patient permits to exit Gaza dropped from 94% in 2012 to 54% in 2017. We aimed to assess the effect of access restrictions due to permit denials or delays on all-cause mortality for patients with cancer from Gaza who were referred for chemotherapy, radiotherapy, or both.

**Methods** This study matched 17 072 permit applications for 3816 patients referred for chemotherapy, radiotherapy, or both, from Jan 1, 2008, to Dec 31, 2017, with referral data for the same period and mortality data from Jan 1, 2008, to Jun 30, 2018. We stratified survival analysis by period of first application (2008–14, 2015–17), in light of varying access to Egypt during these times. Primary analysis compared survival of patients according to their first referral decision (approved versus denied or delayed) using Kaplan-Meier methods and Cox regression. Consent for the study was granted by the Palestinian Ministry of Health, and ethical approval was granted by the Helsinki Committee of the Palestinian Ministry of Health.

**Findings** Mortality was significantly higher among patients who were initially unsuccessful in permit applications from 2015 to 2017 (141 events over 493 person-years, corresponding to a rate of 286 per 100 person-years) than among patients who were initially successful in the same period (375 events over 1923 person-years, corresponding to a rate of 195 per 100 person-years) with a hazard ratio of 1.45 (95% CI 1.19–1.78,  $p=0.0009$ ) after adjusting for age, sex, type of procedure, and type of cancer. There was no significant difference in mortality risk between the two groups in the 2008–14 period, with a hazard ratio of 0.84 (95% CI 0.69–1.01,  $p=0.071$ ).

**Interpretation** Barriers to patient access to health care through denied or delayed permit applications had a significant impact on mortality for patients with cancer who applied for chemotherapy, radiotherapy, or both, in the period 2015–17. Relative ease of access through Rafah from 2008 to 2014 may have mitigated the health effects of access restrictions.

**Funding** WHO received funding from the Swiss Agency for Development and Cooperation.

## Contributions

ML and SI collected data on permit applications and mortality. ML and JN undertook regular collection of data (both quantitative and qualitative) on health access, with support from BB, WS, MD, and GR. BB, FB-A, HVD, KQ, and AR wrote the Abstract with support from ML, FR, WS, and MD. BB coordinated compilation of the Abstract. KQ, ML, and WS processed data on permit applications and mortality, and carried out descriptive analyses. FB-A carried out statistical analyses, including survival analysis and Cox regression analyses. AR, BB, FB-A, FR, HVD, KQ, and ML contributed significantly to the study design. All authors contributed to interpretation of the findings. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

## Acknowledgments

We thank the Palestinian Ministry of Health for providing data on mortality and referrals. We also thank the Palestinian Coordination Liaison Office for providing data on permit application outcomes and for their efforts to strengthen data quality and disaggregation. Colleagues at WHO in the occupied Palestinian territory, Regional Office for the Eastern Mediterranean, and WHO headquarters provided technical, administrative, and moral support for which we are grateful.

# Health attacks and protection strategies during Gaza's Great March of Return: a mixed methods study using data from WHO's Surveillance System for Attacks on Healthcare

Walaah Shehada\*, Benjamin Bouquet, Juliana Nassar, Carolyn Briody, Nadia Alfarra, Henry V Doctor, Mahmoud Daher, Gerald Rockenschaub, Graham Kirkwood, Allyson Pollock, Hyo-Jeong Kim

## Abstract

**Background** WHO defines an attack on health care as “any act of verbal or physical violence or obstruction or threat of violence that interferes with the availability, access and delivery of curative and/or preventive health services during emergencies.” Gaza's Great March of Return (GMR) began on Mar 30, 2018, with 322 Palestinians killed and 33 141 injured by December, 2019, and first-response health-care teams exposed to high levels of violence. The aims of this study were threefold: to explore the vulnerabilities of health workers to attacks during the GMR; to understand the effectiveness and comprehensiveness of systems for monitoring health attacks; and to identify potential strategies and interventions to improve protection.

**Methods** WHO's Surveillance System for Attacks on Healthcare (SSA) verifies and records health attacks. We analysed SSA data for the Gaza Strip from Mar 30, 2018, to Dec 31, 2019, examining the number and type of attacks, the mechanisms of injury, and the distribution of attacks by gender, time, and location. We analysed the correlation of health worker injuries and deaths with total injuries and deaths of Palestinians during the GMR. We held interviews and focus groups with individuals working for organizations defined as partners contributing to the SSA in the Gaza Strip, to understand data comprehensiveness, the nature and impact of violence, and protection gaps and strategies.

**Findings** During the study period, there were 567 confirmed incidents, in which three health workers were killed, 845 health workers were injured, and 129 ambulances and vehicles and 7 health facilities were damaged, including one hospital and three medical field stations. Of the total health personnel killed and injured, 166 of 848 (20%) were in the Gaza governorate, 274 (32%) were in the Khan Yunis governorate, 119 (14%) were in the middle governorate, 192 (22%) were in North governorate, and 96 (11%) were in the Rafah governorate. Of 845 injuries, 743 (88%) were in men, 45 (5%) were live ammunition injuries, 62 (7%) were rubber bullet injuries, 151 (18%) were gas canister injuries, 41 (5%) were shrapnel injuries, and 533 (64%) were gas inhalation injuries. Injuries and deaths among health workers correlated moderately ( $R^2=0.54$ ) with and accounted for 2% of the total. Qualitative findings highlighted the incidental and structural nature of violence, normalisation and under-reporting of attacks, the need for improved coordination of protection for health care, and gaps in the availability of protective equipment.

**Interpretation** Health-care workers function at great personal risk. The correlation of attacks against health care with total injuries and deaths points to the need for alignment of efforts to protect health care with strategies to safeguard civilian populations, including protection of populations living under occupation and those engaged in civil demonstrations. Health-care workers identified the need for systemic measures to improve protection through training, monitoring, and coordination, and through linking of monitoring and documentation of health attacks with stronger accountability measures for prevention.

**Funding** In 2017 and 2018, WHO's Right to Health Advocacy programme received funding from the Swiss Development Cooperation and the oPt Humanitarian Fund.

## Contributors

WS and NA collected data during the GMR for input into the SSA. Data at the country level were reviewed by BB and GR, with quality assurance and checks of data at the global level by CB and H-JK. BB wrote the abstract with support from WS, JN, H-JK, CB, HD, GK, and AP. WS, JN, and BB led implementation of the SSA at the country level, with support from MD, GR, CB, and HK. WS and NA led qualitative data collection, with support from BB, and review and interpretation of findings by JN, CB, HVD, GK, MD, AP, and H-JK. WS, MD, and GK led statistical analysis, with support from BB, CB, AP, and H-JK. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

## Acknowledgments

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# Development of a targeted client communication intervention for pregnant and post-partum women: a descriptive study

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## Abstract

**Background** Targeted client communication using text messages can inform, motivate, and remind pregnant and postpartum women to use care in a timely way. The mixed results of previous studies of the effectiveness of targeted client communication highlight the importance of theory-based co-design with users. We planned, developed, and tested a theory-based intervention tailored to pregnant and postpartum women, to be automatically distributed via an electronic maternal and child health registry in occupied Palestinian territory.

**Methods** We did 26 in-depth interviews with pregnant women and health-care providers in seven purposively selected public primary health-care clinics in the West Bank and Gaza to include clinics with different profiles. An interview guide was developed using the Health Belief Model to explore women's perceptions of high-risk conditions (anaemia, hypertension, diabetes, and fetal growth restriction) and timely attendance for antenatal care, as predefined by a national expert panel. We did thematic analyses of the interview data. Based on the results, we composed messages for a targeted client communication intervention, applying concepts from the Model of Actionable Feedback, social nudging, and enhanced active choice. We assessed the acceptability and understandability of the messages through unstructured interviews with local health promotion experts, health-care providers, and pregnant women.

**Findings** The recurring themes indicated that most women were aware of the health consequences of anaemia, hypertension, and diabetes, but that they seldom associated these conditions with pregnancy. We identified knowledge gaps and low awareness of susceptibility to and severity of these complications and the benefits of timely antenatal care. The actionable messages were iteratively improved with stakeholder and end-user feedback after presenting the initial draft, and the messages deemed were understandable and acceptable based on reflections during unstructured assessment.

**Interpretation** Following a stepwise iterative process by a theory-based approach and co-designing the intervention with users, we revealed elements critical to an efficacious targeted client communication intervention. A potential limitation of our study is that conducting in-depth interviews on several health conditions simultaneously might have reduced the depth of information we could have obtained. The strength of our study was that we assessed for, developed, and refined the intervention following recommended theoretical frameworks and best practices. The effectiveness of this intervention is under evaluation in a cluster-randomised trial (ISRCTN10520687).

**Funding** European Research Council and Research Council of Norway.

## Contributors

JFF conceptualised the study. JFF was responsible for funding acquisition. BB, KM, and JFF designed the methodology. BB, BG, IAW, KAK, MB, HA, and TA did the investigation. BB, BO'D, MF, MB, and YR designed the targeted client communication software. BB, KM, and JFF wrote the first draft of the Abstract and all authors were involved in the reviewing and editing.

## Declaration of interests

We declare no competing interests.

## Acknowledgments

We thank the Palestinian Ministry of Health, Palestinian National Institute of Public Health, and Public Primary Health Care Centres for their cooperation and support. We thank especially the DHIS2 Tracker developers in the Health Information Systems Programme, University of Oslo, Oslo, Norway, for technical support, and the Centre for Intervention Science in Maternal and Child Health at University of Bergen for the scientific consultation. Many thanks also to the respondents and data collectors.

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# The impact of e-health system implementation on UNRWA health services: an observational study

Ghada Ballout, Najeeb Al-Shorbaji, Wafaa Zeidan, Yousef Shahin, Majed Hababeh, Suha Saleh, Shatha Albeik, Akihiro Seita

## Abstract

**Background** The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) provides primary-health-care services to more than 5 million Palestinian refugees in five operational fields (Jordan, Syria, Lebanon, West Bank, and Gaza) through 144 health centres. UNRWA developed its electronic health records (e-Health) system to improve monitoring and facilitation of health services provided to Palestinian refugees. By the end of 2017, the system had been deployed in 129 health centres, included the health files of 3 million patients, and managed more than 8 million visits per year. We assessed whether preventive-health-care services had improved following implementation of the system.

**Methods** This observational study used three key performance indicators to assess preventive-health-care services reported in UNRWA's annual reports in 2012–17: the percentage of targeted people aged 40 years and older screened for diabetes; the percentage of pregnant women with a livebirth who attended at least four antenatal visits; and the prevalence of growth problems (underweight, stunting, wasting, and overweight or obesity) in children younger than 5 years. Simple descriptive analysis was conducted with Microsoft Excel 2010. Ethical approval was obtained from the UNRWA Headquarters Department of Health.

**Findings** Screening for diabetes significantly increased from 13% in 2012 to 21% in 2017 ( $p < 0.0001$ ) since the e-Health system started sending alerts to clerks at health centres. The percentage of pregnant women with a livebirth who attended at least four antenatal visits, increased from 87% in 2012 to 92% in 2017, when the e-Health System allowed health-care providers to log all pregnant women who missed their appointments to enable follow-up. Additionally, an electronic maternal and child health mobile application, sends regular reminders to mothers about appointments for themselves and their children. The percentages of underweight, stunting, wasting, and overweight or obesity among children younger than 5 years increased respectively from 3%, 4%, 2%, and 2% in 2014 to 5%, 7%, 4%, and 5% in 2017, but this was due to the increased detection of growth problems through the e-Health system.

**Interpretation** The e-Health system improved detection and monitoring by UNRWA health-care providers and access to health services for Palestinian refugees in all three indicator categories. This study has several limitations. It is an observational study based on assessing health records of children rather than a prospective study over time. The focus of the study was to assess the impact of the eHealth system on health-care delivery and not to assess the changes in health-care delivery itself. The electronic health records that were reviewed are for the Palestine refugees who are registered at UNRWA health clinics and not for other refugees or residents of the five countries. Strengths of the study are that it is based on electronic health records which contain data recorded by the treating staff; the e-health system used by UNRWA clinics staff is centralised and the data are aggregated agency wide; and the growth monitoring indicators used by UNRWA were derived from the WHO Multi-center Growth Reference Study to assess the growth of children from birth up to age 5 years.

**Funding** None.

## Contributors

GB conceptualised the study and wrote the abstract with the support from WZ, SS, and SA. WZ analysed and interpreted the data. NA-S, YS, MH, and AS revised and refined the Abstract. All authors approved the final version of the Abstract.

## Declaration of interests

We declare no competing interests.

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# The experience of family carers of children with incurable cancer: a qualitative study from the occupied Palestinian territory

Maha Atout, Intima Alrimawi, Eman Abu Salameh

## Abstract

**Background** Treatments for childhood cancers have raised the survival rate, however different forms of malignancy continue to cause untimely deaths, and cancer remains a leading cause of death among children. Global research on paediatric cancer is limited for several reasons. Most research has focused on specific methodologies, including questionnaires with heterogeneous samples. In addition, many studies have covered a broad range of cancer diagnoses, and a wide range of children's ages and periods between diagnosis and treatment. These methods are unable to capture the essence of experiences and cultural differences. This study aimed to explore the experience of family carers of children with incurable cancer in occupied Palestinian territory.

**Methods** The study was conducted in the Paediatric Cancer Department of Beit Jala Hospital, which is the first public cancer department for children in the West Bank. The family carers of children aged 1–18 years with any type of incurable cancer in this hospital were considered eligible for participation, and the individual most involved in the care of the child was selected. To recruit participants, head nurses of medical and surgical paediatric floors provided assistance in approaching the carers of eligible children. The main objectives of the study were then discussed with the family carers. Semi-structured interviews were conducted with participants, and an interpretative phenomenological analysis approach was used to analyse the collected information. Ethical approval was obtained from the Beit Jala Hospital ethical review board and written informed consent was obtained from all participants.

**Findings** 14 interviews were conducted. Participants were nine mothers, four grandmothers, and one father. Family carers discussed their caring experiences, including their experiences in administering special treatments, their suffering due to treating irritable children, and the information given to them about their children's illness. Family carers reported that they changed the focus of their care from an initial emphasis on normalising their children's lives to relieving their physical and psychological discomfort. This change of focus accompanied changes in carers' understanding of their child's disease over time. As carers became more realistic regarding the future of their children, they attempted to make their lives as comfortable as possible. Finally, carers discussed the support system around them; they found several resources to support them in the care of their children, including the experiences of other parents of children with similar diseases, the hospital environment, and their religious beliefs. Nevertheless, they stated that they needed more support during this difficult time of their lives.

**Interpretation** There is a need to support parents of children with incurable cancer in the occupied Palestinian territory. Suggestions to improve the quality of care provided for these parents include the education and recruitment of health care professionals, including social workers and psychologists, to provide emotional and spiritual support.

**Funding** None.

## Contributors

MA drafted the manuscript and contributed to the study proposal, data analysis, and interpretation. IR contributed to the study protocol, data analysis, and interpretation. EAS contributed to the design of the study, data collection, and interpretation of data. All authors have seen and approved the final version of the Abstract for publication.

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# The prevalence of diabetic peripheral neuropathy among diabetic Palestinian refugees in the Nuzha area, Jordan: a cross-sectional study

Sa'ed M Atallah, Madi T Al-Jaghbir, Ayman A Zayed

## Abstract

**Background** Diabetic peripheral neuropathy (DPN) is the most common type of diabetic neuropathy. It accounts for significant morbidity, including lower extremity amputations. There are few studies on the prevalence of DPN among Palestinian refugees in Jordan. This study aimed to determine the prevalence of DPN and its associated factors among Palestinian refugees with diabetes in the Nuzha area of Jordan, using the Michigan Neuropathy Screening Instrument (MNSI).

**Methods** A cross-sectional study was conducted at the UNRWA Nuzha Health Centre, Amman, Jordan, during the first quarter of 2016 (Jan 2–Mar 31, 2016). The Nuzha Health Centre was randomly chosen from the UNRWA clinics in Jordan. Study participants were selected by systematic random sampling. The number of participants was decided with Cochran's formula and adjusting the sample size by use of the finite population correction equation. 343 patients with diabetes were assessed for DPN using the history and physical assessment sections of the MNSI. We generated descriptive statistics, and tested for associations between variables using univariate and multivariate logistic regression analysis to identify the best subset of predictors for the presence of DPN. We used SPSS version 22 to input and analyse data. This study was approved by the UNRWA Jordan Field Office and the Institutional Review Board at the University of Jordan, and by the Michigan Diabetes Research Centre, which gave its permission to use the MNSI. Written informed consent was obtained from each participant.

**Findings** Prevalence of DPN was 11% (37 of 343) based on the history section and 36% (122 of 343) based on the physical assessment section of the MNSI. Multivariate logistic regression revealed that significant predictors for DPN based on the history section of the MNSI were education level and duration of diabetes. Compared with participants with no education, the odds ratio (OR) for DPN was 0.13 (95% CI 0.04–0.49,  $p=0.0023$ ) for participants with elementary education, 0.11 (0.03–0.49,  $p=0.0035$ ) for those with high school education, and 0.04 (0.01–0.41,  $p=0.0070$ ) for those with a diploma. Compared with participants who had diabetes for less than 10 years, the OR for DPN was 7.69 (1.99–30.30,  $p=0.0031$ ) for those who had diabetes for 10–19 years and 32.26 (6.76–142.86,  $p<0.0001$ ) for those who had diabetes for 20 years or longer. However, the predictors for DPN based on the physical assessment part of MNSI were age, duration of diabetes, and type of treatment for diabetes. Compared with participants aged 70 years or older, the OR for DPN was 0.18 (0.04–0.89,  $p=0.036$ ) for those aged 40–49 years and 0.22 (0.06–0.82,  $p=0.024$ ) for those aged 50–59 years. Compared with participants who had diabetes for less than 10 years, the OR for DPN was 32.26 (13.70–76.92,  $p<0.0001$ ) for those who had diabetes for 10–19 years and 200 (34.48–1000,  $p<0.0001$ ) for those who had diabetes for 20 years or longer. The OR for DPN was 0.23 (0.08–0.70,  $p=0.0094$ ) for participants who were treated with oral hypoglycemic agents alone, compared those who were treated with insulin and oral hypoglycaemic agents.

**Interpretation** The prevalence of DPN is high among Palestinian refugees with diabetes in the Nuzha area, Jordan, consistent with the results of other studies of DPN in individuals with diabetes. There is a need for early detection and regular screening for DPN in patients with diabetes, with special attention given to patients with risk factors for DPN.

**Funding** None.

## Contributors

SMA conceptualised the study, collected and analysed the data, wrote the Abstract, and carried out data interpretation. MTA and AAZ supervised the study. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

SA is an UNRWA employee. We declare no other competing interests.

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# Visual outcomes associated with delay from trauma to surgery for open globe eye injury in Palestine: a retrospective chart review study

Murad Y Amro

## Abstract

**Background** Open globe eye injuries have poor visual outcomes. In Palestine, no studies have completely described the impact of time delays to surgery on visual outcomes. This study examines the causal factors for open globe eye injuries, time to presentation, and the effects of delays to surgery on visual outcomes.

**Methods** A retrospective review was carried out of 413 patients with monocular open globe eye injuries attending St John Eye Hospital, Jerusalem, occupied Palestine territory, from Jan 1, 2000, to Dec 31, 2005. Injury cause, time to presentation, visual acuity on arrival, and the final corrected visual outcomes were assessed.

**Findings** Open globe eye injuries were caused by traumatic injury during the Intifada in 2002 (13%) and military actions throughout the study period (14%), but most injuries (38%) occurred in workplace or were related to domestic eye injuries (20%). The median time from open globe eye injury to arrival at hospital was 4 hours (IQR 11–3); 290 (70%) of 413 patients arrived within 8 h of injury. Visual acuity on arrival was normal only in five eyes (1.2%), functionally accepted vision in 42 eyes (10%), visually impaired in 77 eyes (18.6%), blindness in 229 (55%), and difficult to measure in 60 (15%). Surgical repair was performed in 366 eyes (89%) and 47 (11%) eyes were removed. After surgery, visual status was classified as visual acuity impaired in 85 (20.6%) of 336 repaired eyes, blindness in 87 (21%), normal vision restored in 58 eyes (14%), functionally acceptable vision restored in 116 eyes (28%), difficult to measure in 20 (4.8%). Among the 290 patients who presented within 8 h of injury, the final visual outcomes were impaired visual acuity in 72 (25%), blindness in 71 (24%), eye removed in 38 (13%), and visual acuity difficult to measure due to very young age or devastating injury remaining after surgery in 14 (4.8%) and vision was restored in 95 (33%).

**Interpretation** Despite the devastating nature of open globe eye injury, minimum time from trauma to surgical intervention could save the injured eyes. Further studies should investigate whether delay in surgery affects outcomes in relation to the severity of injuries, as this study is cross-sectional and longitudinal epidemiological studies might yield better interpretations.

**Funding** None.

## Contributors

MYA designed the study, collected, analysed and interpreted data, and wrote the Abstract.

## Declaration of interests

I declare no competing interests.

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# Clinical audit as a quality improvement tool in the Gaza Strip: an audit of audits

Said Alyacoubi, Bettina Böttcher, Loai Albarqouni, Khamis Elessi

## Abstract

**Background** Clinical audit plays a fundamental role in improving the quality of patient care and hence, is considered a cornerstone of clinical governance. This quality improvement tool is newly introduced in the health-care system of the Gaza Strip. Although the number of audits completed in Gaza has been increasing over the past few years, little evidence is available of subsequent quality improvements in practice.

**Methods** An online survey was used to collect information on the audit team, location, applied methods, outcomes, presentation of data, and reaudit. Medical students and health-care professionals who had conducted audits between 2015 and 2018 were invited to complete the survey from Oct 12 to Nov 2, 2018.

**Findings** Data on 62 audits were collected. Training in clinical governance was received by 55 auditors (89%) and a senior supervisor was available in 56 audits (90%). Audits were performed across different hospitals and specialties: 18 (29%) in obstetrics, 16 (26%) in medicine, and 11 (18%) in each of surgery and paediatrics, with six (10%) in other specialties. A clear trend of increasing numbers of audits was observed, with four (6%) having been done in 2015, 12 (19%) in 2016, 22 (35%) in 2017, and 24 audits (39%) in 2018. Students were involved in 46 audits (74%) whereas practising doctors were involved in only 29 audits (47%). 17 (27.4%) audits were done at more than one health-care facility and the remaining audits were done at one of 13 other main hospitals or community centres across the Gaza Strip. Clear standards were identified in 54 audits (90%) while eight audits (13%) reported not setting standards at all. Improvement of documentation was recommended in 44 audits (71%), development of national guidelines in 37 (60%), and staff training in 32 (52%). Only 32 audits (51.6%) were presented to the local staff. The audit cycle was completed in 13 projects (20.9%) with only seven of them reporting subsequent improvements in practice.

**Interpretation** A rise in the numbers of audits reflects a growing awareness of their key role in health care and patients' safety. However, completion of audit cycles and the actual implementation of recommendations are lagging. Therefore, more focused efforts supported by both clinical and administrative leaderships are needed to implement changes and ensure continuous evaluation of their effectiveness.

**Funding** None.

### Contributors

SY designed the study, collected the data, did the analysis and interpretation, and wrote the Abstract. All authors helped revise the Abstract. All authors have seen and approved the final version.

### Declaration of interests

We declare no competing interest.

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# Awareness and prevalence of needle stick injuries among cleaners and health-care providers in Gaza Strip hospitals: a cross-sectional study

Abdallah Alwali, Ahmed Shaheen, Mohammed Ahmed, Zakaria Mansour, Loay Kanou, Belal AlQanoa, Ahmed Abu-Lamzi, Moath Enshassi, Ahmed kahlout, Nouredin Shaheen, Mahmoud Hamouda, Bettina Böttcher

## Abstract

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**Background** Needle stick injuries (NSIs) are preventable hazards that can be avoided with appropriate staff training and safety systems. We assessed the prevalence and awareness of NSIs among health-care workers and cleaners in hospitals in Gaza.

**Methods** We did a cross-sectional study in four hospitals from July 14 to Oct 25, 2018. All cleaners and health-care workers were eligible to participate. Data were gathered via a survey tool designed for the study that covered sociodemographic data, NSI prevalence, and response to possible injuries. The primary outcomes were prevalence and staff awareness of NSIs.

**Findings** 538 staff participated in the survey, among whom the mean age was 28.9 (SD 7.71) years, 331 (62%) were men, 119 (22%) were doctors, 262 (49%) were nurses, 72 (13%) were medical students, and 85 (16%) were cleaners. 289 participants (54%) had had at least one NSI: 59 doctors (50% of all doctors), 142 nurses (54%), 32 students (44%), and 56 cleaners (66%). NSIs were obtained during various activities, including 168 incidents (40%) during drug administration, 82 (20%) while recapping needles, 78 (19%) during wound suturing, 63 (15%) while cleaning, and 27 (6%) during arterial blood gas sampling. Only 94 (33%) of 289 participants with NSIs reported their injuries. Among the 195 (67%) participants who did not report NSIs, 41 (21%) did not know that they should do so, 65 (33%) did not know how to report, 62 (32%) believed that reporting was useless, and 27 (14%) forgot to report.

**Interpretation** More than half the participants had had NSIs, but reporting of injuries was low. The Ministry of Health should provide targeted interventions and training to improve risk awareness and understanding of the importance of reporting for health-care employees. The strengths of this study are the large sample size and recruitment from diverse professional backgrounds. The main limitation was the lack of validation of the study instrument.

**Funding** None.

### Contributors

AA designed the study, analysed and contributed to the interpretation of data, and drafted the Abstract. All authors contributed to data collection, data entry, and data analysis. BB contributed to the design of the study, interpretation of results, and revision of the drafts.

### Declaration of interests

We declare no competing interests.

# Assessment of pain control among patients with cancer in hospitals of the Gaza Strip: a cross-sectional study

Mohammad N Alswerki, Abdallah Alwali, Alaa Al-aqad, Mahmoud Hamouda, Saad Al massri, Mohamedraed Elshami, Khamis Elessi

## Abstract

**Background** Poor control of cancer pain is a major public health problem worldwide. Many potential barriers can lead to suboptimal treatment of cancer pain. One such barrier is inadequate measurement and assessment of cancer-related pain control. This study aimed to assess current pain control and management for hospitalized adult patients with cancer in the Gaza Strip.

**Methods** A cross-sectional study was conducted from Dec 10, 2017, to April 25, 2018, in the Gaza Strip. The validated Brief Pain Inventory (BPI) questionnaire was translated into Arabic for data collection. The first section of the questionnaire described the patients' sociodemographic characteristics, the second evaluated the severity of cancer, and the third assessed the interference of pain with daily activities. A ten-point Likert scale was used to evaluate the magnitude of cancer pain and its impact on the patients' lifestyle. Participants were 12 years of age and older, and were patients with cancer who had been admitted to Al-Rantisi Hospital or European Gaza Hospital (the two cancer institutes available in the Gaza Strip), and who had no mental illness or disorder affecting pain perception. Convenience sampling was used to recruit eligible patients for face-to-face interviews to complete the questionnaire. The primary outcome was the median score of cancer pain control. Ethical approval was obtained from the Palestinian Ministry of Health and informed verbal consent was obtained from patients. Data were analysed with SPSS version 22.

**Findings** 97 patients were assessed, of whom 75% (73 of 97) were eligible and were recruited. The sample size was decided based on the available cases in the included centres during study period. The median age was 49 years (IQR 37–60), 56% (41 of 73) were females, and 86% (63 of 73) were married. Most (81%; 59 of 73) had an educational level of high school or below, and 52% (38 of 73) were unemployed. 90% of patients (66 of 73) had cancer pain as a presenting symptom at diagnosis. 93% (68 of 73) had received painkillers (analgesics) within the past week, 74% (54 of 73) were using analgesics daily, and 43% (31 of 73) reported that they needed potent analgesics. 15% (11 of 73) reported concerns about analgesic addiction. The level of functional impairment owing to pain, as reported using the ten-point Likert scale, was highest for daily activities and routines (median 9·0, IQR 7·0–10·0) and least for social relationships (5·0, 0·0–9·0). There was no statistically significant association between cancer-related pain and gender, educational level, or occupation.

**Interpretation** Most patients were taking analgesics but a large proportion reported the need for more potent or frequent doses of painkillers. In addition, pain had a significant effect on the patients' lifestyle. These findings indicate poor control of cancer pain. There is an urgent need to address the reasons for this, to alleviate pain and to improve quality of life.

**Funding** None.

### Contributors

MNA contributed to data analysis, data interpretation, monitoring of data collection, and drafting and reviewing of the abstract. AbA, ALA, MH, and SA contributed to data collection and data entry. KE contributed to data interpretation and reviewing of the abstract. ME supervised the work, and contributed to data interpretation, and drafting and reviewing of the abstract. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

We declare no competing interests.

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# The motives, academic performance, and career prospects of Gazan medical students abroad: a cross-sectional study

Muath Alser, Mo'min Alkhatib, Ahmed Alnakhala, Mohammed Ibrahim Barhoom

## Abstract

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**Background** In Gaza, 2 million people have been affected by more than 13 years of strict land, air, and sea blockades and three wars, during which over 4000 people have been killed and many more have been injured. Additional severe effects have been seen on lives, aspirations, and prospects. Given the conditions, medical students have many competing reasons for and against studying medicine abroad. We investigated motives, academic situations, and future plans of the upcoming generation of doctors in Gaza, occupied Palestinian territory.

**Methods** We did a questionnaire-based cross-sectional study involving Palestinian medical students originally from Gaza who were studying at the largest five medical schools in Egypt (Cairo, Ain Shams, Alexandria, Mansoura, and Zagazig Universities). We used a self-designed questionnaire developed from previous similar studies and created on Google Forms (Google, Menlo Park, CA, USA). A pilot study of 37 participants was done to test the comprehensibility of questions and the time needed to complete the questionnaire. After being updated, the questionnaire was distributed in August and September, 2018, to individuals who provided verbal informed decision to participate. Analysis of the results was performed with SPSS version 22.

**Findings** Of 453 questionnaires given to students, 340 (75%) were returned completed. The mean age of respondents was 21.7 (SD 1.8) years; 225 (66%) were men and 115 (34%) were women. Excellence was achieved in secondary school examinations (result  $\geq 90\%$ ) by 315 (93%) of students, but only 26 (8%) of students achieved excellence in their first year of medical school (examination results  $\geq 85\%$ ). 317 students (93%) reported that they chose their medical schools independently without pressure from their families. Among the 115 women, 70 (61%) went to a third party to persuade their parents to allow them to study abroad. Of ten motives to study medicine given in the questionnaire, "to relieve pains" and "childhood dream" were the most frequently selected among the 340 respondents, chosen by 228 (67%) and 208 (61%), respectively. 104 (31%) reported they were seeking freedom more than to study medicine. 214 (63%) of students had at least one relative who had been physically injured in or killed during of one of the wars in Gaza. Most students ( $n=278$  [82%]) were delayed from starting at their medical school due to border closures and 189 (56%) had been unable to attend for at least one semester. Since starting at medical school, 269 (79%) of 340 respondents had visited Gaza only once or not at all. 55 (16%) intended never return to Gaza and 209 (62%) reported that they wanted to specialise and work abroad for a period and then return to Gaza. Of the remainder, 64 (19%) wanted to specialise abroad then return to work in Gaza, and 12 (3%) wanted to specialise and work in Gaza.

**Interpretation** The motives, academic performance, and career prospects of Gazan medical students studying in Egypt are influenced in many ways by the situation in Gaza, some of which could worsen the already bad condition of medical care in Gaza. Awareness and supportive programmes for Gazan medical students should be encouraged to improve the quality of health care providers in Gaza.

**Funding** None.

### Contributors

All the authors contributed to study design, questionnaire formulation, collection of data, and drafting of the Abstract. MoA had main role in data analysis and MuA had the main role in writing the Abstract. All authors approved the final version of the Abstract.

### Declaration of interests

We declare no competing interests.

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# Prevalence of negative child disciplinary practices and its associated factors as reported by mothers in the West Bank: a cross-sectional study

Bashaer Al-Natsheh\*, Rawan Al-Sharif\*, Rawnaq Khdour, Shireen Othman, Wala Durgham, Aya Shamasneh, Aiasha Houshiah, Rula Ghandour, Shiraz Nasr, Rita Giacaman

## Abstract

**Background** For parents, how to manage child discipline is a difficult question in the task of raising a socially, emotionally, and physically mature adult. Negative discipline can be physical or psychological, and can negatively affect child development, mental health, and wellbeing. This study aimed to assess the prevalence of negative disciplinary methods (NDMs) and their associated factors in the West Bank, occupied Palestinian territory, as reported by mothers.

**Methods** The survey was conducted in November and December, 2014, to explore the disciplinary methods that mothers used for one of their children (aged 0–12 years) during the previous 12 months. 1195 Palestinian mothers were studied based on a stratified multistage cluster sampling method and using the International Society for Prevention of Child Abuse and Neglect (ISPCAN) Child Abuse and Screening Tool for Parents (ICAST-P). A scale was built from mothers' reports on the use of NDMs, with good internal consistency (Cronbach's  $\alpha=0.75$ ). The dataset was split according to whether the mother used 0–6 NDMs or 7–20 NDMs in the previous 12 months. Bivariate analyses were performed using the chi squared test to compare these two categories in terms of demographic and socioeconomic variables, and exposure to Israeli political violence. Binary logistic regression was performed to check for confounders. The Institute of Community and Public Health and Birzeit University approved the use of the data.

**Findings** The mothers were aged between 15 and 55 years. 11.3% of mothers (135 of 1195) were 15–25 years old, 45.4% (541) were 26–35 years old, and 43.2% (515) were 36–55 years old. 52.5% of children (627 of 1195) were male, 34.0% (406) were 0–3 years old, and 66.0% (789) were 4–12 years old. 5.2% of children (62) were the only child, 4.4% of children (53) were the first child, 27.6% (330) were the middle child (a child that is not the first or the last child), and 62.8% (750) were the last child. 45.8% of the mothers and children (547) lived in the north of the West Bank, 23.3% (278) lived in the middle of the West Bank, and 31.0% (370) lived in the south of the West Bank. 5.3% of mothers (63) reported that their homes were bombed or shelled by the Israeli army. 83.8% of mothers (1002) reported using 0–6 NDMs and 16.2% (193) used 7–20 methods. Other demographic and socioeconomic variables collected were not significantly associated with NDMs. Binary logistic regression revealed that females were less likely to be exposed to NDMs than males (OR 0.63, 95% CI 0.45–0.88,  $p=0.0074$ ), and that children aged 0–3 years were less likely to be exposed to NDMs than children aged 4–12 years (0.50, 0.33–0.76,  $p=0.0014$ ). Compared with last children, first children (2.84, 1.46–5.51,  $p=0.0020$ ) and middle children (1.49, 1.02–2.17,  $p=0.0375$ ) were more likely to be exposed to NDMs. Compared with mothers aged 36–55 years, mothers aged 15–25 years (2.67, 1.47–4.85,  $p=0.0010$ ) and 26–35 years (1.54, 1.05–2.26,  $p=0.0289$ ) used more NDMs. Compared with children in the north of the West Bank, children in the south of the West Bank (2.46, 1.66–3.64,  $p<0.0001$ ) and middle of the West Bank (1.90, 1.24–2.93,  $p=0.0034$ ) were more likely to be exposed to NDMs. Compared with mothers whose houses were not bombed or shelled by the Israeli army, mothers whose houses were bombed or shelled were more likely to use a higher number of NDMs (2.71, 1.84–1.95,  $p=0.0012$ ).

**Interpretation** Negative child discipline is prevalent in Palestine and is associated with factors such as the child's gender, their age, their index in the family (whether they are the only child, first, middle, or last child), the mother's age, the district, and the political conditions in Palestine. Effort should be made to help families to understand alternative methods to address child discipline, through education, discussion, and parenting programmes.

**Funding** This study is part of a larger study of child discipline in Qatar and the occupied Palestinian territory. The study was conceptualised and planned with the funding of Qatar National Research.

## Contributors

BA-N and RA-S contributed equally to the writing and revision of the abstract, and to data analysis and data interpretation. MM, RGi, SH, and ML conceptualised and planned the study. BA-N, RA-S, RK, SO, WD, AS, AH, RGH, SN, and RG contributed to the data analysis. RGH and SN supervised the data analysis and writing of the abstract. RGi supervised the study and revised the Abstract. All authors have seen and approved the final version of the Abstract for publication.

## Declaration of interests

We declare no competing interests.

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# Assessment of drug interactions and their associated factors among patients with cardiovascular diseases: a cross-sectional study from the occupied Palestinian territory

Samah W Al-Jabi, Lama Aldabe, Lina Alhaj-Asaad, Mai Thaher, Sa'ed H Zyoud, Waleed M Sweileh

## Abstract

**Background** Cardiovascular diseases (CVDs) are the leading cause of death in the West Bank and worldwide. Potential drug–drug interactions (pDDIs) contribute to a significant proportion of adverse drug reactions, which have been shown to be a major cause of morbidity and mortality. Patients with CVD require more attention regarding these interactions owing to the complexity of their conditions and therapeutic regimens. The purpose of this study was to assess the prevalence and types of pDDIs, and their associated factors in patients with CVD.

**Methods** A cross-sectional study was conducted at two large referral hospitals for patients with CVD in the northern West Bank. Inpatients who were diagnosed with any CVD during the period of the study (from Sept 1, 2016, to Feb 28, 2017) were selected by convenience sampling. Data were collected from patients' medical records and in a face-to-face interview with each of the patients (by use of a standardised data collection form). The sample size was calculated using the Raosoft calculator. pDDIs between medications prescribed at discharge were identified using the Lexicomp interaction checker. Data were analysed with SPSS version 16.

**Findings** The study included 400 patients with CVDs. According to the Lexicomp interaction checker, 94% (375 of 400) of the patients were discharged with medications with pDDIs. Patients had an average of 3·14 (SD 1·41) diseases, and were prescribed 1–16 medications on discharge (mean 7·08, SD 2·76). The most common comorbid disease was diabetes (in 51% of patients; 205 of 400), followed by chronic kidney disease (in 14% of patients; 56 of 400). Aspirin was the most frequently prescribed medication. The most frequent pDDI was furosemide and aspirin, which were prescribed simultaneously for 37% of patients (148 of 400), followed by angiotensin-converting-enzyme inhibitor and aspirin, which were prescribed simultaneously for 33% of patients (131 of 400), and statins and proton pump inhibitors, which were prescribed simultaneously for 32% of patients (129 of 400). The number of pDDIs was associated with the number of diseases ( $p < 0\cdot0001$ ), the total number of discharge medications ( $p < 0\cdot0001$ ), and the length of hospital stay ( $p = 0\cdot0012$ ).

**Interpretation** The prevalence of pDDIs is very high among discharge medications for patients with CVDs. These interactions were associated with the number of diseases, the number of medications prescribed, and the length of hospital stay. Monitoring for pDDIs should be performed regularly. To prevent the risks of pDDIs, work is required to raise awareness, and clinical pharmacists should be involved in reviewing medications at discharge.

**Funding** None.

## Contributors

SWA-J, SZ, and WS conceived the study. SWA-J led the study design, data analysis, data interpretation, and drafting of the manuscript. LA, LA-A, and MT participated in the study design, interviewed patients, and participated in data interpretation and drafting of the manuscript. SHZ and WMS participated in the study design and revised the manuscript.

## Declaration of interests

We declare no competing interests.

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# Postgraduate training abroad and migration intentions of medical doctors and students in Gaza: a cross-sectional survey

Eman Abukmail, Loai Albarqouni

## Abstract

**Background** The migration of medical professionals is a global health challenge, as emigration can weaken local health systems. Factors contributing towards this problem include inadequate job opportunities, low job satisfaction, and difficulty in accessing or substandard residency training. Longstanding political instability in Gaza, occupied Palestinian territory, has affected the health-care system. For instance, medical doctors working in governmental hospitals have received less than half of their salaries every few months for the past 10 years. We explored the intentions of medical professionals and students to do their residency training abroad and their career plans afterwards.

**Methods** Between September and November, 2018, we surveyed medical doctors and students in Gaza about their migration intentions. We sent emails and used a social media platform to invite potential participants to complete a validated, online, self-administered structured questionnaire administered via Qualtrics (Provo, UT, USA). Questions were included about sociodemographic, educational, and practice characteristics, intention to train abroad, preferred destination, reasons for and barriers to training abroad, and their intentions of returning to Palestine after training. We used Microsoft Excel 2016 to analyse the results.

**Findings** Of 148 medical doctors and students who responded to our survey, 116 completed the questionnaire and were included in the analysis. 75 (65%) participants were men, 90 (78%) were aged 21–35 years, and 70 (60%) were single. Most participants were either residents in training (n=48 [41%]), interns (n=12 [10%]), or medical students in their final year (n=33 [28%]). 65 (56%) participants preferred surgical specialities, 33 (28%) medical specialties, and the remainder preferred academic research (four [3%]) and family medicine (14 [12%]). 106 participants intended to travel abroad. The top four destination countries were the UK (n=40 [35%]), the USA (n=20 [17%]), Germany (n=20 [17%]), and Australia (n=12 [10%]). 93 (80%) intended to travel for specialty training and 12 (10%) for subspecialty training. 34 (32%) of 106 intended to return to Palestine after working abroad for more than 10 years, 15 (14%) for 5–10 years, 25 (24%) for less than 5 years, and 14 (13%) directly after training, whereas 18 (17%) intended never to return to Palestine. Financial expenses related to travelling, institution examinations, and visa applications were the major barriers to training abroad (listed by 57 [49%] participants). Most respondents (n=83 [72%]) felt that society expects clinicians to be trained abroad and that they are more qualified than those trained in Palestine (n=74 [64%]).

**Interpretation** A very high proportion of the medical doctors and students we surveyed intended to train abroad and return to Palestine, although a minority intended never to return. Our findings should be interpreted cautiously because of the possibility of selection bias (ie, those intending to migrate were more likely to respond to our survey and because intention might not translate to action). Qualitative research is needed to obtain a greater understanding of the key influences on intention to migrate to inform strategies to retain the health-care workforce.

**Funding** None.

### Contributors

EA and LA conceived and designed the study. EA and LA designed the survey, analysed the data, and EA wrote the first draft of the Abstract. Both authors provided critical comments and contributed to the interpretation of analysed results. Both authors have read and approved the final version of the Abstract for publication.

### Declaration of interests

We declare no competing interests.

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# Management of cut wounds and lacerations in the Gaza Strip: a prospective clinical audit

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## Abstract

**Background** Cut wounds and lacerations are common, but effective treatment is essential to achieve good cosmetic outcomes and maintain function. We assessed the use of local anaesthetic, infection control procedures, and antibiotics in the management of cut wounds and lacerations.

**Methods** Eligible patients were those attending the emergency departments of Nasser and Dar Al Shifa Hospitals in the Gaza Strip with cut wounds or lacerations, from Aug 25 to Sept 2, 2018. The management of cut injuries and lacerations was observed directly in emergency departments. Approval for the study was obtained from the Human Development Department for both and hospital administrations of each. Due to the lack of local guidelines, we compared management with the international guidelines from The Royal Children's Hospital, Melbourne, NSW, Australia.

**Findings** 84 patients attended Nasser Hospital and 100 Dar Al Shifa Hospital during the study period and all 184 were included. At Nasser hospital, the mean age was 12·0 years (SD 11·5; median 8 years) and 84 (76%) patients were boys. At Dar Al Shifa Hospital, the mean age was 16·0 years (SD 15·3; median 11 years) and 72 (72%) patients were boys. Hand washing was not done before wound management in 72 (86%) of 84 cases at Nasser Hospital and 82 (82%) of 100 at Dar Al Shifa Hospital. Environmental cleaning (cleaning of blood and other waste from the floor) was seen before the treatment of 60 (71%) patients at Nasser Hospital and 59 (59%) at Dar Al Shifa Hospital. Lidocaine was administered before suturing in 81 (96%) of cases in Nasser Hospital, and 65 (65%) of those in Dar Al Shifa Hospital. Antibiotics were given to 65 (77%) of 84 patients treated in Nasser Hospital and to 72 (72%) of 100 treated in Dar Al Shifa Hospital. Only one patient at Dar Al Shifa Hospital and three patients at Nasser Hospital actually required antibiotics but none of these received them.

**Interpretation** Poor adherence to hand washing policies, environmental cleaning, and use of antibiotics was seen. Relevant reasons might be workload, lack of facilities, or lack of awareness of infection control polices, or a combination of these factors. Clear and consistent leadership with staff education and feedback needs to be implemented to achieve sustainable culture change and improve infection control management in Gaza hospitals.

## Contributors

All authors contributed to the data collection and writing.

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# Emergency response of the UNRWA health programme to Great March of Return injuries: a descriptive analytic study in Gaza

Sanaa Al Najjar, Tamer Al Shaer, Khalil Hamad, Mahmoud Al Kahlout, Hala Mughari, Ghada Al Jadba

## Abstract

**Background** The United Nations Relief and Work Agency for Palestine Refugees (UNRWA) is one of the main health-care providers in the Gaza Strip. It provides primary health services to approximately 1·3 million Palestine refugees, comprising approximately 76% of the population of the Gaza Strip. UNRWA has well-prepared emergency health plans that are based on previous conflict experiences. However, the Great March of Return (GMR) injuries that UNRWA has faced since Mar 31, 2018, are considered a new experience of emergency. GMR is a protest activity launched by Palestinians in the Gaza Strip to express their right to return to their homes, from which they were expelled in 1948. This study aimed to describe the GMR-related injury patterns in patients and the health services provided as a part of the UNRWA emergency response in Gaza.

**Methods** This was a descriptive analysis of medical and data reports of patients who sought care at 22 UNRWA health centres in Gaza for GMR-related injuries between Mar 31 and Sept 30, 2018. Data were collected from each individual on first contact with their health-care provider. We analysed the data using SPSS version 21. The study protocol was approved by the Gaza Field Office, and each participant provided oral informed consent to disclose their medical data for analysis.

**Findings** 2020 patients attended the 22 UNRWA health centres for GMR-related injuries during the study period. 18·9% (381) were below 18 years of age, and 94·9% (1916) were male. 10·0% (202 of 2020) of injuries were classified as severe, 54·2% (1095) as moderate, and 35·8% (723) as mild. The majority of injuries (86%; 1737 of 2020) were due to gunshots, and 14% (283) were due to other causes (such as gas inhalation, rubber bullets, burns, and falling down). 54% (1090 of 2020) received wound care and dressing, 20% (404), received medical treatment only, and 26% (526) received both medical treatment and wound care. 9% (169 of 2020) developed motor dysfunction or disability as a complication, and received rehabilitation physiotherapy at UNRWA health centres. In addition to injury treatment, all patients received psychological first aid according to UNRWA Mental Health and Psychosocial Support Services guidelines. Individual and group psychosocial support sessions and home visits were provided for injured individuals and their families as needed. The UNRWA Health Programme collaborated with partners (eg, the International Committee of the Red Cross and Médecins Sans Frontières) for hospital referral for patients with severe injuries who needed advanced treatment.

**Interpretation** Given the unprecedented situation, UNRWA health centres responded positively and comprehensively to the GMR-related injuries, providing care and essential medical and psychosocial support. However, many patients will require long-term care owing to their injuries. Further consideration should be given to developing a more systemised response to such emergencies, and to the human resources that are needed to support health, physiotherapy, and rehabilitation in Gaza.

**Funding** None.

### Contributors

SA conceived the study, and collected and analysed data with support from TA, KH, MA, HM, and GA. SA wrote the Abstract with input from TA in the Interpretation section. GA supervised the study. All authors have seen and approved the final version of the Abstract for publication.

### Declaration of interests

All of the authors are employees of UNRWA.

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# WHO/International Society of Hypertension risk prediction charts versus the UK Prospective Diabetes Study risk engine for cardiovascular risk assessment among patients with type 2 diabetes: a comparative study

Tayseer Afifi, Mohammed Obeid, Meral Abdelati, Abdarrahman Almoqaid, Mosab Samaan, Khamis Eleesi

## Abstract

**Background** Patients with type 2 diabetes are at increased risk of developing cardiovascular diseases, and assessment of cardiac risk is important for preventive strategies. We compared the performance of two cardiac assessment tools to predict 10-year cardiovascular risk.

**Methods** This was a retrospective study of patients with type 2 diabetes who attended two primary-health-care centres in the Gaza Strip from Sept 15 to Nov 15, 2019. We excluded patients who had any existing cardiovascular disease. 10-year cardiovascular risk assessment was done with two risk assessment tools: the WHO/International Society of Hypertension (WHO/ISH) risk prediction charts and the UK Prospective Diabetes Study (UKPDS) risk engine. We also assessed the need for prescribing statins based on the documented risk.

**Findings** Of 350 patients assessed, 200 were eligible for the study. WHO/ISH charts classified 135 (68%) patients as being at low of cardiac events and the UKPDS risk engine classified 100 (50%). WHO/ISH assigned 40 (20%) people to the low to moderate 10-year risk category compared with 52 (26%) assigned by the UKPDS risk engine. Agreement between the two tools was poor ( $p=0.01$ ). 12 (6%) patients who were classified as being at very low 10-year cardiac risk by WHO/ISH were classified as being at very high risk when assessed by the UKPDS risk engine. Furthermore, 150 (75%) of individuals who were categorised as having low cardiac risk by WHO/ISH had higher LDL-cholesterol concentrations than the therapeutic target of 100 mg/dL. Meanwhile, the UKPD risk engine, which uses a higher number of parameters for assessment, identified these individuals as having moderate to high risk. Based on risk documented in the medical records, 33 patients needed statin therapy of whom 12 (36%) patients were receiving this treatment. Among the remaining 167 patients who did not need statin therapy, treatment was prescribed for 57 (34%).

**Interpretation** There is a significant discrepancy between the WHO/ISH risk charts and the UKPDS risk engine in assigning cardiac risk. Sensitivity in identifying patients with treatable levels of LDL cholesterol and diastolic blood pressure was low for both tools. Furthermore, a lack of clear local protocols led to incorrect or unnecessary prescribing. This study showed that there is a need to reconsider the use of assessment tools either by adding a new tool or by improving assessments with the current tools.

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## Contributors

TA and KE designed the study. TA, MO, MA, and AA collected the data. TA and MS analysed the data. TA wrote the abstract. KE revised the abstract and supervised the study. All authors approved the final version of the abstract.

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# Quality of Early Essential Newborn Care in hospitals in Gaza: a pre-intervention and post-intervention study

Shireen N Abed, Sireen Al Attar, Bothaina Shaikh Khalil, Laila Al Masharfa, Nashwa Skaik, Luca Rofani, Silvia Pivetta, John CS Murray, Gaza EENC team\*

## Abstract

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**Background** In 2017, the Ministry of Health in Gaza introduced Early Essential Newborn Care (EENC) as its primary maternal and neonatal care strategy. EENC comprises a package of simple evidence-based interventions that are delivered during labour and delivery, and in the early post-partum period, to prevent or treat the most important causes of morbidity and mortality in newborn babies. Four public maternity hospitals in Gaza, responsible for approximately 75% of all deliveries, began implementation of EENC in June, 2017. Clinical coaching was delivered by national facilitators over 2 days, and targeted all clinical staff in maternity and neonatal units. Subsequently, EENC quality improvement teams were formed to address contextual factors that influence practice. This study aimed to determine whether introduction of EENC resulted in changes in clinical practices for vaginal births.

**Methods** A pre-intervention and post-intervention design was used to review key clinical practices before and after EENC introduction in the four hospitals. Trained data collection staff visited each hospital for 1 day in each of the months of March and June, 2017 (before EENC implementation), January and April, 2018 (in the early stages of EENC implementation), September, 2018, and June, 2019 (after full EENC implementation). Standard WHO data collection methods and tools were used to gather practice data using exit interviews and chart reviews of 10–15 randomly selected post-partum mothers who had delivered vaginally in the previous 2–24 h and had not experienced a newborn death or stillbirth. Delivery observations were conducted for five to ten randomly selected vaginal deliveries using a standard clinical skills observation checklist, beginning at the second stage of labour. The Ministry of Health in Gaza approved EENC assessments for programme use, and informed verbal consent was obtained before maternal interviews. No personal identifiers were used in assessments.

**Findings** 259 maternal post-partum interviews and 139 observations of birth practices were done across the four maternity hospitals, representing 8·8% (259 of 2940) and 4·7% (139) of expected vaginal births during the observation periods, respectively. Comparing practices at baseline, early implementation, and after full implementation, significant trend improvements were noted for proportion of babies receiving thorough drying (0% [0 of 12], 49% [32 of 66], 72% [43 of 60], respectively,  $p < 0\cdot0004$ ), immediate skin-to-skin contact (SSC) for less than 1 min (0% [0 of 14], 33% [43 of 127], 66% [72 of 110],  $p < 0\cdot0001$ ), uninterrupted SSC for at least 60 min (0% [0 of 14], 21% [27 of 129], 48% [53 of 111],  $p < 0\cdot0001$ ), uninterrupted SSC for at least 90 min (0% [0 of 14], 10% [13 of 129], 36% [39 of 110],  $p < 0\cdot0001$ ), early breastfeeding (15–90 min after birth) (0% [0 of 15], 39% [50 of 130], 61% [65 of 107],  $p < 0\cdot0001$ ), breastfeeding before separation (0% [0 of 15], 28% [36 of 131], 52% [56 of 108],  $p < 0\cdot0001$ ), and exclusive breastfeeding before discharge (33% [5 of 15], 68% [89 of 131], 81% [87 of 107],  $p = 0\cdot0010$ ). Average clinical practice scores rose from five of 42 (12%) to 16 of 42 (38%) and 24 of 42 (57%). Practice improvements were supported by updated clinical guidelines, hospital policies, and routines, by reorganisation of work, and by the provision of simple supplies, including gowns for mothers and caps for newborn babies.

**Interpretation** The EENC clinical coaching approach coupled with regular self-assessments and action by hospital teams has significantly improved care practices during delivery and in the early post-partum period. It is possible that periodic cross-sectional practice reviews were not representative of routine practices, which may have varied with time of day, case load, and case complexity. Limitations were mitigated by assessing a systematic random sample of post-partum women delivering throughout the previous 24 h, and by measuring practices in two different time periods in each phase of implementation. Post-partum interviews were used to limit the Hawthorne effect. No other maternal or newborn initiatives were introduced during the study period, and no additional staff training was available, therefore the EENC approach was the primary influence on health worker practices.

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## Contributors

SNA, SAA, NS, SP, and JCSM conceived the study and approach. NS, SP, and JCSM developed the method. SNA, SAA, KBS, LAM, NS, and SP collected data and supervised data collection. NS, SP, and LR analysed data. All authors conducted data synthesis. SNA, SAA, SP, NS, and JCSM drafted the manuscript. All authors reviewed and commented on the manuscript before finalisation. All authors have seen and approved the final version of the Abstract. \*Gaza EENC team: Ahmed Shatat, Hasan Al Louh, Hani Mahdi, Waleed Abu Hatab, Walid Afana, Walid Madi, Fadya Melhes, Imtethal Araj, Taghreed Abu Mousa, Khawla Al Madhoun, Nawal Ghalban, Reem Al Aloul, Rohaifa Al Farra, Doaa Oweda, Wesam Shaltout, Haleema Nabhan, Naser Bolbol, Ayman Al Rabae.

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We declare no competing interests.