World Health Organization
Regional Office for the Eastern Mediterranean

المجلة الصحية لشرق المتوسط

EMHJ

Eastern Mediterranean Health Journal

La Revue de Santé de la Méditerranée orientale

The work of the WHO Regional Office for the Eastern Mediterranean focuses upon the five strategic priorities agreed by Member States in 2012. The 2015 annual report of the Regional Office details the achievements and challenges encountered, and steps required for the way forward.

Volume 22 / No. 6
June/Juin

2016

المجلد الثاني والعشرون / عدد ٦
يونيو/ حزيران

المجلة الصحية لشرق المتوسط

هى المجلة الرسمية التى تصدر عن المكتب الإقليمى لشرق المتوسط بمنظمة الصحة العالمية. وهى منبر لتقديم السياسات والمبادرات الجديدة فى الخدمات الصحية والترويج لها، ولتبادل الآراء والمفاهيم والمعطيات الوبائية ونتائج الأبحاث وغير ذلك من المعلومات، وخاصة ما يتعلق منها بإقليم شرق المتوسط. وهى موجهة إلى كل أعضاء المهن الصحية، والكليات الطبية وسائر المعاهد التعليمية، وكذا المنظمات غير الحكومية المعنية، والمراكز المتعاونة مع منظمة الصحة العالمية والأفراد المهتمين بالصحة فى الإقليم وخارجه.

EASTERN MEDITERRANEAN HEALTH JOURNAL

IS the official health journal published by the Eastern Mediterranean Regional Office of the World Health Organization. It is a forum for the presentation and promotion of new policies and initiatives in health services; and for the exchange of ideas, concepts, epidemiological data, research findings and other information, with special reference to the Eastern Mediterranean Region. It addresses all members of the health profession, medical and other health educational institutes, interested NGOs, WHO Collaborating Centres and individuals within and outside the Region.

LA REVUE DE SANTÉ DE LA MÉDITERRANÉE ORIENTALE

EST une revue de santé officielle publiée par le Bureau régional de l'Organisation mondiale de la Santé pour la Méditerranée orientale. Elle offre une tribune pour la présentation et la promotion de nouvelles politiques et initiatives dans le domaine des ser-vices de santé ainsi qu'à l'échange d'idées, de concepts, de données épidémiologiques, de résultats de recherches et d'autres informations, se rapportant plus particulièrement à la Région de la Méditerranée orientale. Elle s'adresse à tous les professionnels de la santé, aux membres des instituts médicaux et autres instituts de formation médico-sanitaire, aux ONG, Centres collaborateurs de l'OMS et personnes concernés au sein et hors de la Région.

EMHJ is a trilingual, peer reviewed, open access journal and the full contents are freely available at its website: http://www/emro.who.int/emhj.htm

EMHJ information for authors is available at its website: http://www.emro.who.int/emh-journal/authors/

EMHJ is abstracted/indexed in the Index Medicus and MEDLINE (Medical Literature Analysis and Retrieval Systems on Line), ISI Web of knowledge, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase, Lexis Nexis, Scopus and the Index Medicus for the WHO Eastern Mediterranean Region (IMEMR).

©World Health Organization 2016
All rights reserved

Disclaimer

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The named authors alone are responsible for the views expressed in this publication.

ISSN 1020-3397

Cover designed by Diana Tawadros
Internal layout designed by Emad Marji and Diana Tawadros
Printed by WHO Regional Office for the Eastern Mediterranean
Cover photograph ©World Health Organization

Eastern Mediterranean Health Journal

المجلة الصحية لشرق المتوسط

EMHJ

La Revue de Santé de la Méditerranée orientale

Vol. 22 No. 6 • 2016 • المجلد الثاني و العشرون عدد ٦

Contents

Editorial

Highlights of WHO's work in the Eastern Mediterranean Region
Ala Alwan 363

Research articles

Deaths of children aged under 5 years and related factors in the Islamic Republic of Iran: a population-based case–control study
A. Evazpoor, A. Edalati, E. Hyppönen, M. Fararouei, Z. Parisai 368

Collaboration between pharmacists and general practitioners in the health care system in the Islamic Republic of Iran
F. Hashemian, F. Emadi and E. Roohi 375

الإعلانات الدوائية التي تستهدف المستهلك مباشرة في الأردن من منظور جندري
هديل عاشور، إبراهيم العبادي 383

Burden and associated factors for caregivers of the elderly in a developing country
S. Sabzwari, A. Munir Badini Z. Fatmi, T. Jamali S. Shah 394

Adherence of preventive oral care products in the Syrian market to evidence-based international recommendations
D. Habes, R. Mahzia, K. Nakhleh and E. Joury 404

Association between oral health knowledge and practices of Saudi pregnant women in Dammam, Saudi Arabia
B.O. Gaffar, M. El Tantawi, A. Al-Ansari and A.S. AlAgl 411

Short communication

Primary healthcare reform in the United Nations Relief and Works Agency for Palestine Refugees in the Near East
A. Santoro, N. Abu-Rmeileh, A. Khader, A. Seita and M. McKee 417

WHO events addressing public health priorities

Enhancing preparedness and response capacities to Zika virus infection 422

المجلة الصحية لشرق المتوسط

EMHJ

Ala Alwan, *Editor-in-chief*

Editorial Board

Zulfiqar Bhutta
Mahmoud Fahmy Fathalla
Rita Giacaman
Ahmed Mandil
Ziad Memish
Arash Rashidian
Sameen Siddiqi
Huda Zurayk

International Advisory Panel

Mansour M. Al-Nozha
Fereidoun Azizi
Rafik Boukhris
Majid Ezzati
Zuhair Hallaj
Hans V. Hogerzeil
Mohamed A. Ghoneim
Alan Lopez
Hossein Malekafzali
El-Sheikh Mahgoub
Hooman Momen
Sania Nishtar
Hikmat Shaarbaf
Salman Rawaf

Editors

Fiona Curlet, Phillip Dingwall
Guy Penet (French)
Cathel Kerr, Marie-France Roux, John Shimwell (Freelance)
Manar Abdel-Rahman, Ahmed Bahnassy, Abbas Rahimiforoushani (Statistics)

Graphics

Suhaib Al Asbahi, Diana Tawadros

Administration

Nadia Abu-Saleh, Yasmeen Sedky, Iman Fawzy

Editorial

Highlights of WHO's work in the Eastern Mediterranean Region

Ala Alwan[1]

This report provides highlights on the work of WHO in this Region in 2015 and the early part of 2016. It reflects the achievements made and the challenges encountered as well as the way forward and immediate next steps. It focuses in particular upon the five strategic priorities agreed by Member States in 2012: health systems strengthening towards universal health coverage; maternal and child health; noncommunicable diseases; health security and communicable diseases; and emergency preparedness and response.

Universal health coverage is the overarching goal of our work with Member States in strengthening health systems. It is a goal that was established by the WHO Regional Committee for the Eastern Mediterranean in 2012 and since then we have been supporting countries in implementing the actions included in the regional framework for action. The level of commitment to universal health coverage shown by Member States is high. In the past 18 months, WHO has supported countries in several areas that are key to moving forward on universal health coverage, including assessments in health financing, health policy and strategic planning, health sector regulation, and capacity development to support strengthening of public health laws and regulation. The regional framework for action, covering the four areas for universal health coverage (developing a vision and strategy; improving financial protection, expanding service coverage, and ensuring population coverage) will continue to be updated based on the needs of Member States and will remain as a guide for technical support to countries and for monitoring progress.

The Regional Office also initiated strategic collaboration with an extensive network of international experts through the Disease Control Priorities 3 (DCP3) Project to develop a high-priority package of essential services for universal health coverage. The criteria used for inclusion of interventions in this package include evidence of impact, cost-effectiveness, and affordability. The progress of work in this initiative will be reviewed in a special session planned on the margins of the Regional Committee at its 63rd session.

Renewed focus was placed on developing workforce capacity, which is a major challenge across the Region. A series of consultations in the past 18 months have focused on developing a regional framework to implement the global strategy on human resources for health, endorsed by this year's session of the World Health Assembly, and a comprehensive strategic framework to strengthen nursing and midwifery which was also launched in the ministerial meeting in May 2016. A comprehensive review of medical education was undertaken, including an in-depth assessment of the situation in countries of the Region, conducted in collaboration with the International Federation of Medical Education, and active involvement of Member States. The Regional Committee subsequently endorsed a regional framework for action aimed at reform of medical education in the Region and this is planned to be discussed with ministers of health and higher education in a high-level meeting in 2017. To strengthen leadership in health and build public health capacity in Ministries of Health, a leadership course for senior health officials was established in 2015 , and successfully implemented in two rounds, in Geneva and Muscat in collaboration with the Harvard School of Public Health. More than 50 future health leaders have graduated and the course will continue to be conducted on annual basis. The Regional Office continues to host an annual seminar on health diplomacy for senior officials of ministries of health and foreign affairs, diplomats and parliamentarians.

Work continued in other areas of strategic importance to strengthening health systems, including regulation of the pharmaceutical sector and of medical devices, promotion of the family practice approach, regulating and partnering with the private sector, strengthening of hospital management and patient safety, civil registration and vital statistics, and health information systems. The Region now has the most comprehensive information available among all WHO regions of the situation with regard to civil registration and vital statistics systems. Based on the comprehensive assessments conducted in most Member States, a regional strategy to strengthen civil registration including reporting of cause specific mortality is now available to guide countries in implementing priority actions.

WHO continued to support implementation of the regional framework on health information systems and use of

[1]*WHO Regional Director for the Eastern Mediterranean*

the core indicators and to build capacity to strengthen collection, reporting and dissemination of data. A practical tool has been developed to assess the gaps in the capacity of countries in generating and using reliable data for the 68 regional core health indicators. The assessment will be used to recommend actions to address the gaps and strengthen health information systems. Comprehensive health profiles, which document the current situation, challenges, gaps, opportunities and way forward in each health programme, have also been developed and updated in collaboration with Member States. Every country now has a brief sheet containing the key health indicators as well as an outline of the strengths, potential weaknesses, challenges and priorities for its own health system. These profiles are updated annually in close consultation with the Ministry of Health.

The road map for universal health coverage endorsed by the Regional Committee in 2014 will continue to guide our work in strengthening health systems. We will continue to focus on building capacity in leadership and governance. Health policy analysis and planning, health legislation and regulation, and continued strengthening of health information systems, including civil registration and vital statistics, will remain important areas of work. Strategic guidance on health workforce development will be finalized. Priority will be given to supporting countries in implementing the strategic framework on nursing and midwifery while the planned high-level meeting of ministers of health and medical education is expected to be particularly important in shaping the future of regional reform in medical education.

By the end of the year it was clear that the Region had made significant reductions in maternal and child mortality since 1990, as shown by the latest monitoring data for the Millennium Development Goals. However, the levels of reduction fell short of meeting the overall regional targets of MDGs 4 and 5. The regional initiative on saving the lives of mothers and children continued to target the main challenges in countries with a high burden of maternal and child deaths. The nine high-burden countries have launched maternal and child health acceleration plans, initially aimed at improving outcomes towards the MDG targets, but also preparing the way for the Sustainable Development Goals (SDGs) set for 2030. WHO also focused on quality of care, including preconception and neonatal care, which are becoming increasingly important elements of maternal and child survival in the Region.

Implementation of the United Nations global strategy and the relevant SDG3 targets will be important drivers of progress in women's, children's and adolescents' health. We will continue to focus on building capacity in countries to end preventable deaths among women, children and adolescents. In this regard, WHO will focus on supporting and monitoring progress in, and the implementation of action plans on, reproductive, maternal, newborn and child health. Special emphasis will be placed on strengthening preconception and neonatal care. A list of evidence-based public health interventions for preconception care, including high-impact interventions for the prevention and control of congenital and genetic disorders, will be finalized for recommendation to countries by the end of 2016.

Nutrition remains an area of concern. A regional roadmap was developed for countries to implement the global targets set by the World Health Assembly in 2012 and the recommendations of the Second International Conference on Nutrition (ICN-2). Most countries now have national strategies or action plans. The regional policy statement on the urgent need to fully implement the International Code of Marketing of Breast Milk Substitutes was promoted while the number of nutrition stabilization centres for treatment of severe and complex cases of malnutrition was expanded in countries in emergency situations.

Noncommunicable diseases remain the biggest cause of premature death in the Region, in particular heart disease, cancer, chronic lung disease and diabetes. Despite high-level political commitments to action and some impressive achievements by some countries, progress has generally been inadequate, patchy and uneven. Tobacco use is still increasing, the rates of overweight and obesity in both adults and children are alarmingly high in most countries and there is no evidence that trends of other risk factors, including physical inactivity, are improving.

We continued to focus on supporting countries to implement the Political Declaration of the 2011 High-Level Meeting of the United Nations General Assembly on the Prevention and Control of Non-Communicable Diseases, through the regional framework for action endorsed by the Regional Committee in 2012. At global level, the Regional Office played an important role in advocacy for an accountability framework to measure progress, while the contribution of countries was substantial in ensuring that the 10 indicators crafted globally to measure the progress made by Member States were aligned with the indicators of the regional framework for action. Countries are now better able to monitor and report on progress in relation to the time-bound commitments set by the Political Declaration.

The regional framework addresses prevention and control through four areas: governance, surveillance, prevention and health care. In 2015, we provided each Member State with the first issue of an annual brief profile of its national response, based on the 10 process indicators. This enabled countries to see at a glance the progress made in implementation. So far, less than a third of countries have national multisectoral strategies or plans for the prevention

and control of noncommunicable diseases, or have set national voluntary targets, which are essential first steps. We conducted extensive advocacy in 2015 and early 2016 to highlight the importance of these issues.

A number of key actions were also taken at regional level to support countries in a multisectoral response. These included the development, in collaboration with the WHO Collaborating Centre at Georgetown University, of a dashboard and policy briefs on best practices in health legislation for noncommunicable diseases, as well the publication of policy guidance on reducing dietary intake of sugar, complementing the policy guidance on reducing dietary intake of salt and fat. Support was also provided to countries to update tobacco control legislation and to build capacity for promotion of physical activity.

Full engagement of non-health sectors will be crucial in ensuring continued progress in implementing the regional framework for action to implement the United Nations Political Declaration on noncommunicable diseases. WHO will continue to work with Member States to achieve the progress needed by the time of the next United Nations review in 2018, but such progress will basically depend on the commitment and actions of Member States.

Also in 2015, the Regional Committee endorsed a practical and evidence-based regional framework to scale up action on mental health and operationalize the comprehensive action plan for mental health 2013–2020. Four domains of action were identified by the regional framework: governance, prevention, health care and surveillance.

Important progress was made in 2015 to improve health security in the Region. Following the rapid external assessments conducted by the Regional Office at the end of 2014 and beginning of 2015, of Member States' capacity to detect and respond to a case of Ebola virus disease, it became clear that countries' readiness to fully implement the capacities required under the International Health Regulations (IHR 2015) was considerably lower than was reported through self-assessment. In 2015, the Regional Committee decided therefore to establish a regional assessment commission to facilitate and provide technical guidance to countries and to oversee a process of independent joint external evaluation, a shift from self-assessment, in order to objectively assess the country's capacity to prevent, detect and respond to health security threats. At the same time it called for harmonization of the existing assessment tools available, as a result of which our region became a leading player in the development of the joint external evaluation (JEE) tools which are now accepted globally by all parties concerned.

Joint external evaluation for IHR capacities, using the new tools, has been conducted in four countries in the Region so far and a plan has been developed to conduct such independent and objective assessments in at least 10 countries by the end of 2016 and all countries by the end of 2017. This is a very important step forward. Nevertheless, serious challenges exist to the efforts to prevent and control emerging and re-emerging diseases and all countries will have to reinforce their capacities in dealing with threats to health security. Over the next 18 months the work will continue in order to ensure that all Member States are evaluated, that action plans are prepared based on the evaluation outcomes and that implementation to address the gaps is begun without delay.

Outbreaks of communicable disease were a continuing threat throughout 2015 as conflict and population displacement continued to escalate, posing challenges for maintenance of immunization coverage as well as other essential and life-saving public health services. Our response has been to continue to focus, and double our efforts, on helping Member States to establish effective and timely disease surveillance, for example- expanding the early warning, alert and response network (EWARN) in crisis-affected countries and enhancing the early warning surveillance system for influenza, respiratory diseases and other infectious diseases, in order to early detect and rapidly respond to these health threats. Lack of access to insecure areas to implement appropriate control interventions resulted in outbreaks of dengue fever in Sudan and Yemen, and cholera in several different countries. Nevertheless, the rapid detection and containment of these outbreaks, particularly a cholera outbreak in Iraq, as well of the frequent hospital outbreaks of MERS in Saudi Arabia, are some of the impressive examples of WHO's timely and effective response, thus preventing any major international health emergency from the continuing and widening threats to health security in the Region.

Good progress was made with regard to eradication of polio in the two remaining endemic countries of Afghanistan and Pakistan, although there are still areas where poliovirus continues to circulate. By mid May 2016, all countries had made the globally required switch from trivalent to bivalent oral poliovirus vaccine for routine and campaign use. The positive progress in polio eradication gives great cause for hope. There is now a great deal of optimism that the work we are doing in this region is now at a turning point for finishing the job of global polio eradication. We must continue to maintain our support for the programmes in Afghanistan and Pakistan and the highest commitment to ensuring all children are immunized everywhere. Likewise, in order to prevent outbreaks we must, and will, continue to ensure provision and maintenance of immunization coverage for all childhood diseases in emergency contexts, where many children remain hard to reach.

The Regional Committee endorsed the Eastern Mediterranean vaccine action plan, as a framework for implementation of the global vaccine action plan, as well as the regional malaria action plan 2016–2020 for implementation of the global technical strategy for malaria 2016–2030. We convened and engaged a broad range of stakeholders in the development of a regional action plan for viral hepatitis.

2015 saw a significant deterioration in the humanitarian situation in the Eastern Mediterranean Region. The crisis in Yemen was designated a highest threat level (Level 3) emergency by the United Nations in July 2015 and the Region now hosts three Level 3 emergencies, including the crises in Iraq and the Syrian Arab Republic. Overall throughout the Region, more than 62 million people were in need of health services as a result of emergencies by the end of 2015, placing a significant strain on already weakened and overwhelmed health systems. More than 60% of all refugees and internally displaced persons originate from the Region; in Lebanon, refugees now comprise a third of the total population.

Shortages in specialized medical staff, medicines and medical equipment, and other health resources, especially in areas where access for WHO and partners was limited, had severe impact on the delivery of health services, contributing to the deterioration in the health status of some populations and an increased number of preventable deaths. Despite resource limitations and the major gaps in humanitarian funding, our regional emergency response programme was restructured in 2015 and considerably strengthened to deal with the unprecedented increase in the number, magnitude and severity of crises requiring WHO's support. Our capacity in leading humanitarian health relief has been reinforced and we continued to prioritize the WHO response to crisis in the Region ensuring the provision of essential medicines, supplies and humanitarian aid, as well strengthening disease surveillance, immunization campaigns, trauma care services, management of chronic diseases and mental health support. We continued to seek and implement approaches and strengthen partnerships to ensure people trapped in hard-to-reach areas were able to receive health care wherever possible, and to support mobile health services.

It is clear, and has been highlighted by the Regional Committee in a number of sessions, that we need to ensure a more systematic and effective approach, both within countries and across the Region, to responding to the health needs of populations affected by conflict and emergencies and to ensuring that health systems in all affected countries are strengthened and continue to deliver urgently needed health services to displaced populations and host communities. This will require improved and expanded coordination, action and engagement from other sectors and stakeholders including the affected communities themselves.

Following the endorsement in May 2016 by the World Health Assembly of the new WHO health emergencies programme, additional restructuring has taken place and a substantial increase in human resources is already planned.

The Regional Emergency Solidarity Fund was activated in January 2016 to ensure predictable financing of surge/rapid response to natural and man-made disasters in the Region and the WHO logistics hub, established in Dubai's International Humanitarian City to ensure the timely provision of critically needed medicines, medical supplies and medical equipment to countries in the Region and beyond, was operationalized. I hope that Member States in the Region will continue to support resource mobilization efforts for humanitarian and health support in affected countries, as well as in providing much needed technical and response capacity.

Throughout the past 18 months we have continued to complement our technical and operational activities with parallel actions to strengthen managerial effectiveness. This included continued emphasis on accountability, transparency and efficiency, and on strengthening the WHO workforce, especially at country level. Compliance is now monitored through a monthly compliance dashboard and is tied in with performance appraisal mechanisms. We increased focus on capacity-building initiatives, such as an integrated training programme for budget centres, dedicated compliance forums and outreach initiatives. This has yielded positive initial results in terms of improved management, compliance and accountability, including a decrease of over 80% in overdue reports on direct financial contributions compared with 2013, a decrease of over 80% in overdue donor reports compared with 2014 and closure of the majority of outstanding external and internal audit recommendations. A project was also completed to address non-compliance in non-staff contractual modalities.

In keeping with the practice of the past few years, a high-level meeting for ministers and representatives of Member States and permanent missions in Geneva was held prior to the World Health Assembly. These meetings continue to provide an opportunity to review, with ministers of health and senior government officials, progress in addressing key priorities since the previous Regional Committee and to strengthen Member States' engagement in global discussions on health and WHO reform.

There is clear evidence that this region is leading in several programme areas within WHO. The work we are doing in health system strengthening, health security and noncommunicable diseases has laid the groundwork for many years to come and provides a strong basis for countries to move forward with confidence. It is also

increasingly recognized in our region that collaboration between sectors is essential for the achievement of long-term health and development goals. Nevertheless, there is still a long way to go. As we move forward into the post-2015 era and Member States initiate work towards the SDGs, there are four key areas that will receive attention in our work: advocacy for the SDG health targets; harmonization of existing WHO health strategies with the SDG targets; identification of more effective mechanisms for multisectoral action both within countries and at the regional and global levels; and strengthening of health information systems to support progress monitoring. 2016–2017 will be crucial in laying this foundation.

Deaths of children aged under 5 years and related factors in the Islamic Republic of Iran: a population-based case–control study

A. Evazpoor [1], A. Edalati [2], E. Hyppönen [3,4,5], M. Fararouei [6], Z. Parisai[7]

وفيات الأطفال الذين تقل أعمارهم عن 5 سنوات والعوامل المتصلة بها في جمهورية إيران الإسلامية: دراسة حالات وشواهد سكانية المرتكز

علي رضا عوض بور، علي عدالاتي، الينا هيبونن، محمد فراروني، ظفر باريساي

الخلاصة: أجريت هذه الدراسة لتحديد العوامل العائلية والاجتماعية والاقتصادية المرتبطة بوفيات الأطفال الذين تقل أعمارهم عن 5 سنوات. فقد أجريت دراسة متداخلة لحالات وشواهد ترتكز على السجلات بشأن وفيات جميع الأطفال الذين تقل أعمارهم عن 5 سنوات في ولاية كوهجيلويا وبوير أحمد في جمهورية إيران الإسلامية. تم اختيار شاهدين لكل وفاة اختياراً عشوائياً من بين أطفال لهم نفس العمر والجنس ومكان الإقامة (186 حالة و 372 شاهداً). فكان التشوه الخِلقي (37.6٪) والولادة قبل الوقت المتوقع (29.0٪) السببين الأكثر شيوعاً للوفاة بين الأطفال الذين تقل أعمارهم عن 5 سنوات. ولم يرد ذكر أي مرض من الأمراض التي يمكن الوقاية منها باللقاحات كسبب للوفاة. ووُجد أن أقوى العوامل المرتبطة بالوفيات هي القرابة بين الأبوين (OR = 3.92; 95%CI = 2.27 – 6.85; $p < 0.01$) بالنسبة للأقارب من الدرجة الأولى مقارنة مع عدم وجود قرابة عائلية؛ والعنف المنزلي ضد الأم أثناء الحمل (OR = 3.13; 95%CI = 1.6 – 6.17; $p < 0.001$). لقد كانت الأسباب الرئيسية لوفاة الأطفال الذين تقل أعمارهم عن 5 سنوات في الولاية التشوهَ الخِلقي والولادة قبل الوقت المتوقع.

ABSTRACT The study was conducted to determine the family, social and economic factors associated with deaths of children aged under 5 years. A registry-based nested case–control study was conducted of the deaths of all children aged under 5 years in Kohgilooyeh and Boyer-Ahmad Province in the Islamic Republic of Iran. For each death, two controls were randomly selected among children of the same age, sex and place of residence (186 cases and 372 controls). Congenital abnormality (37.6%) and preterm birth (29.0%) were the two most frequent causes of death among children aged under 5 years. No vaccine-preventable disease was reported as the cause of death. The strongest associations were found with consanguinity of the parents (OR = 3.92; 95% CI = 2.27–6.85 for being first cousins in comparison with no family relation; $P < 0.001$) and with domestic violence to the mother during pregnancy (OR = 3.13; 95% CI = 1.60–6.17; $P < 0.01$). The main causes of death of children aged under 5 years in the Province were congenital abnormality and prematurity.

Décès d'enfants de moins de cinq ans et facteurs associés en République islamique d'Iran : étude cas-témoin populationnelle

RÉSUMÉ La présente étude a été menée pour déterminer les facteurs familiaux, sociaux et économiques associés aux décès des enfants de moins de cinq ans. Une étude cas-témoin nichée reposant sur les données de registres a été menée sur les décès de tous les enfants de moins de cinq ans dans la province de Kohgilooyeh et Boyer-Ahmad en République islamique d'Iran. Pour chaque décès, deux témoins étaient sélectionnés de façon aléatoire parmi les enfants du même âge, sexe et lieu de résidence (186 cas et 872 témoins). Les malformations congénitales (37,6 %) et les naissances prématurées (29,0 %) constituaient les deux causes de décès les plus fréquentes parmi les enfants de moins de cinq ans. Aucune maladie à prévention vaccinale n'a été rapportée comme cause de décès. Les associations les plus fortes étaient liées à la consanguinité des parents (OR = 3,92 ; IC à 95 % = 2,27-6,85 pour les cousins de premier degré en comparaison avec les sujets n'ayant aucun lien de parenté ; $p < 0,001$) et à la violence conjugale envers les mères pendant la grossesse (OR = 3,13 ; IC à 95 % = 1,60-6,17 ; $p < 0,01$). Les principales causes de décès des enfants de moins de cinq ans dans la province étaient les malformations congénitales et la prématurité.

[1]Yasuj University of Medical Sciences, Yasuj, Islamic Republic of Iran. [2]Azad University, Dhaghan, Islamic Republic of Iran. [3]School of Population Health and Sansom Institute, University of South Australia, Adelaide, Australia. [4]South Australian Health and Medical Research Institute, Adelaide, Australia. [5]Population, Policy and Practice, University College London Institute of Child Health, London, United Kingdom. [6]HIV/AIDS Research Centre, Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran. [7]Yasuj University of Medical Sciences, Yasuj, Islamic Republic of Iran (Correspondence to Mohammad Fararouei: fararooei@gmail.com)

Introduction

Childhood mortality has a profound effect on the life expectancy of a community and is considered an important index of a country's health and socioeconomic status (*1–3*). A primary health care network has been established in the Islamic Republic of Iran over the past three decades to deliver effective health services to the most vulnerable segments of the population, such as mothers and children. Improvements in access to primary health care have resulted in dramatic reductions in maternal and early childhood morbidity and mortality, which are considered the key achievements of the national health care system (*4,5*). The rate of death of children aged under 5 years (per 1000 live births) was reduced from 287.9 in 1967 to 16.8 in 2013 (*6*). Safe water, vaccination, safe delivery and other basic health and public services have not only reduced overall mortality rates but have also shifted the causes of morbidity and mortality from infectious to non-infectious diseases.

Thus, the common causes of death among children in the Islamic Republic of Iran have become prematurity, low birth weight and congenital birth defects (*4*). Many factors contribute to childhood mortality, including the environment, health and social and family factors (*1,7,8*). The patterns of factors that contribute to the leading causes of death in children must be known to enable targeted planning of programmes for further reductions. We conducted a case–control study, with comprehensive, population-level information collected as part of "family health care file" registrations, complemented by a questionnaire survey. The aim of the study was to determine the causes of death of children aged under 5 years and associated factors in Kohgilooyeh and Boyer-Ahmad Province in southern Islamic Republic of Iran during 1 year.

Methods

Setting

Kohgilooyeh and Boyerahmad Province in the southwest of the country has an area of 16 249 km^2 and a population of 635 000 (Fig. 1). The Province has 1.12% live births, but represents 3.35% of all deaths of children aged under 5 years in the country (*9*). Iranian national health legislation requires that all pregnant mothers and children be registered in the national health services network in order to receive basic health care, including vaccination, monitoring of growth and development and nutritional supplements, from birth to 7 years of age. The demographic, social and health information for the families are recorded in a "family health care file".

Selection of deaths

We selected all deaths of children aged under 5 years in the Province that occurred during an Iranian calendar year equivalent to 20 March 2011 to 19 March 2012. All deaths had been registered in their corresponding health centre, and information on each child had been included in the family health care file prior to their death. The Iranian Ministry of Health and Medical Education requires that a specific procedure be followed for the deaths of all children reported by public health experts or general practitioners, starting with completion of a children's death investigation form. The form is sent to a death investigation expert committee consisting of a paediatrician, an obstetrician and an epidemiologist, which confirms the probable cause of death.

Selection of controls

Control children were selected from a list of all children who were under 5 years of age, alive on 19 March 2012 and registered in the national health services network. In view of the link to the provision of health care services, the coverage of the register is considered to be virtually complete (*10*). Two control children were randomly selected for each death by frequency matching on age (month), sex and urban or rural residence. Of the 372 mothers who were invited to participate, only four refused (1%). Replacements were selected for the four refusals by the same criteria as above. We could not use a higher ratio of controls to cases because of the small number of eligible controls in this relatively small population.

Figure 1. Kohgilooyeh and Boyer-Ahmad Province (highlighted)

Sampling and power

During the study period, 186 children aged under 5 years died; all were included in the study. To ensure that there were no unreported deaths of children aged under 5 years, we checked all deaths registered at local birth and death offices. An a posteriori power analysis suggested adequate (at least 80%) statistical power for detecting relevant associations at the 5% level. For example, the analyses had 90% power to detect a difference as small as 5% in the place of birth between the two groups.

Data collection

Data were collected in 2012 and analysed in 2013. Most information was obtained from the family health care file, including the mother's education and occupation, age at marriage and pregnancy and history of miscarriages and previous pregnancies. Information on the mother's weight gain and regular

smoking was recorded at each visit to a health centre for routine pregnancy care (on average, 13 visits per pregnancy). The birth characteristics included gestational age (number of weeks from the date of the last normal period) and birth weight. All participants also participated in a structured interview at which information was obtained on social, economic and family factors including consanguinity of the parents, family size, place of residence at birth, mother's education, mother's smoking status, mother's job and satisfaction with the family income and domestic and sexual violence during the pregnancy. All interviews were conducted in a friendly, quiet, private environment by trained female interviewers with a university degree in midwifery or public health. The questionnaire was tested in a pilot study with 53 mothers in Kohgilooyeh and Boyer-Ahmad Province who had children aged under 5 years. As questions about family income were considered to be sensitive and the answers thus potentially unreliable, an indirect question was used, the mothers being asked to report their satisfaction with the family income on a scale of 1–5 (very dissatisfied to very satisfied) (*11,12*). Violence against mothers was recorded by asking the mothers to report any physical or sexual abuse they had experienced during the pregnancy, after a brief explanation and assurance of confidentiality. The pilot study indicated that the reliability or internal consistency of the questionnaire was good (Cronbach's alpha = 0.7).

The study protocol was approved by the Yasuj University of Medical Sciences ethical committee, and all mothers agreed to participate after reading and signing an informed consent form before the interview; verbal consent was obtained from mothers who were illiterate.

Statistical methods

Associations between continuous and categorical variables with deaths of children aged under 5 years were tested by Student's t and chi-squared tests, respectively. Multivariate logistic regression was used to analyse the association of each variable with deaths of children aged under 5 years after control for other variables. The final model was built in a backwards selection strategy. Data were analysed with the R statistical package (version 3.0.1).

Results

In total, 186 deaths of children aged under 5 years occurred during the study period. For each case, two children of the same sex and age were randomly selected from eligible children with the same place of residence (372 controls in total).

Congenital abnormality (37.6%) and preterm birth (29.0%) were the most prevalent causes of death (Table 1). None of the deaths was due to a vaccine-preventable disease, and other infectious diseases, including diarrhoea and pneumonia, were responsible for only 12.9% of all deaths.

The health, family and social characteristics of the cases and controls are presented in Tables 2 and 3. The cases weighed less than controls at birth (2.42 kg vs 3.16 kg, $P < 0.001$) and were born earlier (35.05 vs 38.48 weeks, $P < 0.001$) than the controls. The mothers of the case children were more likely than those of control children to be multiparous (15.6% vs 0.8%, $P < 0.001$) and to have had at least one previous miscarriage (17.7% vs 10.2%, $P = 0.015$). Moreover, the mothers of the case children gained less weight during their pregnancy (8.37 kg vs 9.96 kg, $P < 0.001$) and were more likely to have experienced domestic violence than controls (18.8% vs 6.5%, respectively, $P < 0.001$). They had attended fewer visits for maternal care (average, 7.06 vs 8.49 visits, $P < 0.001$). The mothers of the case children were also less satisfied with their family income (55.4% case mothers and 75.9% controls were very satisfied or satisfied, $P < 0.001$). In addition, more common between the parents was commoner among the cases than controls: being first cousins was 20.4% more likely among the parents of the case children than the controls ($P < 0.001$). No significant associations were found between the death of a child aged under 5 years and birth order, birth

Table 1. Causes of death of children aged under 5 years by age group

Cause of death	Age group			All
	< 1 month	1–12 months	1–5 years	
Prematurity	54 (50.9%)	0	0	54 (29.0%)
Congenital abnormality*	31 (29.2%)	24 (63.2%)	14 (34.1%)	70 (37.6%)
Respiratory illness	10 (9.4%)	4 (10.5%)	1 (2.4%)	15 (8.1%)
Diarrhoea	2 (1.9%)	4 (10.5%)	3 (7.3%)	9 (4.8%)
Domestic or traffic accident	1 (0.9%)	4 (10.5%)	13 (31.7%)	18 (9.7%)
Other	8 (7.5%)	2 (5.3%)	10 (24.4%)	20 (10.8%)
Total	106	38	41	186

**Age at death was missing for one case*

Table 2. Birth characteristics of cases and controls

	Cases No. (%)	Controls No. (%)	*P*
Sex			
Male	101 (54.3%)	202 (54.3%)	1.00
Female	75 (45.7%)	170 (45.7%)	
Birth order	Mean=2.28, SD=1.54	Mean=2.31, SD=1.40	
1	83 (44.6%)	136 (36.6%)	0.09
2–3	66 (35.5%)	167 (44.9%)	
4–7	37 (19.9%)	69 (18.5%)	
Birth weight (kg)	Mean=2.422, SD=0.940	Mean=3.164, SD=0.538	
< 2	59 (31.7%)	7 (1.9%)	< 0.001
2–2.5	16 (8.6%)	15 (4.0%)	
2.5–3.5	75 (40.3%)	236 (63.4%)	
3.5–4.9	21 (11.3%)	114 (30.6%)	
Gestational age (weeks)	Mean=35.05, SD=4.88	Mean=38.48, SD=1.98	
< 37	82 (44.1%)	23 (6.2%)	< 0.001
37–42	101 (54.3%)	343 (92.2%)	
> 42	3 (1.6%)	6 (1.6%)	
Multiple birth			
No	157 (84.4%)	369 (99.2%)	< 0.001
Yes	29 (15.6%)	3 (0.8%)	

interval, family size (4.8 for cases vs 4.5 for controls, $P > 0.05$) or mother's education, job or smoking status ($P > 0.05$).

After full adjustment for other variables, the odds for death of children aged under 5 years were increased by low birth weight, consanguinity of parents, history of abortion or domestic violence, smaller family size and residence in rural areas ($P < 0.05$ for all comparisons, Table 4). Maternal weight gain and the number of prenatal visits were not associated with deaths of children aged under 5 years, after adjustment. Consanguinity of the parents (OR = 3.92, 95% CI = 2.27–6.85, for children of first-cousin marriages compared with no family relation, $P < 0.001$) gave the highest odds ratios. The other factor strongly associated with deaths of children aged under 5 years was domestic violence against the mother (OR = 3.1, 95% CI = 1.60–6.17, $P < 0.001$). When the analyses were restricted to cases who survived at least 12 months ($n = 131$) and their controls, we found a strong protective effect of breastfeeding for at least 6 months (OR = 0.12, 95% CI = 0.06–0.24, $P < 0.001$).

Discussion

In the Islamic Republic of Iran, as in many other developing countries, a significant reduction in common infectious diseases has made non-infectious disease more common causes of death among children aged under 5 years of age (*13*). We found that only 12.9% of the registered deaths of children aged under 5 years in Kohgilooyeh and Boyer-Ahmad Province were due to infectious causes, and, importantly, none of the deaths was due to vaccine-preventable diseases. This national achievement is considered to be (at least partly) the consequence of notable improvements in access to basic health and public services (including mother and child health care, vaccination, safe drinking-water and education) and a significant improvement in public welfare during the past three decades (*5*).

Our study suggests that the distribution of causes of childhood mortality in our country differs from global patterns, including in particular higher rates of congenital abnormalities and preterm births (*7, 13*) The frequency of congenital abnormalities appears to be even higher in the Province (37%) than in the country as a whole (17%) (*14*).

Our results show that consanguinity of parents is strongly associated with the death of children aged under 5 years, even after adjustment for various other factors. The association was revealed by examining children's death investigation forms, which are available even for rural areas (*15*). Parental consanguinity is alarmingly common in the Province: 21% of the parents of cases and 41% of those of controls were first cousins and 52% and 72% were other relatives, respectively. Although we found no official report on national or regional rates of consanguinity, it may explain, at least in part, the high rate of congenital abnormalities in the Province (*16,17*). We

Table 3. Maternal and demographic characteristics of cases and controls

	Cases No. (%)	Controls No. (%)	*P*
Birth interval (years)	Mean=2.28, SD=1.54	Mean=2.31, SD=1.40	
≤ 1	15 (8.1%)	18 (4.9%)	0.18
1–2	20 (10.8%)	40 (10.8%)	
2–3	16 (8.6%)	51 (13.7%)	
> 3	135 (72.6%)	262 (70.6%)	
Family size	Mean= 4.8, SD=1.87	Mean=4.53, SD=1.63	
3	56 (30.1%)	123 (33.1%)	0.52
4–6	16 (54.3%)	51 (54.6%)	
7–13	135 (15.6%)	262 (12.4%)	
Age of mother at pregnancy (years)	Mean= 27.10, SD=6.02	Mean=27.90, SD=5.52	
15–17	13 (7.0%)	10 (2.7%)	0.12
18–34	156 (83.9%)	324 (87.1%)	
35–43	17 (9.1%)	38 (10.2%)	
Age of mother at marriage (years)	Mean= 20.09, SD=3.94	Mean=20.81, SD=4.06	
12–16	33 (17.7%)	48 (12.9%)	0.24
17–25	135 (72.6%)	278 (74.7%)	
26–36	18 (9.7%)	46 (12.4%)	
Previous miscarriage			
Yes	33 (17.7%)	38 (10.2%)	0.02
No	153 (82.3%)	334 (89.8%)	
Weight gained during pregnancy (kg)	Mean= 8.37, SD=3.68	Mean=9.96, SD=3.35	
1–5	47 (25.3%)	36 (9.7%)	< 0.001
6–10	98 (52.7%)	193 (51.9%)	
11–15	32 (17.2%)	121 (32.5%)	
16–19	9 (4.8%)	22 (5.9%)	
Number of prenatal care visits	Mean= 7.06, SD=3.47	Mean=8.49, SD=2.97	
0–4	39 (21.0%)	31 (8.3%)	< 0.001
5–10	118 (63.4%)	267 (73.0%)	
11–18	29 (15.6%)	73 (19.6%)	
Parents' consanguinity			
First cousin	77 (41.4%)	78 (21.0%)	< 0.001
Second cousin and further	57 (30.6%)	119 (32.0%)	
No family relation	52 (28.0%)	175 (47.0%)	
Place of birth			
Urban	44 (23.7%)	115 (30.9%)	0.075
Rural	142 (76.3%)	257 (69.1%)	
Place of death and interview			
Urban	85 (45.7%)	172 (46.2%)	0.93
Rural	(101 (54.3%)	200 (53.8%)	
Mother's education			
Illiterate	32 (17.2%)	55 (14.8%)	0.22
Primary school	54 (29.0%)	108 (29.0%)	
Middle school	38 (20.4%)	62 (16.7%)	
High school	36 (19.4%)	104 (28.0%)	
Higher	26 (14.0%)	43 (11.6%)	
Smoked during pregnancy			
Yes	5 (2.7%)	10 (2.7%)	1.00
No	181 (97.3%)	362 (97.3%)	

Table 3. Maternal and demographic characteristics of cases and controls (*concluded*)

	Cases No. (%)	Controls No. (%)	*P*
Mother's occupation			
Housewife	168 (90.3%)	334 (89.8%)	0.43
Teacher	6 (3.2%)	19 (5.1%)	
Employee	8 (4.3%)	16 (4.3%)	
Self-employed	4 (2.2%)	3 (0.8%)	
Income satisfaction			
Very satisfied	19 (10.2%)	57 (15.3%)	0.003
Satisfied	84 (45.2%)	200 (53.8%)	
Neither satisfied nor dissatisfied	52 (28.0%)	83 (22.3%)	
Dissatisfied	16 (8.6%)	23 (6.2%)	
Very dissatisfied	15 (8.1%)	9 (2.4%)	
Domestic violence during pregnancy			
Yes	35 (18.8%)	24 (6.5%)	< 0.001
No	151 (81.2%)	348 (93.5%)	
Sexual abuse during pregnancy			
Yes	18 (9.7)	9 (2.4%)	< 0.001
No	168 (90.3%)	363 (97.6%)	

also observed an association between domestic violence against the mother during pregnancy and an increased risk that her child would die before the age of 5 years (*18*). This association is not unexpected, but it calls for action to both prevent domestic violence and to intervene when it is observed.

Table 4. Explanatory variables for deaths of children aged under 5 years in the multivariate logistic regression analysis

	No.	OR (95% CI)	*P*
Preceding birth interval	558	0.95 (0.88–1.03)	0.24
Birth weight	543	0.36 (0.23–0.56)	< 0.001
Gestational age	558	0.85 (0.77–0.94)	0.001
Place of birth			
Urban	159		
Rural	399	1.79 (1.030–3.18)	0.04
Weight gain during pregnancy	558	1.01 (0.94–1.08)	0.89
Number of maternity visits	558	0.95 (0.88–1.018)	0.15
History of abortion			
No	487		
One	48	2.20 (1.035–4.64)	0.04
Two and more	23	1.04 (0.30– 3.21)	0.95
Consanguinity of parents			
No	155		
First cousin	176	3.92 (2.27–6.85)	< 0.001
Second cousin and further	227	1.62 (0.93–2.83)	0.09
Family size	558	1.24 (1.09–1.41)	0.001
Domestic violence			
No	499		
Yes	59	3.13 (1.60–6.17)	< 0.001

Variables in the saturated logistic model: birth interval from previous sibling, birth order, age of mother at pregnancy, age of mother at marriage, single status, prenatal visits, weight gain during pregnancy, birth weight, history of abortion, consanguinity of the parents, family size, place of residency at birth, mother's education, smoking status of the mother, mother's job and family income satisfaction, domestic violence during pregnancy, sexual violence during pregnancy

Earlier reports suggested an association between maternal occupation and education with childhood mortality (*8,19*). In our analyses, the effects of maternal occupation and education did not persist after other contributing factors were accounted for. Also, in contrast to some earlier studies, we found no association between birth interval and death of children aged under 5 years (*19*), perhaps because there has been a major, nationwide reduction in fertility rate in the country, with a decrease of 59.5% between the mid-1980s and the mid-1990s (*20*), which is considered to be due to more family planning, increases in the average birth interval and improvements in social and health services (*4*). For example, in our study, only 6.1% of the study children had a birth interval from their older siblings shorter than 2 years. This may have attenuated the associations between previously recognized factors (mainly maternal education and birth interval) and deaths of children aged

under 5 years. We found a strong negative association between breastfeeding and the deaths of children aged under 5 years (*21*). In our context, this may reflect poorer health and feeding ability among the cases rather than a strong protective effect.

One of the strengths of our study is that it included information on socioeconomic, health and family factors that affect the risk for childhood mortality. We consider that the results can be generalized to many (developing) countries in the Region with similar cultural, social and geographical features. A limitation is that, despite efforts to assure the mothers of the privacy and confidentiality of the information they provided, we cannot exclude possible underreporting of sexual or domestic violence. Furthermore, much of the information was routinely collected data from family health files and death investigation forms. Although health staff try systematically to ensure that the information they collect is valid and reliable, we cannot exclude possible errors in the information from official sources.

Studies based on national or international sources should be conducted to determine the applicability of the results. As the risk factors identified in this study can be modified, population-based interventions are recommended to apply social and health measures to prevent deaths of children aged under 5 years.

In conclusion, the main causes of deaths of children aged under 5 years in this registry-based, nested case–control study in Kohgilooyeh and Boyer-Ahmad Province in the Islamic Republic of Iran were congenital abnormality and prematurity, while vaccine-preventable causes of death were extremely rare. Consanguinity of parents and domestic violence were important determinants of the deaths of these children, indicating the need for suitable interventions.

Acknowledgements

We thank the Vice Chancellor for research affairs of Yasuj University of Medical Sciences for financial support. The authors hereby confirm that they have no conflict of interest.

Funding: None.

Competing interests: None declared.

References

1. Garenne M. Urbanisation and child health in resource poor settings with special reference to under-five mortality in Africa. Arch Dis Child 2010;95:464–468.
2. Bourne PA, Solan I. Under-five mortality, health and selected macroeconomic variables: the children behind the digits. J Behav Health 2012;3:217–226.
3. Anand S, Bärninghausen T. Human resources and health outcomes: cross-country econometric study. Lancet 2004;364:1603–1609.
4. Lankarani KB, Alavian SM, Peymani P. Health in the Islamic Republic of Iran, challenges and progresses. Med J Islam Republic Iran 2013;27:42.
5. Mehrdad R. Health system in Iran. Japan Med Assoc J 2009;52:69–73.
6. Levels and trends in child mortality – Report 2014. In: United Nations Inter-agency Group for Child Mortality Estimation. New York City, New York: UNICEF; 2014.
7. Bryce J, Boschi-Pinto C, Shibuya K, Black RE. WHO estimates of the causes of death in children. Lancet 2005;365:1147–1152.
8. Hosseinpoor AR, Mohammad K, Majdzadeh R, Naghavi M, Abolhassani F, Sousa A, et al. Socioeconomic inequality in infant mortality in Iran and across its provinces. Bull World Health Organ 2005;83:837–844.
9. Official report on Iranian census. Tehran: Statistical Centre of Iran; 2011.
10. Shadpour K. Primary health care networks in the Islamic Republic of Iran. East Mediterr Health J 2000;6:822–825.
11. Senik C. Ambition and jealousy: income interactions in the "old" Europe versus the "new" Europe and the United States. Economica 2008;75:495–513.
12. Kuwert P, Brahler E, Glaesmer H, Freyberger H Jr, Decker O. Impact of forced displacement during World War II on the present-day mental health of the elderly: a population-based study. Int Psychogeriatr 2009;21:748–753.
13. Black RE, Cousens S, Johnson HL, Lawn JE, Rudan I, Bassani DG, et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. Lancet 2010;375:1969–1987.
14. Movahedi M, Hajarizadeh B, Rahimi A, Arshinchi M, Amirhosseini K, Haghdoost AA. Trends and geographical inequalities of the main health indicators for rural Iran. Health Policy Plan 2009;24:229–237.
15. Chaman R, Gholami Taramsari M, Khosravi A, Amiri M, Holakouie Naieni K, Yunesian M. Consanguinity and neonatal death: a nested case–control study. J Fam Reprod Health 2014;8:189–193.
16. Bromiker R, Glam-Baruch M, Gofin R, Hammerman C, Amitai Y. Association of parental consanguinity with congenital malformations among Arab newborns in Jerusalem. Clin Genet 2004;66:63–66.
17. Nabulsi MM, Tamim H, Sabbagh M, Obeid MY, Yunis KA, Bitar FF. Parental consanguinity and congenital heart malformations in a developing country. Am J Med Genet A 2003;116A:342–347.
18. Åsling-Monemi K, Tabassum Naved R, Persson LÅ. Violence against women and the risk of under-five mortality: analysis of community-based data from rural Bangladesh. Acta Paediatr 2008;97:226–232.
19. Dwivedi SN, Pandey RM. Determinants of under-five mortality in Rural Empowered Action Group states in India: an application of Cox frailty model. Int J Matern Child Health AIDS 2012;1:60–72.
20. Abbasi-Shavazi MJ. Effects of marital fertility and nuptiality on fertility transition in the Islamic Republic of Iran, 1976–1996. Canberra: The Australian National University; 2000.
21. Lamberti LM, Zakarija-Grkovic I, Walker CLF, Theodoratou E, Nair H, Campbell H, et al. Breastfeeding for reducing the risk of pneumonia morbidity and mortality in children under two: a systematic literature review and meta-analysis. BMC Public Health 2013;13(Suppl 3):S18.

Collaboration between pharmacists and general practitioners in the health care system in the Islamic Republic of Iran

F. Hashemian[1], F. Emadi[1] and E. Roohi[1]

التعاون بين الصيادلة والممارسين العامين في نظام الرعاية الصحية في جمهورية إيران الإسلامية

فرشاد هاشميان، فاطمة عمادي، الناز روحي

الخلاصة: لقد تبين أن التعاون بين الصيادلة والممارسين العامين يحسِّن رعاية المرضى والنتائج. وحتى الآن لا يزال البحث عن العوامل التي تؤثر على الممارسة التعاونية في مراحله الأولية. ولقد كان الهدف من هذه الدراسة تقصي علاقة العمل التعاوني بين الصيادلة والممارسين العامين من حيث مواقفهم، وإدراكهم للأدوار، وتجربتهم مع الممارسة التعاونية، وطريقة الاتصال المفضلة، ومجالات التعاون الحالية واللاحقة، والعوائق التي يُتصور أن تعترض سبيل التعاون بين المهنيين لدى عينة من الشعب الإيراني. لقد قمنا بتوزيع 318 استبياناً على الصيادلة المجتمعيين والممارسين العامين في طهران. فكان موقف كلا الفئتين إيجابياً تجاه التعاون، غير أن نصف المشاركين في الاستطلاع تقريباً ذكروا حصول ممارسة تعاونية في بعض الأحيان فقط. وفضَّلت كلا الفئتين التواصل عن طريق الهاتف أو وجهاً لوجه على التواصل عن طريق الفاكس أو الرسائل. وقد تم التعرف على عدد قليل من مجالات التعاون الحالية، بيد أن المجال المفضل لدى كلا الفئتين كان "اتخاذ القرارات المتعلقة بالمعالجة الدوائية للمرضى". وكان لكل من الفئتين تصورات مختلفة لأدوار الصيادلة المجتمعيين. وأعربوا عن قلقهم حول إمكانية تجزئة رعاية المرضى بإشراك العديد من مقدمي الرعاية الصحية، واعتبروا أن عدم التواصل وجهاً لوجه يمكن أن يكون عائقاً يحول دون التعاون.

ABSTRACT Collaboration between pharmacists and general practitioners (GPs) has been shown to enhance patient care and outcomes. The aim of the present study was to investigate the collaborative working relationship between pharmacists and GPs in terms of their attitudes, role perceptions, experience with collaborative practice, preferred method of communication, areas of current and further collaboration, and perceived barriers to interprofessional collaboration in a sample of the Iranian population. We distributed 318 questionnaires to community pharmacists and GPs in Tehran. Both groups had a positive attitude towards collaboration; however, about half the respondents reported only occasional collaborative practice. Both groups preferred communication by telephone or face-to-face communication by fax or letter. Few current areas of collaboration were identified; however, an area favoured by both groups was “decision-making for patients’ pharmacotherapy”. The two groups expressed concern about possible fragmentation of patient care with the involvement of multiple health care providers, and perceived lack of face-to-face communication as a possible barrier to collaboration.

Collaboration entre pharmaciens et médecins généralistes dans le système de soins de santé en République islamique d’Iran

RÉSUMÉ Il a été démontré que la collaboration entre les pharmaciens et les médecins généralistes était un facteur d’amélioration des soins dispensés aux patients ainsi que de leur état de santé. La présente étude avait pour objectif d’examiner la collaboration professionnelle entre pharmaciens et médecins généralistes dans un échantillon de la population iranienne en termes d’attitudes, de perception des rôles, d’expérience de collaboration, de méthode de communication privilégiée, de domaines de la collaboration actuelle et future, et de barrières perçues en matière de collaboration interprofessionnelle. Nous avons distribué 318 questionnaires aux pharmaciens communautaires et médecins généralistes de Téhéran. Les deux groupes étaient favorables à la collaboration, mais près de la moitié des participants ont rapporté n’entretenir des relations de collaboration que sur une base occasionnelle. Les deux groupes ont déclaré préférer une communication par téléphone ou en face à face que par fax ou courrier. Peu de domaines faisant l’objet d’une collaboration actuelle ont été identifiés. Cependant, les deux groupes avaient pour domaine de prédilection « la prise de décision concernant la pharmacothérapie des patients ». Les deux groupes se sont dit préoccupés par une possible fragmentation des soins dispensés aux patients du fait de l’apparition de multiples prestataires de soins de santé, et percevaient le manque de communication en face à face comme une barrière potentielle à la collaboration.

[1]Department of Clinical Pharmacy, Faculty of Pharmacy, Islamic Azad University, Pharmaceutical Sciences Branch, Tehran, Islamic Republic of Iran (Correspondence to E. Roohi: eli_r2200@yahoo.com).

Received: 23/6/15; accepted: 06/06/16

Introduction

Today, interprofessional collaboration is seen as an integral part of the practice of medicine and even of medical education (*1*). Collaborative working relationships promote the provision of pharmacotherapy management services, disease state management and other patient care services (*2*). "Interprofessionality" is defined as the development of cohesive practice among professionals in different fields, which enables them to reflect upon and find ways of practising that provide an integrated answer to clients' and patients' needs. This involves continuous knowledge-sharing among professionals to optimize patient care and improve their outcomes (*3*). Pharmacists and GPs have increasingly been encouraged to become involved in interprofessional collaboration in order to enhance patient care and achieve therapeutic goals (*4*). A number of collaborative experiences between pharmacists and physicians have been reported, and the benefits of such collaboration have been well documented (*5–12*).

To date, research has focused on the effects of GP–pharmacist collaboration on patient care and outcomes. Another approach might be to study factors that influence collaborative practice, which could provide insight for future interprofessional care and research on models of interprofessional practice. One such factor is the *attitude* towards collaboration, as it may influence the degree to which GPs and pharmacists collaborate (*4*). The attitudes of pharmacists were found to be significantly correlated with care-providing functions (*13*). Another factor is *perceptions of the role of community pharmacists* (*14*). In recent years, the role has evolved from the traditional one of dispensing medicines to a more clinical role (*15,16*), and there may be certain skills and expertise that are not apparent to both types of professionals. Differing role perceptions are likely to result in barriers to interprofessional collaboration (*15*); identification and removal of perceived interprofessional barriers between pharmacists and GPs is essential for establishing collaboration (*17*).

To our knowledge, collaborative practice between pharmacists and general practitioners has not previously been studied in the Islamic Republic of Iran or most probably in Asia. The aim of this study was therefore to investigate collaborative working relationships between pharmacists and GPs in terms of their attitudes, role perceptions, experiences with collaborative practice, preferred method of communication for collaborative practice, areas of current and potential further collaboration and perceived barriers in a sample of the Iranian population.

Methods

A comprehensive literature search was conducted to identify studies on GP–pharmacist collaborative practice. The survey questions used in a study on pharmacists' and physicians' views on collaborative practice in a community pharmaceutical care project (*18*) were translated into Persian with the authors' permission (Dr Deborah Kelly, personal communication), and the translated questions were tested for content and face validity by 10 expert clinical pharmacists and physicians. All the survey questions were pilot-tested in a sample of 45 expert community pharmacists and general physicians, and the reliability of the questionnaire was calculated to be 0.87 with Cronbach's alpha. Seven survey questions (43 items) were used to measure respondents' views on different aspects of interprofessional collaboration between GPs and pharmacists.

Data collection

Pharmacists (including those with experience of practising as community pharmacists) and physicians attending four continuous medical education programmes between February and August 2014 were invited to participate in the study, and 318 questionnaires were distributed, covering various aspects of interprofessional collaboration, demographic data (including gender, age and educational), number of years since graduation, community size and any academic affiliation.

The study protocol was approved by the ethics committee at Islamic Azad University, Pharmaceutical Sciences Branch (ID Number: 863).

Data analysis

The data were analysed with SPSS 21.0 software. Descriptive statistics were used to calculate results for each group separately, and Spearman rank correlations were used in order to identify between age, gender, education, community size and university affiliation and responses concerning attitudes, role perceptions, experience with collaborative practice, preferred method of communication, areas of current and possible further collaboration and perceived barriers to interprofessional collaboration. *P* values less than 0.05 were assumed to be significant.

Results

Of the 318 survey questionnaires distributed, 231 were completed, for a response rate of 72.6%. The demographic characteristics of the respondents are summarized in Table 1.

In both respondent groups, significant relations were found between age, gender, community size and university affiliation and certain aspects of interprofessional collaboration (Table 2). Significant relations were also found between the university degree (PharmD or MD) and all the role perceptions investigated ($P = 0.000$) expect for the role of pharmacists in dispensing prescriptions. Significant relations were found between current collaborative

Table 1. Demographics of pharmacists and general practitioners surveyed

Characteristic	Pharmacists (*n* = 132)	General practitioners (*n* = 99)
Sex		
Female	110 (83.3%)	54 (54.5%)
Male	22 (16.7%)	45 (45.5%)
Age (years)		
20–29	80 (60.6%)	26 (26.3%)
30–39	31 (23.5)	36 (36.4%)
40–49	8 (6.1%)	31 (31.3%)
> 50	13 (9.8%)	6 (6.1%)
Number of years since graduation		
< 10	106 (80.3%)	58 (58.6%)
10–19	10 (7.6%)	34 (34.3%)
20–29	6 (4.5%)	2 (2.0%)
> 30	10 (7.6%)	5 (5.1%)
Community size		
Small town (2000–1 000 000 population)	21 (15.9%)	25 (25.3%)
City (> 1 000 000 population)	111 (84.1%)	74 (74.7%)
University affiliation		
No	111 (84.1%)	75 (75.8%)
Yes	21 (15.9%)	24 (24.2%)

practice in modifying patients' pharmacotherapy, dose adjustment, managing side-effects of medication, patient counselling and improving patient adherence.

Attitudes towards collaborative practice were similar in the two respondent groups. The proportion of pharmacists who reported having tried to collaborate with GPs in order to enhance patient care was 14.6%, whereas only 12.4% of GPs reported attempted collaboration. Almost half of each group agreed that collaboration between health care professionals enhances patient care, and one third of pharmacists and one fourth of GPs believed that collaboration between their professions would enhance patient care.

Nearly half of each group reported having had *occasional* collaboration with their counterparts (47.0% of pharmacists and 40.4% of GPs), while 32.6% of pharmacists and 28.3% of GPs reported having *never* or *rarely* experienced collaborative practice; 6.1% of pharmacists and 11.1% of GPs reported having *always* collaborated with their counterparts, and 14.3% of pharmacists and 20.2% of GPs reported *frequent* experience with collaboration.

The preferred method of communication for collaborative practice for both groups was by telephone or face to face rather than by fax or letter. Communication by telephone was preferred by 57.1% of pharmacists and 31.6% of GPs, whereas 42.9% of GPs and 26.2% of pharmacists preferred face-to-face communication. Only 7.1% of pharmacists and 12.2% of GPs reported letter-writing to be their preferred method.

When pharmacists were asked whether the tasks cited in Table 3 should be identified as components of the role of community pharmacists, there was a high level of agreement that activities such as "assisting patients in selecting over-the-counter medication", "patient counselling", "helping to manage medication side-effects" and "helping to manage drug interactions" should be part of their role. They also agreed that roles such as "dispensing prescriptions" and "helping with medication insurance and reimbursement issues" were not part of the role of community pharmacists. A large majority of GPs perceived none of the roles listed in Table 3 as those of a community pharmacist.

In response to the question about areas in which they currently collaborate, both groups agreed that there is currently little collaboration in all areas. Both groups reported that the most frequent collaboration is to "manage drug interactions", "provide patient counselling" and "manage side-effects of medications".

When asked about possible areas of future collaboration (Table 4), pharmacists were more willing than GPs to collaborate in various areas. Both groups were willing to collaborate in decision-making on patients' pharmacotherapy and management of drug interactions.

The pharmacists and GPs agreed on perceived barriers to collaborative practice. Both groups expressed

Table 2. Correlations between age, gender, community size, university affiliation and other variables in aspects of interprofessional collaboration

	Pharmacists		GPs	
	P	*R*	*P*	*R*
Age				
Attitude towards collaboration	0.080	- 0.158	> 0.05	–
Experience in collaborative practice	0.002	0.262	> 0.05	–
Role perceptions (dose adjustment)	0.008	0.233	> 0.05	–
Role perceptions (dispensing prescriptions)	> 0.05	–	0.30	-0.221
Current collaboration (dose adjustment)	0.002	0.280	0.12	0.255
Future collaboration (decision-making about patients' pharmacotherapy)	> 0.05	–	0.017	- 0.240
Gender				
Perceived barriers to collaboration (concern about liability for shared responsibility)	> 0.05	–	0.000	-0.307
Community size				
Current collaboration (managing side-effects of medication)	> 0.05	–	0.033	- 0.217
Perceived barriers to collaboration (concern about liability for shared responsibility)	> 0.05	–	0.023	- 0.230
Perceived barriers to collaboration (lack of compensation)	> 0.05	–	0.005	0.283
University affiliation				
Attitude towards collaboration	> 0.05	–	0.011	- 0.269
Experience of collaborative practice	> 0.05	–	0.013	0.249
Role perceptions (advising on selection of over-the-counter medications)	> 0.05	–	0.035	- 0.215
Role perceptions (managing side-effects of medication)	> 0.05	–	0.006	- 0.276
Role perceptions (improving patient adherence)	> 0.05	–	0.050	- 0.201
Current collaboration (dose adjustment)	> 0.05	–	0.002	- 0.313
Current collaboration (managing side-effects of medication)	> 0.05	–	0.010	- 0.262
Current collaboration (decision-making about patients' pharmacotherapy)	> 0.05	–	0.008	- 0.268

concern about "possible fragmentation of patient care by the involvement of multiple health care providers" and "lack of face-to-face communication". Neither group was overly concerned about "liability for shared information", "lack of compensation" or "dealing with multiple care professionals" as barriers to collaboration (Table 5).

Discussion

The present study provides evidence that although many pharmacists and GPs agreed on the beneficial role of collaborative practice in patient care, the majority have never tried or even considered collaboration in their professional work in the Iranian health care system. Alkhateeb et al. (*19*) investigated physicians' attitudes towards collaborative agreements with community pharmacists in West Virginia, United States, and found that 60% had favourable attitudes towards collaboration, although they were more inclined to collaborate in certain areas of pharmacotherapy. Kelly et al. (*18*) in Canada found that nearly all pharmacists and physicians had a positive attitude towards collaboration. The proportions of the two groups in our study who considered that collaboration specifically between pharmacists and GPs improves patient care were lower than in similar studies in different populations, indicating the need for further education of professionals in this regard.

The attitude towards collaborative practice was significantly correlated with the age of the pharmacists and whether they were affiliated with a university. Thus, time and experience may change attitudes. Various psychological models account for attitude change through the life cycle (*20*), and continuous medical education is probably influential in changing pharmacists' and GPs' attitudes. Moreover, as respondents who were actively involved in academia were more positive about collaborative practice, education may play an active role in changing attitudes.

In this study, about half the respondents in each group reported only occasional collaborative practice, consistent with the findings of two

Table 3 Pharmacists' (*n*=132) and GPs' (*n*=99) perceptions of the roles of community pharmacists

Role	Pharmacists (Yes)	GPs (Yes)
Assisting patients in selecting over-the-counter medications	82.0%	30.2%
Patient counselling	86.7%	36.5%
Helping to manage medication side-effects	81.3%	33.3%
Helping to manage drug interactions	82.0%	34.4%
Helping to improve patient adherence	64.8%	31.3%
Dispensing prescriptions	39.1%	37.5%
Dose adjustment	60.2%	20.8%
Helping physicians to select a medication	58.6%	36.5%
Helping in medication insurance and reimbursement	35.2%	14.6%

Four pharmacists and three GPs did not answer all the questions.

Canadian studies (*18,21*). Surprisingly, the percentage of health care providers who actually practised interprofessional collaboration in our study was higher than that with a positive attitude. Most of the respondents might have considered that collaboration among health care providers and not only between GPs and pharmacists enhances patient care.

The question remains why, despite positive attitudes towards interprofessional collaboration, both groups have experienced such limited collaborative practice. Lack of joint training courses for the two groups may have contributed. If students in both pharmacy and medicine have educational opportunities that allow for more interaction with their future colleagues, collaborative practice in health care settings may become more common. Joint activities between currently practising professionals should also be considered. Another reason for the limited collaborative experience might have been a lack of "trustworthiness", which is established by professionals who make consistent contributions to patient care and high-quality clinical recommendations that improve patient outcomes. In addition to displaying competence, both categories of professionals should ensure continuous communication to establish trustworthiness. A pre-existing relationship between a community pharmacist and a GP might also foster trustworthiness.

Pharmacists' and GPs' perceptions of the role of pharmacists in health care probably play an integral role in the establishment of collaboration. In the present study, community pharmacists considered that they had an active role in managing the side-effects and interactions of medications, assisting patients in selecting over-the-counter medications, providing patient counselling, helping to improve patient adherence and providing drug information to physicians. GPs, however, considered that the role of community pharmacists was in the more traditional areas of patient counselling and dispensing prescriptions. Our results are similar to those of other studies, which found that GPs perceive the roles of community pharmacists as supplying and dispensing medications (*22,23*) and counselling (*24,25*). In recent years, however, GPs' perception of the role of pharmacists has changed, with growing acceptance of a more clinical roles for pharmacists (*8,14*). The closer the role perceptions of the two groups, the closer we come to ideal collaborative practice. We suggest

Table 4. Pharmacists' and GPs' views on areas for future collaboration

Area for future collaboration	Pharmacists (*n* = 132)[a]	General practitioners (*n* = 99)
Modification of patients' pharmacotherapy	60.3%	38.4%
Dose adjustment	60.6%	24.2%
Managing side-effects of medication	66.9%	41.4%
Managing drug interactions	67.7%	59.6%
Decision-making on patients' pharmacotherapy	77.2%	69.7%
Patient counselling	63.0%	42.4%
Improving patients' adherence to medication	54.3%	32.3%
Advising on medication insurance and reimbursement	31.5%	21.2%

[a]*Five pharmacists answered all the questions.*

Table 5 Pharmacists and GPs' perceived barriers to collaborative practice

Perceived barrier	Pharmacists (*n* = 132)	GPs (*n* = 99)
Involvement of multiple health care professionals could fragment patient care	64.3%	51.5%
Concern about liability for shared responsibility	42.9%	29.9%
Concern about liability for shared information	27.8%	21.6%
Lack of compensation	25.4%	24.7%
Dealing with multiple health care professionals on patients' pharmacotherapy	33.3%	23.7%
Lack of face-to-face communication	51.6%	56.7%
Time-consuming	45.2%	40.2%

Six pharmacists and two GPs did not answer all the questions.

that interprofessional collaboration be taught in Iranian medical schools, as elsewhere; it is now an integral part of medical school curricula in numerous countries, including Australia, Canada, the United Kingdom and the United States (*26*,*27*).

The basis of education on interprofessional collaboration is practising teamwork and building understanding of the competence, knowledge and skills of oneself and others. Collaboration other than in medical schools could also be encouraged. A number of studies have been conducted on interprofessional collaboration in medical wards. Weller et al. (*28*) found that organizational structures are the key to successful interprofessional practice in hospitals. In a clinical setting, members of health care teams should be able not only to clearly identify their own roles and responsibilities but also be completely aware of the competence of other team members in relation to their own (*29*). Policy-makers, health care managers and members of the health care system, including pharmacists and GPs, can be influential in developing interprofessional care models at both educational and institutional levels.

In this study, both respondent groups found that the current level of collaboration in all categories was low. Collaboration to manage drug interactions, provide patient counselling and manage medication side-effects was reported to be the most frequent. Surprisingly, we found that, although only 34.4% of GPs considered that management of drug interactions was part of the role of community pharmacists, 45.6% declared that they currently collaborated with pharmacists in this area. This may be because a high percentage of pharmacists (82%) considered that management of drug interactions was part of their role and therefore initiated collaboration with their GP counterparts in this regard.

Both groups preferred communication by telephone and face to face rather than by fax or letter. Electronic transfer of patient information and prescriptions is not yet available in the Islamic Republic of Iran; however, a number of pharmacists commented that electronic transfer of information should be explored, as an e-prescribing system enables professionals to share patient information throughout the heath care continuum and may offer further opportunities for professionals to engage collegially.

Both groups in this study cited the main barriers to collaborative practice as "lack of face-to-face communication" and "possible fragmentation of patient care by the involvement of multiple health care providers". Kelly et al. (*18*) studied a population of Canadian GPs and pharmacists, who reported that lack of compensation and having to deal with multiple health care professionals were the greatest barriers to collaborative practice. In a study on barriers between community pharmacists and GPs, Hughes and McCann (*17*) identified the following barriers: the "shopkeeper" image of community pharmacists, limited access to both groups, hierarchy in terms of professional standing and lack of awareness of GPs about community pharmacists' level of knowledge and expertise. Once potential barriers have been identified, measures should be taken to overcome them, and pharmacists, GPs and policy-makers should all take an active role. For instance, "care coordination" could overcome fragmentation of patient care. This could involve activities such as ensuring that all health care providers involved share important clinical data and have clear shared expectations about their role in patient's care. A health plan medical team network might be a solution. Lack of face-to-face communication could be resolved by the use of cost-effective, time-saving Apps that allow video calls.

The factors gender, community size and university affiliation correlated with perceived barriers to collaborative practice. Concern about liability for shared information and responsibility was significantly correlated with the gender of the respondents, and community size was significantly related to perceiving lack of compensation and concern about liability for shared responsibility as barriers to collaboration. Different factors may be perceived as barriers in different communities.

In order to improve our health care system and thus enhance patient care through interprofessional collaboration, we must be ready psychologically. Therefore, the psychological aspects of pharmacists' and GPs' well-being and their quality of life should be considered. It is highly probable that psychological factors play a role in hindering collaborative relationships. Dowell et al. (*30*) found that community pharmacists, GPs and general surgeons were among the most stressed health professionals and that they were also dissatisfied with their jobs. In a similar study conducted among Iranian community pharmacists, 78% of the participants reported satisfactory psychological and physical planes. Perceptions of general health and quality of life in a sample of community pharmacists in Tehran were found to be satisfactory (*31*).

One limitation of the present study was the sampling method, which was non-probability sampling. Additionally, approximately 60% of the pharmacists but only 26% of the GPs were in the youngest age group. This age effect is reflected by the pharmacists' professional life, and the study may tend to reflect mainly the ideas and perceptions of younger pharmacists.

Conclusion

Our findings support and extend the evidence on interprofessional practice between pharmacists and GPs by examining collaborative relationships between the two groups in terms of attitudes, role perceptions, experiences with collaborative practice, preferred method of communication for collaborative practice, areas of current and future collaboration and perceived barriers. The study probably has important implications for the establishment or enhancement of interprofessional practice in the Iranian health care system and indicates possible strategies for improving collaborative practice between pharmacists and GPs. For instance, we found that pharmacists and GPs agree that interprofessional collaboration among health care providers enhances patient care and outcomes; however, both groups require further education on the benefits of collaboration. Moreover, educating GPs about the roles and competence of community pharmacists will be crucial for successful collaborative practice. Multidisciplinary education of both pharmacy and GP students at undergraduate level should be encouraged to improve mutual understanding, communication and trust. Moreover, policy-makers could restructure primary health care services so that pharmacists and GPs are collocated. The results of the study can contribute to models of interprofessional collaboration, particularly between pharmacists and GPs, so that one day the model will be implemented in health care systems throughout the world and the goals of enhanced patient care and outcomes are realized. The study provides data on professional collaboration, paves the way for further studies in this area and contributes to advancement of pharmacotherapy management services, disease state management and patient care.

Funding: None.

Competing interests: None declared.

References

1. Stringer K, Curran V, Asghari S. Pharmacists and family physicians: improving interprofessional collaboration through joint understanding of our competencies. Front Pharmacol. 2013 12 05;4:151. PMID:24367335
2. Snyder ME, Zillich AJ, Primack BA, Rice KR, Somma McGivney MA, Pringle JL, et al. Exploring successful community pharmacist-physician collaborative working relationships using mixed methods. Res Social Adm Pharm. 2010 Dec;6(4):307–23. PMID:21111388
3. D'Amour D, Oandasan I. Interprofessionality as the field of interprofessional practice and interprofessional education: an emerging concept. J Interprof Care. 2005 May;19 Suppl 1:8–20. PMID:16096142
4. Van C, Costa D, Abbott P, Mitchell B, Krass I. Community pharmacist attitudes towards collaboration with general practitioners: development and validation of a measure and a model. BMC Health Serv Res. 2012 09 16;12:320. PMID:22978658
5. Lalonde L, Hudon E, Goudreau J, Bélanger D, Villeneuve J, Perreault S, et al. Physician-pharmacist collaborative care in dyslipidemia management: the perception of clinicians and patients. Res Social Adm Pharm. 2011 Sep;7(3):233–45. PMID:21272548
6. Kalisch LM, Roughead EE, Gilbert AL. Improving heart failure outcomes with pharmacist-physician collaboration: how close are we? Future Cardiol. 2010 Mar;6(2):255–68. PMID:20230266
7. Carter BL, Ardery G, Dawson JD, James PA, Bergus GR, Doucette WR, et al. Physician and pharmacist collaboration to improve blood pressure control. Arch Intern Med. 2009 Nov 23;169(21):1996–2002. PMID:19933962
8. Laubscher T, Evans C, Blackburn D, Taylor J, McKay S. Collaboration between family physicians and community pharmacists to enhance adherence to chronic medications: opinions of Saskatchewan family physicians. Can Fam Physician. 2009 Dec;55(12):e69–75. PMID:20008581
9. Leape LL, Cullen DJ, Clapp MD, Burdick E, Demonaco HJ, Erickson JI, et al. Pharmacist participation on physician rounds and adverse drug events in the intensive care unit. JAMA. 1999 Jul 21;282(3):267–70. PMID:10422996
10. Cranor CW, Bunting BA, Christensen DB. The Asheville project: long term clinical and economic outcomes of a community pharmacy diabetes care program. J Am Pharm Assoc. 2003;43(2):173–84.
11. Bogden PE, Abbott RD, Williamson P, Onopa JK, Koontz LM. Comparing standard care with a physician and pharmacist team approach for uncontrolled hypertension. J Gen Intern Med. 1998 Nov;13(11):740–5. PMID:9824519
12. Sellors J, Kaczorowski J, Sellors C, Dolovich L, Woodward C, Willan A, et al. A randomized controlled trial of a pharmacist consultation program for family physicians and their elderly patients. CMAJ. 2003 Jul 8;169(1):17–22. PMID:12847034

13. Muijrers PE, Knottnerus JA, Sijbrandij J, Janknegt R, Grol RP. Pharmacists in primary care. Determinants of the care-providing function of Dutch community pharmacists in primary care. Pharm World Sci. 2004 Oct;26(5):256–62. PMID:15598065
14. Bryant LJ, Coster G, Gamble GD, McCormick RN. General practitioners' and pharmacists' perceptions of the role of community pharmacists in delivering clinical services. Res Social Adm Pharm. 2009 Dec;5(4):347–62. PMID:19962678
15. Nkansah N, Mostovetsky O, Yu C, Chheng T, Beney J, Bond CM, et al. Effect of outpatient pharmacists' non-dispensing roles on patient outcomes and prescribing patterns. Cochrane Database Syst Rev. 2010 07 07;7(7):CD000336. PMID:20614422
16. Hammond RW, Schwartz AH, Campbell MJ, Remington TL, Chuck S, Blair MM, et al.; American College of Clinical Pharmacy. Collaborative drug therapy management by pharmacists–2003. Pharmacotherapy. 2003 Sep;23(9):1210–25. PMID:14524655
17. Hughes CM, McCann S. Perceived interprofessional barriers between community pharmacists and general practitioners: a qualitative assessment. Br J Gen Pract. 2003 Aug;53(493):600–6. PMID:14601335
18. Kelly DV, Bishop L, Young S, Hawboldt J, Phillips L, Keough TM. Pharmacist and physician views on collaborative practice: Findings from the community pharmaceutical care project. Can Pharm J (Ott). 2013 Jul;146(4):218–26. PMID:23940479
19. 19. Alkhateeb FM, Unni E, Latif D, Shawaqfeh MS, Al-Rousan RM. Physician attitudes toward collaborative agreements with pharmacists and their expectations of community pharmacists' responsibilities in West Virginia. J Am Pharm Assoc (2003). 2009 Nov-Dec;49(6):797–800. PMID:19926562
20. Tyler TR, Schuller RA. Aging and attitude change. J Pers Soc Psychol. 1991 Nov;61(5):689–97. PMID:1753325
21. Pojskic N, Mackeigan L, Boon H, Ellison P, Breslin C. Ontario family physician readiness to collaborate with community pharmacists on drug therapy management. Res Social Adm Pharm. 2011 Mar;7(1):39–50. PMID:21397880
22. Bleiker P, Lewis A. Extending the role of community pharmacists: the views of GPs. Int J Pharm Pract. 1998;6:140–4.
23. Spencer JA, Edwards C. Pharmacy beyond the dispensary: general practitioners' views. BMJ. 1992 Jun 27;304(6843):1670–2. PMID:1633521
24. Bradshaw SJ, Doucette WR. Community pharmacists as patient advocates: physician attitudes. J Am Pharm Assoc (Wash). 1998 Sep-Oct;38(5):598–602. PMID:9782693
25. Smith WE, Ray MD, Shannon DM. Physicians' expectations of pharmacists. Am J Health Syst Pharm. 2002 Jan 1;59(1):50–7. PMID:11813467
26. Reeves S, Perrier L, Goldman J, Freeth D, Zwarenstein M. Interprofessional education: effects on professional practice and healthcare outcomes (update). Cochrane Database Syst Rev. 2013 03 28;3(3):CD002213. PMID:23543515
27. Reeves S, Perrier L, Goldman J, Freeth D, Zwarenstein M, Hammick M. Interprofessional education: effects on professional practice and healthcare outcomes (update). Cochrane Database Syst Rev. 2013 03 28;1(3):CD002213. PMID:23543515
28. Weller JM, Barrow M, Gasquoine S. Interprofessional collaboration among junior doctors and nurses in the hospital setting. Med Educ. 2011 May;45(5):478–87. PMID:21414024
29. Drinka TJK, Clark PG. Healthcare teamwork: interdisciplinary practice and teamwork. Westport (Connecticut): Auburn House; 2000.
30. Dowell AC, Westcott T, McLeod DK, Hamilton S. A survey of job satisfaction, sources of stress and psychological symptoms among New Zealand health professionals. N Z Med J. 2001 Dec 14;114(1145):540–3. PMID:11833946
31. Majd M, Hashemian F, Younesi Sisi F, Jalal M, Majd Z. Quality of Life and Job Satisfaction of Dispensing Pharmacists Practicing in Tehran Private-sector Pharmacies. Iran J Pharm Res. 2012 Fall;11(4):1039–44. PMID:24250534

الإعلانات الدوائية التي تستهدف المستهلك مباشرة في الأردن من منظور جندري

هديل عاشور[1]، إبراهيم العبادي[2]

Direct-to-consumer advertising for pharmaceuticals in Jordan from a gender perspective

ABSTRACT This study aimed to investigate the extent to which direct-to-consumer advertising (DTCA) for pharmaceuticals is disseminated in Jordan and to identify subsequent gender differences. The study was conducted on two samples: 1) patients (drug consumers) attending Jordan University Hospital, and 2) physicians working at the hospital (prescribers). A questionnaire was distributed to male and female patients (n=550), and based on its results a second questionnaire was designed and distributed to male and female physicians (n=200). The response rate was 93% for patients and 72% for physicians. Although the Jordanian Drug and Pharmacy Law prohibits the public promotion of medicines, consumers remain exposed to pharmaceutical advertising. The top ten drug classes advertised directly to consumers in Jordan included prescription-only drugs. Approximately 45% of the two samples agreed that women were more likely to be targeted by DTCA, while only 2% of them believed that men are more likely to be targeted. However, there was no statistically significant gender difference in attitudes towards pharmaceutical DTCA and tools used.

الخلاصة: هدفت هذه الدراسة إلى التعرّف على مدى انتشار الإعلانات الدوائية الموجَّهة مباشرة للمستهلك في الأردن والفروق اللاحقة وفقاً لنوع الجنس في ما يتعلق بهذه الإعلانات. وقد أُجريت الدراسة على عينتين هما: 1) المرضى (المستهلكون للدواء) من مراجعي مستشفى الجامعة الأردنية، 2) الأطباء العاملون في المستشفى ذاته (الذين يصفون الدواء). وقد وُزِّعَ استبيان على المرضى الذكور والإناث (عددهم 550)، وبناءً على نتائج هذا الاستبيان، صُمّم استبيان ثانٍ خاص بعينة الأطباء من الذكور والإناث، ووزِّع عليهم (عددهم 200). وقد بلغت نسبة المستجيبين للدراسة ٪93 من عينة المرضى، و٪72 من عينة الأطباء. وبرغم أن قانون الدواء والصيدلة الأردني يحظر ترويج الأدوية لعامة المجتمع، فإن المستهلك الأردني مازال يتعرّض للإعلانات الدوائية. وتبيَّن أن أكثر عشر مجموعات من الأدوية التي يتعرّض المستهلك مباشرة لإعلاناتها قد اشتلمت على أدوية لا تُصْرَفُ إلا بوصفة طبية. واتفق ما يقارب ٪45 من أفراد العينتين على أن هذه الإعلانات تستهدف النساء أكثر من الرجال، في حين أن ما يقارب ٪2 فقط من أفراد العينتين اعتقدوا أن الإعلانات تستهدف الرجال أكثر من النساء. وبرغم ذلك، لم تكتشف الدراسة فروقات ذات دلالة إحصائية لنوع الجنس في التوجهات نحو الإعلانات الدوائية الموجهة للمستهلك والوسائل الإعلانية المستعملة.

Publicité directe de médicaments auprès des consommateurs en Jordanie vue sous l'angle de la différenciation hommes-femmes

RÉSUMÉ La présente étude visait à examiner la mesure dans laquelle la publicité directe de médicaments auprès des consommateurs est diffusée en Jordanie, et à identifier les différences hommes-femmes qui en découlaient. L'étude a été menée sur la base de deux échantillons : 1) les patients (consommateurs de médicaments) de l'hôpital de l'Université de Jordanie, et 2) les médecins exerçant à l'hôpital (prescripteurs). Un questionnaire a été distribué aux patients de sexe masculin et féminin (n=550), et sur la base des résultats de celui-ci, un deuxième questionnaire a été conçu pour les médecins de sexe masculin et féminin (n=200). Le taux de réponse était de 93 % pour les patients et de 72 % pour les médecins. Bien que la loi jordanienne sur les médicaments et les pharmacies interdise la promotion publique de médicaments, les consommateurs restent exposés à la publicité de produits pharmaceutiques. Le top dix des classes de médicaments faisant l'objet d'une publicité directe auprès des consommateurs en Jordanie incluait des médicaments disponibles uniquement sur ordonnance. Près de 45 % des deux échantillons ont convenu que les femmes étaient plus susceptibles d'être ciblées par la publicité directe auprès des consommateurs, et seulement 2 % pensaient que les hommes étaient plus susceptibles de l'être. Néanmoins, aucune différence hommes-femmes significative d'un point de vue statistique dans les attitudes à l'égard de la publicité directe de médicaments auprès des consommateurs et des outils utilisés n'a été observée.

[1] صيدلانية، ماجستير دراسات المرأة، الجامعة الأردنية، عمان، الأردن
[2] أستاذ، قسم الصيدلة الحيوية والسريرية، كلية الصيدلة، الجامعة الأردنية، عمان، الأردن
الباحث الرئيسي: ابراهيم العبادي: البريد الإلكتروني: (*ibrahimalabbadi@yahoo.com* ، *i.abbadi@ju.edu.jo*)

Received: 23/6/15; accepted: 06/06/16)

المقدمة والهدف من الدراسة

دخل مفهوم الجندر إلى عالمنا العربي خلال التسعينيات من القرن العشرين وقد أُختلف على ترجمة هذا المفهوم، فعُرِّب بكلمة جندر، أوالنوع، أوالنوع الاجتماعي. وبالرغم من الالتباس الذي لا يزال يرافق هذا المفهوم، خاصة في اللغة العربية، إلاّ أنه استُخدم في مجتمعاتنا العربية في المجالات البحثية والقطاعات التنموية (*1*). وجرى تعريفه من قبل صندوق الأمم المتحدة الإنمائي للمرأة –المكتب الإقليمي للدول العربية، على أنه تلك العلاقات والأدوار الاجتماعية التي يحددها المجتمع لكل من الجنسين (الرجل والمرأة) والتي تتغير وفقاً لتغير المكان والزمان، وذلك لتداخلها وتشابكها بعوامل اقتصادية واجتماعية وثقافية وسياسية وبيئية مختلفة (*2*) بينما يشير الجنس ببساطة شديدة إلى الاختلافات البيولوجية الطبيعية بين الرجل والمرأة.

تنتشر في معظم بلدان العالم نشاطات الترويج الدوائي بكافة أشكاله، مثل زيارات مندوبي شركات الأدوية للأطباء وتوزيع المنشورات والعينات المجانية والهدايا الشخصية بالإضافة إلى الإعلانات المنتشرة كالملصقات والنشرات التثقيفية (*3*) وهذا النوع من الترويج مسموح به قانوناً مادام يستهدف العاملين في القطاع الصحي (الأطباء والصيادلة) وغير موجه للمستهلكين من عامة المجتمع، ويلتزم بالمعايير الأخلاقية التي تحددها الدولة بقانونها الدوائي. ومع أن قانون الدواء والصيدلة في الأردن (المادة 35) قد حظر الإعلان بهدف الترويج عن أي دواء أو أي مادة لها صفة دوائية أو تركيبة حليب الرضّع والأغذية التكميلية للرضّع، بأي وسيلة من وسائل الإعلام المقروءة أو المرئية أو المسموعة أو أي وسيلة أخرى، إلا بعد موافقة الوزير والنقابة، وذلك باستثناء النشر والإعلام الدوائي الموجه للجهات الصحية شريطة الالتزام بصحة تلك المعلومات، كما أنه تضمّن معايير أخلاقية لترويج الأدوية (*4*)، إلا أن وجود هذا لا يمنع من أن تكون الممارسة الواقعية شيئاً مختلفاً كما هو حاصل في الإعلانات الدوائية التي تستهدف المستهلك مباشرة والتي تهدف إلى ترويج أي مستحضر دوائي، سواء كان المستحضر يُصرف بوصفة طبية أو يُصرف مباشرة دون وصفة طبية، باستخدام وسائل إعلام مختلفة منها الوسائل المرئية (القنوات الفضائية والانترنت)، والمسموعة (الراديو)، والمقروءة (الجرائد، المجلات، المنشورات، والملصقات بأنواعها)، أو عن طريق ما يطلق عليه الإعلان الخفي من خلال الأخبار والحملات التوعوية التي تدعمها الشركات الدوائية. وتستهدف هذه الإعلانات عامة المجتمع من مستهلكي الدواء أكثر من استهدافها لواصفي الدواء من القطاع الصحي (الأطباء والصيادلة) (*5*). ورغم أن جميع بلدان العالم يحظر قانونها الصيدلاني هذا النوع من الترويج الدوائي بالإعلانات الدوائية التي تستهدف المستهلك مباشرة – باستثناء الولايات المتحدة الأمريكية ونيوزيلندا – (*6*) إلا أنه بدأ يشق طريقه عبر القنوات الفضائية والشبكات الإلكترونية في الآونة الأخيرة مستهدفاً المستهلكين من الأصحّاء والمرضى. وقد نشطت العديد من المنظمات الغربية غير الحكومية في تنظيم حملات محلية ودولية تدعو إلى التوعية ومحاولة الحدّ مما سمحت به إدارة الأغذية والدواء الأمريكية في الولايات المتحدة الأمريكية عام 1997م، عندما رفعت القيود المفروضة على الإعلانات الدوائية التي تستهدف المستهلك مباشرة. وكانت للحركة النسائية في الولايات المتحدة الأمريكية مشاركة فاعلة في هذه الحملات ذلك لأن الكثير من هذه الإعلانات تستهدف صحة المرأة كما يعتقدن .(*7*) وتكمن حجة معارضي الإعلانات الدوائية التي تستهدف المستهلك مباشرة – بمن فيهم الحركة النسائية في الولايات المتحدة الأمريكية – بأن هذه الإعلانات تستخدم معلومات غالباً ما تكون مضللة تقلل لأدنى حد من مخاطر الدواء وتبالغ في إبراز مزاياها (*8*)، وتسعى لتسويقها قبل أن يكتمل التأكد من سلامتها وفعاليتها (*9*)، فتؤثر بذلك على صحة المستهلك وسلوكه وعلاقته بالطبيب (*10*). أما مؤيدو هذه الإعلانات فقد أكدوا على أهميتها كأداة لتعليم المستهلك وحثه على مناقشة مرضه مع طبيبه بطريقة أكثر فاعلية (*11*) لاتخاذ قرارات الرعاية الصحية الخاصة به. وعلى الرغم من أن مؤيدي هذه الإعلانات –المتمثلين غالباً بالشركات المصنّعة للدواء– يطرحون الإعلانات الدوائية التي تستهدف المستهلك مباشرة كوسيلة للتعليم والتوعية الصحية، إلا أن هذه الوسيلة قد تُحوّل الوعي الصحي لدى المجتمع إلى منحى تجاري (*10*)، فالمستهلك يحتاج إلى معلومات دوائية مستقلة، وموضوعية توازن بين فوائد ومخاطر الدواء.

إن الإعلانات الدوائية التي تستهدف المستهلك مباشرة تتزايد باستمرار، وأصبحت بديلًا إعلاميًا جذابًا للمصانع الدوائية، وذلك بسبب المشاكل التي تواجهها شركات الأدوية من اتساع سوق الدواء وقوة المنافسة، وتدنّي كفاءة مندوبي مبيعات الأدوية، وتزايد الاعتماد على الإنترنت في سوق الاستهلاك (*10*). ففي أمريكا مثلا رأى حوالي ٪86 من جميع المستهلكين للأدوية أو سمعوا عن الإعلانات الدوائية التي تستهدف المستهلك مباشرة، ونحو ٪35 قاموا بالاستفسار عن الأدوية – المعلن عنها – خلال زيارتهم للطبيب، حيث دفعهم الإعلان عن هذه الأدوية للقيام بذلك. بالرغم من الاهتمام بالعواقب السلبية للإعلانات الدوائية التي تستهدف المستهلك مباشرة، لم يُلاحظ أي فروق (فيما يتعلق بالتأثيرات الصحية) بين المرضى تناولوا أدوية معلن عنها والمرضى الذين تناولوا أدوية صرفت لهم بموجب وصفة طبية (غير معلن عنها) (*12*). وكان الأشخاص الذين يتمتعون بصحة جيدة والأصغر سناً والمتعلمون أكثر قدرةً وعرضةً لرؤية وسماع عدد كبير من الإعلانات الدوائية التي تستهدف المستهلك مباشرة مقارنة بالمرضى الأكبر سناً والأقل تعلمًا (*13*). وبرغم عدم تأييد غالبية الأطباء في نيوزلندا لمنع الإعلانات الدوائية التي تستهدف المستهلك مباشرة إلا أنهم أكدوا على أهمية إيجاد ضوابط صارمة لتنظيم مثل هذه الإعلانات (*14*). أما في بريطانيا فتبيّن وجود ثمة علاقة ما بين الإعلانات الدوائية وعدد الوصفات المتزايدة لمنتجات الأدوية المعلن عنها، كما كان هناك تأثير جوهري لهذه الإعلانات على طلب المرضى لنوع معين من الأدوية من الأطباء، بالإضافة إلى تأثيرها على قناعة الأطباء في وصف هذه المنتجات (*15*).

تبرز مشكلة الإعلانات الدوائية الموجهة للمستهلك مباشرة في بلادنا العربية النامية أكثر منها في الدول الغربية المتقدمة، حيث تُباع نسبة كبيرة من الأدوية – باستثناء الأدوية المخدرة – دون وصفة طبية ، حتى في الدول العربية الأخرى كما في الأردن برغم عدم قانونية هذا الإجراء (*4*)، مما يثير القلق خاصة وأن معظم الدول العربية لا تتمتع برقابة دوائية مستقلة بشكل كامل (*16*)، بالإضافة إلى تزايد الضغوط الاقتصادية والتي تدفع بالمستهلك لشراء الأدوية مباشرة من الصيدلاني دون استشارة الطبيب لتقليل التكلفة المادية التي يدفعها المريض عند استشارة الطبيب وزيارته (*17*). أما من الناحية الاجتماعية

أو الجندرية فإن هناك تركيزًا من قبل الشركات الدوائية في العالم على دور المرأة الاجتماعي والمتمثل في الرعاية الصحية للأسرة كما أن هناك عملية جندرة (تضمين الجندر) لبعض الأمراض بمعنى تحديد مرض معيّن لجنس معيّن، وذلك بتركيز الإعلانات الدوائية على جنس أكثر من الآخر، ومثال على ذلك الصداع النصفي المعروف بالشقيقة، الأمر الذي يخلق انطباعًا لدى عامة المجتمع أن ذلك المرض يقتصر على جنس مُعيّن (*18*).

وتصل وسائل ترويج الأدوية بسهولة إلى بلادنا، نتيجة للانتشار الواسع لوسائل نقل المعلومات التكنولوجية الحديثة. وقد جذب هذا انتباه المنظمات غير الحكومية في المجتمع المدني الأردني لتقصّي قضية ترويج الدواء للمستهلك مباشرة وجعلها من ضمن أولوياتهم في القضايا الصحية التي طالما اقتصرت على الصحة الإنجابية والتخطيط الأسري والأمراض المعدية بشكل عام. فقضايا الدواء –التي لا تلقى اهتماماً جيداً من قبل مؤسسات المجتمع المدني الأردني– تشمل جميع الممارسات الخاطئة للدواء، ابتداءً من الوصف غير الرشيد للأدوية من قبل الأطباء والصرف غير الرشيد للدواء من قبل الصيادلة واتباع أساليب ترويج غير سليمة أحياناً والأدوية المشكوك بفاعليتها ومأمونيتها (الأدوية المزوّرة)، انتهاءً بمحاولة الوصول إلى مستهلكي الدواء رجالاً ونساءً كما هو حاصل في الإعلانات الدوائية التي تستهدف المستهلك مباشرة. وترتبط قضايا الدواء بشكل أساسي بقضية الرعاية الصحية التي تعتبر أحد أبرز مؤشرات التنمية الشاملة في المجتمع.

وقد هدفت هذه الدراسة إلى التعرّف على مدى انتشار الإعلانات الدوائية التي تستهدف المستهلك مباشرة في الأردن، والتعرّف على الفروق الجندرية بين الأفراد فيما يتعلق بهذه الإعلانات. والنتائج التي ستخلص إليها هذه الدراسة ستفيد في وضع آليات للتعامل مع هذه الظاهرة ووضعها في إطار قانوني وتثقيفي لمستخدمي الدواء.

منهجية الدراسة

تكوّن مجتمع الدراسة من فئتين: فئة "مستهلكو الدواء" المتمثلة بمرضى من مراجعي مستشفى الجامعة الأردنية خلال أسبوعين. واختيرت عينة ملائمة وقصدية تمثل أكثر من 7٪ من مجتمع الدراسة (N=50) تحتوي على أفراد يستخدمون الوسائل الإعلامية بانتظام مثل التلفاز، والجرائد، والإنترنت وذلك وفق شروط محددة. وأما فئة "واصفو الدواء" المتمثلة بأطباء عاملين في المستشفى ذاته فقد حسبت منهم عينة احتمالية (عشوائية بسيطة) مثّلت أغلب التخصصات المتوافرة وبعدد (200) طبيب وطبيبة ما يعادل (57٪) من مجمل عدد الأطباء في ذات الفترة.

وقد صُمِّمَت استبانتان، الأولى لمراجعي ومراجعات مستشفى الجامعة الأردنية، وبناءً على النتائج الأولية لها صُمِّمَت الاستبانة الثانية الخاصة بأطباء وطبيبات المستشفى. وقد جرى الاستعانة بنموذجين من الاستبانات التي استخدمت في دراستين قام بهما البروفسور جويل فايسمان من جامعة هارفرد الأمريكية:

"Consumer's Reports on the Health Effects of Direct-To-Consumer advertising"

"Physicians Report on Patient Encounters Involving Direct-To-Consumer Advertising"

والتي حصلنا عليهما بعد مراسلة البروفسور فايسمان الذي أرسلها مشكوراً عبر البريد الإلكتروني. وأُجريت التعديلات والإضافات المناسبة كي تلائم الأردن (*12*). واختُبِرَ مستوى الصدق الظاهري لأداة جمع المعلومات من خلال عرضها على مجموعة مكوّنة من سبعة محكمين من أساتذة من أقسام مختلفة في الجامعة الأردنية تضمنت كلية الصيدلة وعلم الاجتماع ومركز دراسات المرأة، وخبيرة في التحليل الإحصائي من الجامعة الأردنية. وأُعدت الصيغة النهائية للاستبانتين بعد تنقيحهما اعتماداً على الملاحظات الواردة من المحكمين. ولاختبار مدى الثبات الداخلي للأداة، طُبقت استبانة المراجعين على عينة مؤلفة من ثلاثين مراجعًا ومراجعة خارج نطاق العينة وكذلك لعينة الأطباء، وحُسِبَ معامل الاتساق الداخلي للأداة باستخدام اختبار كرونباخ ألفا. وحُللت النتائج بواسطة برنامج الحزم الإحصائية لِلعلوم الاجتماعية (SPSS). واستخدم مقياس ليكرت الخماسي (موافق بشدة، موافق، لا أعلم، غير موافق، غير موافق بشدة) لقياس اتجاهات أفراد العينة، حيث اعتُمِدَت قيّم الوسط الحسابي على القياس التالي: 1 = غير موافق، 2 = لا أعلم، 3 = موافق، حيث إن غير موافق = غير موافق بشدة + غير موافق (لأغراض التحليل الإحصائي)، وموافق = موافق بشدة + موافق (لأغراض التحليل الإحصائي). كما استخدم المقياس الرباعي (غالباً، أحياناً، نادراً، نهائياً) لقياس مدى تعرّض أفراد العينة للإعلانات الدوائية من خلال وسائل الإعلام المختلفة، واعتُمِدَت قيم الوسط الحسابي على القياس التالي: 1 = نهائيًا، 2 = نادرًا، 3 = أحيانًا، 4 = غالباً. كما استخدمت الأساليب الإحصائية التحليلية التي شملت اختبار تحليل التباين أنوفا، لمعرفة الفروقات الجندرية لأبرز محاور الدراسة. واستخدم اختبار –تي(*t*-Test) لمعرفة الفروقات في الآراء بين عينة المراجعين وعينة الأطباء في المحاور المشتركة بينهما. كما استُخدم اختبار كرونباخ ألفا لقياس ثبات أداة القياس (الاستبانة).

النتائج

بلغت قيمة (α) لقياس الثباتية لإجمالي استبانة المراجعين 0.93 (نسبة المستجيبين 98٪، نسبة المقبول 93٪)، و0.762 لإجمالي استبانة الأطباء (نسبة المستجيبين 73.5٪، نسبة المقبول 72٪)، وهما قيمتان أعلى من المقاييس المتعارف عليها للثبات (0.60) مما يؤكد الثبات والتناسق للمقياس. جدول رقم (1) و(2) يبيّنان خصائص العينتين.

ويبيّن جدول رقم (3) الأدوية التي يتعرّض المستهلك الأردني لإعلاناتها والتي تصنف إلى: **أدوية تباع بدون وصفة طبية، وأدوية لا تباع إلا بوصفة طبية**. ويلاحظ أن الأدوية التي اختيرت من أفراد العينة، احتوت على أدوية لا تباع إلا بوصفة طبية مثل: أدوية السكري، والمضادات الحيوية، وأدوية التهاب المفاصل، وحبوب منع الحمل، وأدوية معالجة السمنة، وأدوية حب الشباب. كما يلاحظ من خلال تحليل الجدول أن الأدوية التي اختيرت من أفراد عينة الأطباء لم تقتصر على أدوية تباع بدون وصفة طبية، وإنما احتوت على أدوية لا تباع إلا بوصفة طبية مثل: أدوية السكري، وأدوية التهاب المفاصل، وأدوية معالجة السمنة، وأدوية الاضطرابات الجنسية، وأدوية حب الشباب، وأدوية الأرق واضطرابات النوم.

ظهر انسجام ملحوظ في نتائج إجابات كل من عينة المراجعين وعينة الأطباء في المحاور الأربعة المشتركة بينهما وهي: مدى تعرّض أفراد المجتمع الأردني للإعلانات الدوائية التي تستهدف المستهلك مباشرة من خلال الوسائل

الجدول 1 خصائص عينة الاطباء

	الخصائص (*n*=144)	%
الجنس	ذكر	52.8
	أنثى	47.2
تخصص الأطباء	جراحة خاصة	25.0
	جراحة عامة	23.6
	باطنية	13.2
	أسنان	11.8
	أطفال	8.3
	لم يحدد	18.1

الجدول 2 خصائص عينة المراجعين

	الخصائص (*n*=513)	%
الفئة العمرية	أقل من 18	1.6
	22-18	17.7
	23-30	26.7
	31-40	23.6
	أكبر من 40	30.4
الحالة الاجتماعية	أعزب	30.8
	متزوج	66.3
	مطلق	1.4
	أرمل	1.6
المستوى التعليمي	ثانوية فما دون	27.9
	دبلوم	22.0
	بكالوريوس	39.8
	دراسات عليا	10.3
الدخل الشهري للعائلة	أقل من 300	28.5
	300-499	30.8
	300-499	27.3
	أعلى من 1000	13.5
الجنس	ذكر	42.9
	أنثى	57.1
وجود أطفال	يوجد	55.4
	لا يوجد	44.6
العاملين	نعم	50.1
	لا	49.9
اشتراك بتامين صحي	نعم	80.1
	لا	19.9
الوضع الصحي	مصاب بمرض مزمن	21.2
	مصاب بمرض حاد	17.7
	الاثنان معًا	4.1
	لست مصابًا	56.9
استخدام الوسائل الإعلانية	استخدام الإنترنت بانتظام	37.0
	مشاهدة التلفاز بانتظام	86.0
	تصفح المجلات	64.7
	تصفح الجرائد	88.1

الإعلامية المختلفة، والأدوية التي يتعرّض المستهلك لإعلاناتها، واتجاهاتهم نحو الإعلانات الدوائية التي تستهدف المستهلك مباشرة، والفئة التي يعتقدون أنها الأكثر استهدافاً من قبل هذه الإعلانات. بالإضافة إلى توافق نتائج العينتين فيما يتعلق بالكشف عن الفروق الجندرية في المحاور التي لزمت لذلك. وهذا الأمر ساهم في توضيح الصورة بشكل أفضل.

نتائج عينة المراجعين

يظهر جدول رقم (4) نتائج دراسة عينة المراجعين والتي تتمثل في أن أعلى وسيلة يتعرّض المستهلك من خلالها للإعلانات الدوائية التي تستهدف المستهلك مباشرة هي المطويات والملصقات في غرفة انتظار الطبيب أو الصيدليات، يليها التلفاز، ثم الجرائد والمجلات، تلتها الدعايات من خلال الحملات الطبية أو المعارض فالإنترنت، بينما احتل الراديو المرتبة الأخيرة ضمن جميع الوسائل. كما يبين التحليل أنه لا توجد فروقات ذات دلالة إحصائية في الوسائل التي يتعرّض من خلالها المستهلك للإعلانات الدوائية تعزى لمتغير الجنس أو بمعنى آخر لا توجد فروق جندرية في الوسائل التي يتعرّض من خلالها المستهلك للإعلانات الدوائية.

وقد وجد أن أعلى مصدر يلجأ إليه المستهلك للحصول على المعلومات حال شعوره بأعراض مرضية هو زيارة الطبيب، وهذا مؤشر جيد، وفي المرتبة الثانية، الاعتماد على الأدوية المتوافرة في المنزل وهو ما يعرف بالتطبيب أو المداواة الذاتية، يتلوه زيارة المراكز الصحية، ثم استشارة الصيدلاني فأستشارة أحد أفراد العائلة أو الأصدقاء ومتابعة البرامج الصحية على التلفاز والمذياع، وبعدها الاعتماد على قراءة كتاب طبي حول المرض والاعتماد على قراءة مقالات طبية في الجرائد والمجلات والمنشورات وأخيرًا الاعتماد على الطب العربي أو الطب البديل والبحث في المواقع الإكترونية عبر الإنترنت.

يُظهر التحليل في الجدول نفسه أن أفراد عينة المراجعين يعتقدون أن سلبيات الإعلانات الدوائية التي تستهدف المستهلك مباشرة تفوق إيجابياتها. حيث إن عينة المراجعين لا توافق على أن يجعل المريض أقل اعتماداً على حكم الطبيب وتشخيصه للمرض والعلاج، ولا

الجدول 3 الأدوية التي يتعرّض المستهلك الأردني لإعلاناتها من وجهة نظر المراجعين والأطباء

من وجهة نظر المراجعين			من وجهة نظر الأطباء		
الأدوية	تصنيف الأدوية	%	الأدوية	تصنيف الأدوية	%
الفيتامينات	أدوية تباع بدون وصفة طبية	59.10	الفيتامينات	أدوية تباع بدون وصفة طبية	72.20
المسكنات	أدوية تباع بدون وصفة طبية	57.50	زيادة الوزن	أدوية لا تباع إلا بوصفة طبية	66.70
الزكام	أدوية تباع بدون وصفة طبية	52.00	الاضطرابات الجنسية	أدوية لا تباع إلا بوصفة طبية	65.30
السعال	أدوية تباع بدون وصفة طبية	47.40	حب الشباب	أدوية لا تباع إلا بوصفة طبية	65.30
السكري	أدوية لا تباع إلا بوصفة طبية	46.00	المسكنات	أدوية لا تباع إلا بوصفة طبية	64.60
حب الشباب	أدوية لا تباع إلا بوصفة طبية	44.60	الزكام	أدوية تباع بدون وصفة طبية	54.90
زيادة الوزن	أدوية لا تباع إلا بوصفة طبية	41.10	السكري	أدوية لا تباع إلا بوصفة طبية	51.40
المضادات الحيوية	أدوية لا تباع إلا بوصفة طبية	36.60	عسر الهضم والغازات	أدوية تباع بدون وصفة طبية	47.90
منع الحمل	أدوية لا تباع إلا بوصفة طبية	36.50	فقدان الشهية	أدوية تباع بدون وصفة طبية	47.20
التهابات المفاصل	أدوية لا تباع إلا بوصفة طبية	36.10	السعال	أدوية تباع بدون وصفة طبية	43.80
عسر الهضم/ الغازات	أدوية تباع بدون وصفة طبية	31.20	التهابات المفاصل	أدوية لا تباع إلا بوصفة طبية	38.20
فقدان الشهية	أدوية تباع بدون وصفة طبية	30.20	الأرق واضطرابات النوم	أدوية لا تباع إلا بوصفة طبية	38.20
الكوليسترول	أدوية لا تباع إلا بوصفة طبية	30.20	الكوليسترول	أدوية لا تباع إلا بوصفة طبية	37.50
الجهاز الهضمي	أدوية لا تباع إلا بوصفة طبية	29.40	حبوب منع الحمل	أدوية لا تباع إلا بوصفة طبية أدوية تباع بدون وصفة	37.50
الاضطرابات الجنسية	أدوية لا تباع إلا بوصفة طبية	28.50	آلام الدورة الشهرية	طبية+أدوية لا تباع إلا بوصفة طبية	36.80
آلام الدورة الشهرية	أدوية تباع بدون وصفة طبية+أدوية لا تباع إلا بوصفة طبية	28.30	المضادات الحيوية	أدوية لا تباع إلا بوصفة طبية	36.10
هشاشة العظام	أدوية لا تباع إلا بوصفة طبية	24.60	القولون العصبي	أدوية لا تباع إلا بوصفة طبية	35.40
أدوية الحساسية	أدوية لا تباع إلا بوصفة طبية	23.60	أمراض الجهاز الهضمي	أدوية لا تباع إلا بوصفة طبية	32.60
أمراض القلب	أدوية لا تباع إلا بوصفة طبية	21.80	الأكزيما والأمراض الجلدية	أدوية لا تباع إلا بوصفة طبية	27.10
الأكزيما والأمراض الجلدية	أدوية لا تباع إلا بوصفة طبية	21.40	أدوية الحساسية	أدوية لا تباع إلا بوصفة طبية	27.10
الربو والمشاكل الصدرية	أدوية لا تباع إلا بوصفة طبية	20.70	هشاشة العظام	أدوية لا تباع إلا بوصفة طبية	25.70
القولون العصبي	أدوية لا تباع إلا بوصفة طبية	20.30	أمراض القلب	أدوية لا تباع إلا بوصفة طبية	22.90
مضادات الإسهال	أدوية تباع بدون وصفة طبية	19.30	الربو والمشاكل الصدرية	أدوية لا تباع إلا بوصفة طبية	20.80
السرطان	أدوية لا تباع إلا بوصفة طبية	17.20	سن اليأس	أدوية لا تباع إلا بوصفة طبية	19.40
الأرق واضطرابات النوم	أدوية لا تباع إلا بوصفة طبية	16.80	الاكتئاب	أدوية لا تباع إلا بوصفة طبية	19.40
مضادات الفطريات	أدوية لا تباع إلا بوصفة طبية	14.20	مضادات الإسهال	أدوية تباع بدون وصفة طبية	18.80
الاكتئاب	أدوية لا تباع إلا بوصفة طبية	11.90	السرطان	أدوية لا تباع إلا بوصفة طبية	16.00
الأمراض النفسية	أدوية لا تباع إلا بوصفة طبية	8.80	السلس البولي	أدوية لا تباع إلا بوصفة طبية	15.30
السلس البولي	أدوية لا تباع إلا بوصفة طبية	8.80	مضادات الفطريات	أدوية لا تباع إلا بوصفة طبية	11.10
سن اليأس	أدوية لا تباع إلا بوصفة طبية	8.00	الأمراض النفسية	أدوية لا تباع إلا بوصفة طبية	9.70
الأمراض العقلية	أدوية لا تباع إلا بوصفة طبية	2.30	الأمراض العقلية	أدوية لا تباع إلا بوصفة طبية	1.40

تعطي معلومـات عن فوائد ومضار الدواء بشكل متوازن بل تشجّع على تسويق الدواء قبل أن يكتمل.

التأكد من سلامته وفاعليته مما يعتبرها أحد أسباب ارتفاع سعر الدواء وتتسبب بشراء أدوية غير ضرورية يمكن الاستغناء عنها بطرق أخرى.

بينما ترى العينة أن الإعلانات الدوائية مصدر جيد للتعرف على أعراض المرض وكيفية علاجـه وتسـاعد المريض على مناقشـة مرضـه والدواء

مع الطبيب أو الصيدلاني بشكل أكثر فاعلية. كما يبين التحليل عدم وجود فروق جندرية في اتجاهات الذكور والإناث لدى أفراد العينة فيما يتعلق بالإعلانات الدوائية.

أما فيما يتعلق بالفئة الأكثر استهدافاً من الإعلانات الدوائية التي تستهدف المستهلك مباشرة، يظهر من النتائج أن النسبة العالية يعتقدون أن النساء مستهدفات أكثر من الرجال مع عدم وجود فروق جندرية في اعتقادات الذكور والإناث لدى أفراد عينة المراجعين للفئة المستهدفة من قبل الإعلانات الدوائية. كما اتفق أفراد العينة على أن أكثر الأسباب لذلك هو أن النساء أكثر تأثراً بالإعلانات الدوائية وأكثر تعرضاً للوسائل التي تعرض فيها هذه الإعلانات من الرجال، دون وجود فروق جندرية في اعتقادات الذكور والإناث.

وقد أظهرت النتائج كذلك أن حوالي ثلاثة أرباع المرضى لا يطلبون من الطبيب وصف دواء معين بناءً على رؤيتهم أو سماعهم لإعلان دوائي عنه، وفي الوقت نفسه نصف البقية الذين طلبوا من طبيبهم وصف دواء بناء على رؤيتهم أو سماعهم لإعلان دوائي عنه، لم يرفض طبيبهم طلبهم ووصف ذلك الدواء لهم. ومن الجدير بالذكر أنه عندما سئل أفراد عينة المراجعين عن مدى اهتمامهم بسماع الاسم التجاري (الماركة) لدواء ما عند التعرض لأي إعلان دوائي، كانت إجاباتهم تُظهر فكرة الولاء للعلامة التجارية (الماركة) بوضوح.

نتائج عينة الأطباء

بيّنت نتائج دراسة عينة الأطباء أنهم يعتقدون أن المستهلك يتعرّض للإعلانات الدوائية بوسائل مختلفة أعلاها المطويات والملصقات في غرفة انتظار الطبيب أو الصيدليات. وبذلك تتفق نتائج عينة الأطباء مع عينة المراجعين في هذا الخيار. جاء بعدها التلفاز، ثم المجلات والجرائد والإنترنت والدعايات من خلال الحملات الطبية أوالمعارض، واحتل الراديو المرتبة الأخيرة ضمن جميع الوسائل. كما لم يوجد تباين في اعتقادات عينة الأطباء للوسائل التي يتعرّض من خلالها المستهلك للإعلانات الدوائية لدى كلا الجنسين. إن أكثر مصدر تعتقد عينة الأطباء أن عامة المجتمع يعتمد عليه للتعرف على المعلومات الدوائية هو الحديث المتناقل بين العائلة والأصدقاء والجيران أو ما يسمى بـ Word of the mouth، بينما الإعلانات سواء كانت من خلال التلفاز أو الراديو أوالصحف أوالمجلات والمعلومات الطبية (ليست إعلانية) من خلال الوسائل المرئية أو المسموعة مثل التلفاز أو الراديو، أو من خلال الوسائل المقروءة كالصحف أو المجلات بدرجة أقل. و جاءت أخيرًا المطويات في غرف انتظار الطبيب أو الصيدليات والمواقع الإلكترونية على الإنترنت. ومن الجدير بالذكر عند سؤال عينة الأطباء عن مدى دقّة المعلومات الدوائية التي يطرحها المراجع أثناء حديثه مع الطبيب خلال زيارته، كانت إجابة أغلبية العينة أنها غير دقيقة.

يشير تحليل النتائج أن أفراد عينة الأطباء يعتقدون أن سلبيات الإعلانات الدوائية التي تستهدف المستهلك مباشرة تفوق إيجابياتها كما هو الحال لدى عينة المراجعين. حيث توافق عينة الأطباء على أن الإعلانات الدوائية تجعل المريض أقل اعتماداً على حكم الطبيب وتشخيصه للمرض والعلاج بعكس اتجاهات عينة المراجعين، ولا تعطي معلومات عن فوائد ومضار الدواء بشكل متوازن بل تشجّع على تسويق الدواء قبل أن يكتمل التأكد من سلامته وفاعليته. وتعتبرالإعلانات الدوائية أحد أسباب ارتفاع سعر الدواء وشراء أدوية غير ضرورية. وترى العينة أن الإعلانات الدوائية تزيد من إلحاح المريض على وصف دواء معين، وأنها تؤثر سلباً على علاقة المريض بطبيبه. ومن جهة أخرى تتفق عينة الأطباء مع عينة المراجعين على أن الإعلانات الدوائية مصدر جيد للتعرف على أعراض المرض وكيفية علاجه وتساعد المريض على مناقشة مرضه والدواء مع الطبيب أو الصيدلاني بشكل أكثر فاعلية. مع عدم وجود فروق جندرية في اتجاهات الذكور والإناث لدى أفراد عينة الأطباء فيما يتعلق بالإعلانات الدوائية. كذلك يعتقد الأطباء أن النساء مستهدفات أكثر من الرجال مع عدم وجود فروق جندرية في اعتقادات الذكور والإناث لدى أفراد العينة للفئة المستهدفة من قبل الإعلانات الدوائية. أما فيما يتعلق بالفروق الجندرية، فيبيّن التحليل عدم وجود فروق جندرية بين اعتقادات الذكور والإناث لدى أفراد العينة للأسباب الكامنة وراء استهداف النساء أكثر من الرجال.

يتضح أن المرضى يطلبون من أطبائهم وصف دواء معين، وأيضاً أن هناك استجابة من قبل الطبيب لوصف ذلك الدواء، كما أن قيم الانحراف المعياري كانت متدنية وهذا دليل على تجانس إجابات أفراد عينة الأطباء.

المناقشة

إن الانسجام الملحوظ بين نتائج إجابات أفراد العينتين في المحاور المشتركة بينهما، حيث كان هناك توافق بين نتائج عينة الأطباء –التي تعتمد على خبرتهم العملية– مع نتائج عينة المراجعين في جميع المحاور، شكّل دعماً واضحاً للنتائج وساهم في توضيح الصورة بشكل أفضل.

بدأ المهتمون بإعلانات الأدوية التي تستهدف المستهلك مباشرة مراقبة أثرها على أرض الواقع، فقد لوحظ في الولايات المتحدة الأمريكية – على سبيل المثال– عام 2005 زيادة وصف أدوية اضطرابات النوم تقدر بمعدّل (60٪) مقارنة بعام 2004، وارتبطت أسباب تلك الظاهرة، بانتشار إعلانات تخص هذه الأدوية وموجّهة للمستهلك مباشرة، مثل دواء Ambien® و®Lunesta. وكباقي الأعراض الجانبية لهذه الأدوية التي تسبب النعاس، فإن كثرة استخدامها قد يؤدي إلى الاعتماد عليها، وزيادة نسبة حوادث السير، والانهيارات العصبية. وجدير بالذكر أن شخصًا واحدًا فقط من كل 13 شخص يستفيد من العلاج بأدوية اضطرابات النوم مقارنة بمن يُعالَجون بدواء زائف – وهي أدوية لا تحتوي على مادة علاجية فعّالة وتعطى لإرضاء المريض (*19*).

على الرغم من أن قانون الدواء والصيدلة في الأردن يمنع الإعلانات الدوائية التي تستهدف المستهلك مباشرة، فإن المستهلك الأردني يتعرّض لهذه الإعلانات بوسائل مختلفة. وتعتبر المطويات والملصقات المنتشرة في غرفة انتظار الطبيب أو في الصيدليات من أكثر الوسائل التي تُستخدم لهذا الغرض. وبما أن نتائج هذه الدراسة بيّنت أن أكثر المصادر التي يلجأ إليها أفراد العينة من المراجعين حال شعورهم بأعراض مرضية هي زيارة الطبيب، فهذا يؤكد على فرصة تعرّض أفراد المجتمع لهذا النوع من الإعلانات من خلال المطويات المنتشرة في الأماكن التي يرتادها أي فرد من عامة المجتمع.

احتوت أكثر 10 مجموعات من الأدوية التي يتعرّض لها المستهلك مباشرة في عينة الدراسة، على أدوية لا تُباع إلا بوصفة طبية وتكمن

الجدول 4 نتائج دراسة عينة المراجعين

سؤال الدراسة		المتوسط الحسابي (الإنحراف المعياري)		
		n=513	الذكور	الإناث
تعرّض المستهلك للإعلانات الدوائية التي تستهدف المستهلك مباشرة في وسائل الإعلام في الأردن؟ (1= نهائيًا، 2= نادرًا، 3= أحيانًا، 4= غالباً) والفروق الجندرية	المطويات والملصقات	(0.781) 3.28	(0.812) 3.24	(0.757) 3.31
	التلفاز	(0.879) 3.05	(0.860) 2.97	(0.861) 3.11
	الجرائد	(0.874) 3.05	(0.848) 2.83	(0.924) 2.69
	المجلات	(0.979) 2.63	(0.938) 2.64	(1.011) 2.63
	الحملات الطبية	(0.974) 2.60	(0.910) 2.59	(1.020) 2.61
	الإنترنت	(1.126) 2.25	(1.115) 2.33	(1.133) 2.19
	الراديو	(0.928) 2.13	(0.920) 2.17	(0.934) 2.09
الاتجاهات نحو الإعلانات الدوائية التي تستهدف المستهلك مباشرة (1= غير موافق، 2 = لا أعلم ، 3=موافق) والفروق الجندرية	تجعلني أقل اعتماداً على الطبيب وتشخيصه والعلاج	(0.871) 1.67	(1.129) 1.74	(1.095) 1.62
	لا تعطي معلومات متوازنة عن فوائد الدواء ومضاره	(0.798) 2.37	(1.009) 2.37	(1.005) 2.38
	تشجّع على تسويق الدواء قبل التأكد من سلامته/ فاعليته	(0.852) 2.26	(1.175) 2.35	(1.262) 2.19
	تعتبر أحد أسباب ارتفاع سعر الدواء	(0.719) 2.40	(0.948) 2.40	(1.007) 2.39
	تسبب شراء أدوية غير ضرورية ويستغنى عنها	(0.698) 2.60	(0.927) 2.60	(0.993) 2.59
	تعتبر مصدرًا جيدًا للتعرف على الأعراض والعلاج	(0.855) 2.35	(1.083) 2.30	(1.100) 2.38
	تساعد على مناقشة المرض/ الدواء مع الطبيب / الصيدلي	(0.816) 2.49	(1.083) 2.45	(1.010) 2.52
أبرز مصادر المستهلك للحصول على المعلومة حال شعوره بأعراض مرضية (1= نهائيًا، 2 = نادرًا، 3 = أحيانًا، 4 = غالباً)	زيارة الطبيب	(0.366) 3.55	–	–
	قراءة النشرات الداخلية لأدوية المنزل	(0.954) 2.79	–	–
	زيارة مركز صحي	(1.024) 2.76	–	–
	استشارة صيدلاني	(0.878) 2.60	–	–
	استشارة العائلة أو أصدقاء لهم تجارب مرضية	(.999)0 2.54	–	–
	استشارة الطبيب على برامج التلفاز أو المذياع	(0.990) 2.53	–	–
	قراءة كتاب طبي حول المرض الذي تشكو منه	(1.006) 2.52	–	–
	قراءة مقالات الجرائد والمجلات والمنشورات	(0.978) 2.23	–	–
	الاعتماد على الطب العربي أو الطب البديل	(0.938) 2.00	–	–
	البحث في مواقع إلكترونية على الإنترنت	(1.018) 1.97	–	–
الفئة الأكثر استهدافاً من الإعلانات الدوائية التي تستهدف المستهلك مباشرة والفروق الجندرية	النساء أكثر من الرجال	% 42.3	–	–
	الرجال أكثر من النساء	% 3.1	–	–
	النساء والرجال بشكل متساوي	% 30.6	–	–
	لست متأكداً	% 24.0	–	–
	اعتقاد العينة بالفئة التي تستهدفها الإعلانات الدوائية		(1.220) 2.25	(1.266) 2.44
أسباب استهداف النساء أكثر من الرجال والفروق الجندرية (*1 =نعم، 0 =لا)	النساء أكثر تأثراً بالإعلانات الدوائية من الرجال	% 94.1	*0.87	*0.82
	النساء أكثر تعرضاً للوسائل التي تعرض فيها الإعلانات	% 89.1	*0.77	*0.85
	أكثر هذه الإعلانات متعلقة بأدوية خاصة بالنساء	% 86.9	*0.79	*0.75
	النساء هن المسؤولات عن الرعاية الصحية في الأسرة	% 79.0	*0.63	*0.78
	النساء تتردد على الصيدليات أكثر من الرجال	% 75.9	*0.66	*0.70
بناء على رؤية أو سماع إعلان دوائي	الذين يطلبون من الطبيب وصف الدواء	% 75.2	–	–
	الذين لم يطلبوا من الطبيب وصف الدواء	% 24.8	–	–
	يرفض الطبيب وصف الدواء	% 51.2	–	–
	يستجيب الطبيب ويصف الدواء	% 48.8	–	–
عند تعرضه لإعلان دوائي	يهتم المراجع بسماع الاسم التجاري	% 91	–	–
	لا يهتم المراجع بسماع الاسم التجاري	% 9	–	–

خطورة هذا الأمر، في أن معظم أنواع الأدوية تقريباً ـ باستثناء الأدوية المخدّرة ـ تُشترى من الصيدليات في الأردن دون وصفة طبية، برغم عدم قانونية هذه العملية (*4*)، وهذا ما أكدته الدراسة التي بيّنت أن أكثر من (60٪) من عينة الدراسة كانوا يشترون أدوية المضادات الحيوية في الأردن من الصيدليات مباشرة دون وصفة طبية (*20*). وهذا بدوره يشجّع على تفشي ظاهرة سوء استخدام الدواء، الذي يشكل خطورة على

الصحة العمومية. كما أن الترويج الدوائي الذي تقوم به شركات الأدوية يعتبر مصدرًا رئيسيًا للمعلومات الدوائية لدى الأطباء (*21*)، وأن الإعلانات الدوائية التي تستهدف المستهلك مباشرة – كما أظهرت نتائج هذه الدراسة– تساعد المريض على مناقشة مرضه والدواء مع الطبيب أو الصيدلاني بشكل أكثر فاعلية.

تَظهر فكرة الولاء للعلامة التجارية بوضوح لدى أفراد عينة المراجعين، وهذه الظاهرة ليست صحية سواء على عامة المجتمع أو على الأطباء. حيث إن الإعلان الدوائي يُصمّم عادة لخلق الولاء للعلامة التجارية، الأمر الذي يُشعر المرضى بأن فاعلية الدواء تقتصر على استخدام هذا المنتج. ويَخلق انطباعًا لدى الأطباء أيضاً بأنه لن يكون من الحكمة وصف أي دواء مختلف عن الأدوية التي تروّجها هذه الشركات. وتنسجم هذه النتيجة مع ما توصلت إليه دراسة في محافظة إربد في الأردن (*22*)، والتي بيّنت نتائجها أن هناك انخفاضًا شديدًا في النسبة المئوية للأدوية الموصوفة بالاسم العلمي.

وفيما يتعلق بالمنظور الجندري لتلك الإعلانات تبيّن أنه لا توجد فروق جندرية بين الرجال والنساء لا في اتجاهاتهم نحو الإعلانات الدوائية الموجهة للمستهلك مباشرة، ولا في الوسائل التي يتعرّضون من خلالها لهذه الإعلانات، وهذا يبعدنا عن احتمال أن أحد الجنسين يتواصل مع هذه الوسائل أكثر من الآخر. وعلى الرغم من هذا التجانس؛ والذي يعتقد أن له أثرًا في تشكيل اتجاهات الأفراد التي تُعبر عن التراكم المعرفي الذي يشكّل قيمهم ومعتقداتهم، والتعرّض للإعلانات له أثر على المنهج السلوكي للأفراد (*23*)، إلا أننا نجد أن هناك فجوة جندرية في اعتقادات أفراد العينتين للفئة الأكثر استهدافاً من الإعلانات الدوائية التي تستهدف المستهلك مباشرة، وذلك بسبب الاعتقاد بأن النساء أكثر تأثراً بالإعلانات الدوائية من الرجال. الأمر الذي يقود للقول بأن هناك حكمًا مسبقًا اتُفق عليه ذكور وإناث العينيتن قد يكون ناتجًا عن تأصّل صورة المرأة النمطية في المجتمع؛ والتي تلعب مؤسسات التنشئة الاجتماعية بما فيها الأسرة والمدرسة بشكل عام والإعلام بشكل خاص، والركام الموروث من الأعراف، دوراً فعالاً في تكريسها أو بالأحرى في تكريس ما يسمى بالتنميط الجندري، وهو الصورة الذهنية المتوقعة التي يحددها المجتمع لكلا الجنسين من الذكور والإناث (*24*). حيث تظهر مؤسسات الإعلام صورة المرأة غالباً وكأنها شيء سهل الانقياد، وهذا ما أكدت عليه بعض المفكرات النسويات أمثال شيلا جيفيز وآن أوكلي، والنظر للمرأة كأنها شيء سهل الانقياد، له وقعه على المرأة في مواقف واضحة في الحياة اليومية (*25*)، فتشكلت صورة للمرأة وكأنها يغلب عليها طابع التهميش، والتبسيط، والسلوك الاستهلاكي، والتركيز على الشكليات، وعدم قدرتها على اتخاذ القرارات (*26*)، كل ذلك أدى بطبيعة الحال إلى تشكيل ثقافة مجتمعية تحكم على المرأة بأنها المستهدفة أكثر من الرجل. ومن الأهمية بمكان أن نشير إلى أن احتواء الإعلانات بشكل عام والإعلانات الدوائية بشكل خاص على صور للنساء، يقود إلى الاعتقاد بأن الإعلانات تستهدف ـ أحياناً ـ النساء (*27*).

أما ما قد يفسر اختيار عينتي الدراسة لعبارة "أن أكثر هذه الإعلانات متعلقة بأدوية خاصة بالنساء"، فقد يكون سبب الاختيار ناتجًا عن الانطباع الذي تشكّله سياسة بعض الشركات الدوائية لإعلاناتها من خلال استراتيجيتها التسويقية لدواء يعالج مرضًا معينًا من زاوية جنس واحد فقط، مثل الدعاية لأدوية الصداع النصفي (الشقيقة) في أمريكا (*18*) والتي تُظهر النساء على أنهن المعانيات الوحيدات تقريباً لهذا المرض –هذه الاستراتيجية تخلق انطباعاً بأن الصداع النصفي "مرض نسوي". فقد بيّنت نتائج الدراسة أنه برغم أن هذا المرض يصيب النساء بمقدار 2-3 أضعاف إصابته للرجال، إلا أن إعلاناته التسويقية تُظهر النساء على أنهن المعانيات من المرض (*8*) بأكثر مما تُظهر معاناة الرجال منه. كما بيّنت من خلال الاستنتاج الذي خرجت به أن الصناعة الدوائية عملت على جندرة إعلانات الصداع النصفي باستخدام عدة وسائل وهي: جندرة الصور، وجندرة اللغة أوالمجاز، وجندرة الخطاب. ويمكن استبعاد أن يكون السبب الحقيقي إلى حد ما في اختيار العينة لهذه العبارة – أن أكثر هذهً الإعلانات متعلقة بأدوية خاصة بالنساء، حيث نجد أن غالبية الأدوية التي اشترك في اختيارها عينة المراجعين وعينة الأطباء، كانت تعالج أمراض يُصاب بها الذكور والإناث معاً، وهي: الفيتامينات والمسكّنات وأدوية الزكام، والسعال، وأدوية السكري، وحب الشباب، وأدوية علاج الوزن الزائد، والتهاب المفاصل والدواء الوحيد الذي يخص النساء هو أدوية منع الحمل.

ومن جهة أخرى هنالك توجهات حديثة تؤكد على أهمية أخذ الفروق الجندرية بعين الاعتبار في المجال الطبي وخاصة في قضايا تشخيص الأمراض (*28*). ومثال ذلك أحد أمراض القلب المعروف بالذبحة الصدرية، الناتج عن نقص تروية القلب، والمُنمَط على أن المصاب بهذا المرض غالباً من جنس الرجال، حيث إن أشهر عَرَض يُشخَّص من خلاله هذا المرض هو الألم الحاصل عند منطقة الصدر، بينما نجد أن هذا العرض غائب لدى النساء اللواتي يصبن بنفس المرض، حيث إن الإرهاق هو العَرَض الأساسي لديهن (*29*). وعلى هذا الأساس قد يكون عدم الانتباه للاختلافات الجندرية في أعراض المرض سبباً في ارتفاع نسبة أعداد الوفيات من النساء نتيجة لهذا المرض مقارنة بالرجال.

إن اعتقاد عينتي المراجعين والأطباء واختيارهما لعبارة "أن النساء غالباً هن المسؤولات عن الرعاية الصحية في الأسرة" قد يكون سبباً وجيهاً لاعتقادهم، حيث إن أبرز دور اجتماعي تختص به النساء عن الرجال في المجتمع هو "الدور الإنجابي" والذي لا يمثل فقط الإنجاب من الناحية البيولوجية، وإنما يمثل مسؤوليات الرعاية والتربية وجميع الأعمال المرتبطة بذلك (*1*). وهذا ما أكدته دراسة أخرى بيّنت أن سياسة التسويق تعي تماماً دور المرأة الأساسي في الرعاية واتخاذ القرارات الصحية، لهذا تولي الشركات الدوائية اهتماماً كبيراً بالنساء كفئة مستهدفة لمنتجاتها الدوائية (*18*). كما أن المجلات النسائية تحتوي على عدد من الإعلانات الدوائية أكثر من العدد الذي تحتويه المجلات الخاصة بالرجال، وتوجد إعلانات دوائية ذات توجه وميل عاطفي في المجلات النسائية أكثر منه في المجلات المتعلقة بالرجال (*27*).

أما فيما يتعلق بالاختيار الأخير لأفراد عينة الدراسة وهو "أن النساء يترددن على الصيدليات أكثر من الرجال"، فهذا السبب يتعارض مع نتائج الدراسة (*20*) التي بيّنت أن الرجال يترددون على الصيدليات أكثر من النساء في المجتمع الأردني، وهذا يتوافق مع طبيعة الدور الإنتاجي للرجال في مجتمعاتنا العربية، حيث إن الرجل غالباً ما يكون هو المعيل الأول للأسرة. كما قد يكون عامل سهولة تنقل الرجال مقارنة بالنساء في مجتمعاتنا سبباً لذلك.

الجدول 5 نتائج دراسة عينة الأطباء

سؤال الدراسة		الوسط الحسابي (الإنحراف المعياري)		
		n=144	الذكور	الإناث
تعرّض المستهلك للإعلانات الدوائية التي تستهدف المستهلك مباشرة في وسائل الإعلام في الأردن؟ (1= نهائيًا ، 2= نادرًا، 3= أحيانًا ، 4= غالباً) والفروق الجندرية	المطويات والملصقات	3.08 (0.69)	3.07 (0.660)	3.09 (0.728)
	التلفاز	2.98 (0.95	2.99 (0.959)	2.97 (0.946)
	الجرائد	2.88 (0.798)	2.88 (0.832)	2.88 (0.764)
	المجلات	2.89 (0.837)	2.91 (0.819)	2.87 (0.862)
	الحملات الطبية	2.54 (0.835)	2.57 (0.869)	2.51 (0.801)
	الإنترنت	2.59 (0.814)	2.70 (0.817)	2.47 (0.801)
	الراديو	2.37(0.844)	2.42 (0.883)	2.32 (0.800)
الاتجاهات نحو الإعلانات الدوائية التي تستهدف المستهلك مباشرة (1= غير موافق، 2 = لا أعلم ، 3=موافق) والفروق الجندرية	تجعلني أقل اعتماداً على الطبيب وتشخيصه والعلاج	2.15 (.9260)	2.20 (1.162)	2.10 (1.087)
	لا تعطي معلومات متوازنة عن فوائد الدواء ومضاره	2.64 (0.735)	2.67 (1.013)	2.60 (0.981)
	تشجّع على تسويق الدواء قبل التأكد من سلامته/ فاعليته	2.60 (.6610)	2.55 (1.037)	2.66 (0.912)
	تعتبر أحد أسباب ارتفاع سعر الدواء	2.37 (0.668)	2.43 (0.910)	2.31 (0.887)
	تسبب شراء أدوية غير ضرورية ويستغنى عنها	2.80 (0.536)	2.74 (0.894)	2.87 (0.690)
	تزيد من إلحاح المريض على وصف دواء معين	2.69 (.6510)	2.62 (1.016)	2.78 (0.753)
	تؤثر سلباً على علاقة المريض بطبيبه	2.12 (0.873)	2.18 (1.100)	2.04 (0.939)
	تعتبر مصدرًا جيدًا للتعرف على الأعراض والعلاج	2.26 (0.883)	2.21 (1.100)	2.31 (1.031)
	تساعد على مناقشة المرض/ الدواء مع الطبيب / الصيدلي	2.24 (0.893)	2.12 (1.178)	2.37 (0.967)
أبرز مصادر المستهلك للحصول على المعلومة حال شعوره بأعراض مرضية (1= نهائيًا، 2 = نادرًا، 3= أحيانًا، 4 = غالباً)	أفراد العائلة أو الأصدقاء أو الجيران	3.76 (.5050)	–	–
	إعلانات من خلال التلفاز، الراديو، الصحف أو المجلات	2.75 (.8570)	–	–
	معلومات طبية (ليست إعلانية) عبر التلفاز أو الراديو	2.70 (.7940)	–	–
	معلومات طبية (غيرإعلانية) عبرالصحف أو المجلات	2.60 (.7860)	–	–
	مطويات في غرف انتظار الطبيب أوالصيدليات	2.39 (.7940)	–	–
	البحث في مواقع إلكترونية على الإنترنت	2.08 (.8490)	–	–
(1= نهائيًا، 2 = نادرًا، 3= أحيانًا، 4 = غالباً)	طلب المراجعين من أطبائهم وصف دواء معين	3.22 (.5730)	–	–
	استجابة الطبيب ووصفه لذلك الدواء	2.69 (.7320)	–	–
الفئة الأكثر استهدافاً من الإعلانات الدوائية التي تستهدف المستهلك مباشرة والفروق الجندرية	النساء أكثر من الرجال	% 45.8	–	–
	الرجال أكثر من النساء	% 1.4	–	–
	النساء والرجال بشكل متساوي	% 27.8	–	–
	لست متأكداً	% 25.0	–	–
	اعتقاد العينة بالفئة التي تستهدفها الإعلانات الدوائية		2.13 (1.269)	2.53 (1.275)
أسباب استهداف النساء أكثرمن الرجال (*n*=66) والفروق الجندرية (*1=نعم ، 0 =لا)	النساء أكثر تأثراً بالإعلانات الدوائية من الرجال	% 92.3	*0.93	*0.88
	النساء أكثر تعرضاً للوسائل التي تعرض فيها الإعلانات	% 87.7	*0.85	*0.88
	أكثر هذه الإعلانات متعلقة بأدوية خاصة بالنساء	% 76.9	*0.68	*0.88
	النساء هن المسؤولات عن الرعاية الصحية في الأسرة	% 75.8	*0.73	*0.81
	النساء تتردد على الصيدليات أكثر من الرجال	% 63.1	*0.61	*0.62

حيثما وردت الفروق الجندرية، حُسبت قيمة *F* و *a* كانت مستوى الدلالة المعنوية لألفا 0.05 ≥ *Sig*. *a*

التوصيات

بناء على استنتاجات هذة الدراسة، فلا بد من ضرورة الاستمرار التشريعي بمنع الإعلانات الدوائية التي تستهدف المستهلك مباشرة في الأردن، وتطوير أنظمة مراقبة فعّالة لمحتوى المواد الإعلانية في كل الوسائط الإعلامية للحد من خطورة انتشارها، خاصة في غرف انتظار عيادات الأطباء والصيدليات. وأن يكون هناك جهة رقابية محددة ضمن المؤسسة العامة للغذاء والدواء الأردنية مسؤولة عن إجازة أي مادة إعلامية متعلقة بالدواء قبل نشرها وتكون تحت طائلة المساءلة القانونية، بحيث توضع تعليمات ملزمة خاصة بالإعلام الدوائي ولتكن تابعة لمديرية مستحدثة يلحق بها قسم التفتيش الدوائي في المؤسسة، على أن يشترك كل المعنيين من الشركاء في القطاعين العام والخاص في وضع معايير يُتفق عليها ضمن خطة قابلة للتنفيذ والقياس في مدة زمنية محددة مسبقًا لثلاث سنوات مثلًا.

إن أفضل مدخل للتغيير، هو التأثير على مواقف واصفي الدواء من الأطباء، ومسوقيه من الصيادلة، وذلك أثناء فترة تأهيلهم عن طريق إعادة صياغة جزء من المناهج العلمية بحيث ترتبط بحقائق الحياة الاجتماعية والاقتصادية، ليتعلم طلاب الطب والصيدلة أن الترويج والتسويق الدوائي المنتشر يجب أن يكون علمياً وجديراً بالثقة ولا يعتمد على الجانب الدعائي فقط، بمعنى أن تكون كل معلومة إعلامية تخص الدواء مبنيةً على حقائق علمية مرجعية موثقة وأن تبتعد كل البعد عن أي معلومات مضللة. وبالتالي فإن أحد أهم التوصيات لهذه الدراسة، هو العمل على استحداث مناهج مدرسية في الإرشاد والتوعية الدوائية، بهدف تنشئة مجتمع واعٍ لمخاطر الاستخدام غير الرشيد للدواء. وعدم حصر الاهتمام بقضايا المرأة المتعلقة بالصحة الإنجابية والتخطيط الأسري فقط، فقضايا الدواء تشكل حيزاً أساسياً مهماً في السياسة الصحية المرتبطة بالتنمية الشاملة. بالأضافة إلى تفعيل دور الوسائل الإعلامية لتوعية مجتمعنا بقضايا الدواء، بشرط أن تكون جاذبية هذه البرامج بمستوى جاذبية الإعلانات التجارية. وأخيرًا العمل المشترك بين المؤسسات التعليمية والإعلامية بدعم من مؤسسات المجتمع المدني والناشطين من أفراد المجتمع للتخلّص من الصورة النمطية السلبية عن الإناث المؤصلة في وسائلهم، وتعديل بعض العادات الاجتماعية التي تعمل على تأصيل هذه الصورة.

المراجع

References

1. أبو بكر، أمية وشكري، شيرين (2002)، المرأة والجندر، (ط1)، سوريا: دار الفكر بدمشق
2. (2005)، التنمية والنوعUNIFEMصندوق الأمم المتحدة الإنمائي للمرأة- الاجتماعي، عمان، الأردن
3. World Health Organization (WHO) (2004) Drug promotion: What we know what we have yet to learn: Geneva Switzer land.
4. قانون الدواء والصيدلة: قانون مؤقت رقم 80 لعام 2003، وتعليمات تنظيم الإعلام الدوائي، الجريدة الرسمية رقم (4946) بتاريخ 2009-1-15
5. Adeoye, Sanjo and Bozic, Kevin (2007), Direct to Consumer Advertising in Healthcare, Clinical Orthopaedics And Related Research, (457): 96-104.
6. Gellad, Ziad and Lyles, Kenneth (2007), Direct-to-Consumer Advertising of Pharmaceuticals. The American Journal of Medicine, (120): 475-480
7. Toop L. and Mangin D. (2007), Industry funded patient information and the slippery slope to New Zealand, BJM, (335): 694-695.
8. Almasi, Elizabeth, Stafford, Randall, kravitz, Richard, and Mansfield, Peter (2006), What Are the public health Effects of Direct-to- Consumer Drug Advertising? PLOS Medicine (3): e145.
9. Lenzer, Jeanne (2004), FDA is in capable of protecting US "against another Voixx", BMJ, (329): 1253.
10. Semin, Semih, Aras, Sahbal and Guldal, Dilek (2006), Direct - to - Consumer advertising of pharmaceuticals: developed countries experiences and Turkey, Health Expectations, (10) Issue 1: 4-15.
11. Young, Henry, Lipowski, Earlene and Cline, Rebecca (2005), Using social cognitive theory to explain consumers' behavioral intentions in response to direct - to - consumer prescription drug advertising, Research in Social and Administrative Pharmacy, (1), Issue 2: 270-288.
12. Weissman, Joel, Blumenthal, David, Silk, Alvin, Zapert, Kinga, Newman, Michad and Leitman, Robert (2003), Consumer's Reports on the Health Effects of Direct - To - Consumer Drug Advertising, Health Affairs - Web Exclusive W3: 83-95. Retrieved in July 2008 from: http://content.healthaffairs.org/cgi/reprint/hlthaff.w3.82v1.pdf
13. Huh, Jisu and Beaker, Lee. (2005), Direct - to - Consumer Prescription Drug Advertising: Under Standing Its Consequences (Electronic Version), International Journal of Advertising: 1-17 (www.grady.uga.edu/coxcenter).
14. Maubach, Ninya and Hoek, Janet (2005), New Zealand general practitioner's views on direct - to - consumer advertising (DTCA) of prescription medicines: a qualitative analysis. Journal of the New Zealand Medical Association, (118), No. 1215.
15. Gilbody, S. Wilson, P and Watt, I. (2005), Benefits and harms of direct - to - consumer advertising: a systematic review, Quality and Safety in Health Care, (14): 246-250.
16. المؤتمر العام لإتحاد الصيادلة العرب السادس والعشرون والمؤتمر الصيدلاني الأردني الثاني عشر (2008)، دور الصيدلاني في تأمين جودة الرعاية الصيدلانية، عمان، الأردن.
17. Health Action International (HAI) (2001), Direct-to-Consumer Prescription Drug Advertising The European Commission's Proposals for Legislative Change: Amsterdam, The Netherlands.
18. Kempner, Joanna (2006), Gendering the migraine market: Do representations of illness matter? Social Science & Medicine, (63): 1986–1997.
19. Glass, Jennifer, Lanctôt, Krista, Herrmann, Nathan, Sproule, Beth and Busto, Usoa (2005), Sedative hypnotics in older people with insomnia: meta-analysis of risks and benefits, BMJ, (331): 1169-1173.
20. Wazaify, Mayyada, Al-Bsoul, Abla, Abu-Garbieh, Eman, Tahaineh, Linda (2008), Societal perspectives on the role of community pharmacists and over-the-counter drugs in Jordan, Pharm World Sci, (30): 884-891.
21. Ulanowski, P, Jakuboczyk, M and Hermanowski, T (2007), Sources of Information on Drugs Used by General Practitioners in Poland, Value In Health, (11) Issue 6: A367.
22. Otoom,S. Batieha, A. Hadidi, H. Hassan, M. and Al-Saudi, K (2002), Evaluation of drug use in Jordan using WHO prescribing indicators, Eastern Mediterranean Health Journal, (8), No. 4&5

23. البكري، ثامر (2006)، الإتصالات التسويقية والترويج، (ط1)، عمان: دار الحامد للنشر والتوزيع.
24. نجيب، مارقوه (2006)، التنميط الجندري في أغاني الفيديو كليب العربية، رسالة ماجستيرغير منشورة، الجامعة الأردنية، عمان، الأردن.
25. جامبل، سارة (2002)، ترجمة الشامي، أحمد، النسوية وما بعد النسوية، (ط1)، القاهرة: المجلس الأعلى للثقافة.
26. قيراط، محمد (2006)، قضايا إعلامية معاصرة، (ط1)، الكويت: مكتبة الفلاح للنشر والتوزيع
27. Amerson, Katherine (2007), Direct-to- consumer pharmaceutical advertising in men's and women's magazines, unpublished master's thesis, Texas Tech University: Texas, USA. (Unpublished Thesis)
28. Anderson, Gail (2005), Sex and Racial Differences in pharmacological Response: where is the Evidence? Pharmacogentics, pharmacokinetics, and pharmacodynamisc Journal of women's Health, (14) 1: 19 – 29.
29. Phillips, Susan (2005), Defining and measuring gender: A social determinant of health whose time has come, International Journal for Equity in Health, (4):11 Retrieved in November 2008 from: http://www.equityhealthj.com/content/4/1/11

Burden and associated factors for caregivers of the elderly in a developing country

S. Sabzwari,[1] A. Munir Badini[1] Z. Fatmi,[2] T. Jamali[2] S. Shah[3]

العبء الواقع على مقدمي الرعاية للمسنين، وما يرتبط به من عوامل في بلدٍ نامٍ

سنية سبزواري، عبيدة منير باديني، ظفر فاطمي، تنزيل جمالي، سبين شاه

الخلاصة: إن عدد السكان المسنين في جنوب آسيا آخذ في الارتفاع. كذلك فإن مقدمي الرعاية المدرَّبون في باكستان نادرون وغير مقبولين من الناحية الثقافية. وقد قيَّمت هذه الدراسة مستوى الضغط النفسي التي يعاني منه مقدمو الرعاية للمسنين، وحدَّدت ارتباط عبء تقديم الرعاية بالخصائص المختلفة للمسنين. فأجريت دراسة مقطعية مبنية على الاستبيان، باستخدام عينة قصدية غير احتمالية، شملت جميع الموافقين على الاشتراك في الدراسة ممن بلغوا 60 سنة فما فوق ويحتاجون إلى مساعدة في نشاط واحد على الأقل من نشاطات الحياة اليومية أو في نشاطين يعتمدان على الأدوات من نشاطات الحياة اليومية. أجري تقييم لـ 350 مشاركاً لتقدير العبء المتصوَّر الواقع على مقدِّمي الرعاية. كان معظم مقدمي الرعاية من الإناث (68.9٪). وأحرز نصفهم (50.3٪) درجات إيجابية على مقياس عبء الرعاية المتصوَّرة. وكان للتأثير المالي ارتباط قوي (0.79) بعبء الرعاية المتصورة. وإن مستويات الاعتماد الأعلى – ذات الطابع الفيزيائي والمعرفي – شكلت عبئاً أكبر على مقدمي الرعاية. وكانت القضايا السلوكية للمسنين – مثل الإساءة اللفظية وصعوبة النوم – منْبئات عن وجود عبء أعلى على مقدمي الرعاية. يعتبر العبء الواقع على مقدمي الرعاية قضية هامة بالنسبة لمن يقومون برعاية أفراد الأسرة المسنين في كراتشي بباكستان.

ABSTRACT The elderly population in South Asia is growing. In Pakistan trained caregivers are scarce and culturally not acceptable. This study assessed the level of stress experienced by caregivers of the elderly and determined the association of care giving burden with different characteristics of the elderly. A cross-sectional, questionnaire based study was conducted using nonprobability purposive sampling. All consenting participants aged 60 years and above needing help with at least one activity of daily living or two instrumental activities of daily living were included. 350 participants were assessed for perceived care giver burden. Care providers were mostly female (68.9%). Half (50.3%) of the caregivers had a positive score on a perceived care burden scale. Financial impact had a strong correlation (0.79) with perceived caregiver burden. Higher dependency levels of a physical and cognitive nature posed greater burden on caregivers. Behavioural issues of the elderly such as verbal abuse and difficulty sleeping were predictors of a higher caregiver burden. Caregiver burden is a significant issue for those caring for elderly family members in Karachi, Pakistan.

Fardeau et facteurs associés pour les aidants de personnes âgées dans un pays en développement

RÉSUMÉ La population âgée d'Asie du Sud-Est connaît une augmentation. Au Pakistan, les personnels soignants formés sont rares et non acceptés d'un point de vue culturel. La présente étude avait pour objectif d'évaluer le niveau de stress des aidants de personnes âgées et de déterminer l'association entre le fardeau de soins et différentes caractéristiques propres aux personnes âgées. Une étude transversale, reposant sur un questionnaire, a été conduite en recourant à un échantillonnage non probabiliste par choix raisonné. Toutes les personnes consentantes âgées de 60 ans et plus requérant une aide pour au moins une activité de la vie quotidienne ou deux activités instrumentales de la vie quotidienne ont été incluses. Le fardeau perçu par les aidants a été évalué chez 350 participants. Les dispensateurs de soins étaient majoritairement des femmes (68,9 %). La moitié (50,3 %) des aidants obtenaient des scores élevés sur l'échelle d'évaluation du fardeau de soins. L'impact financier avait une forte corrélation (0,79) avec la perception du fardeau de soins. Des niveaux de dépendance physique ou cognitive plus élevés rajoutaient au fardeau supporté par les aidants. Les problèmes comportementaux des personnes âgées tels que des insultes verbales ou des troubles du sommeil constituaient d'importants indicateurs d'un fardeau plus lourd. Le fardeau des aidants est un problème de taille pour les personnes qui prennent soin de membres âgés de leurs familles à Karachi, au Pakistan.

[1]Department of Family Medicine, [2] Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan (correspondence to Saniya Sabzwari: Saniya.sabzwari@aku.edu). [3]End TB Project, Interactive Research and Development, Shahrah-e-Faisal, Karachi, Pakistan

Received: 21/09/15; accepted: 06/06/16

Introduction

The elderly population of South Asia is seeing an unprecedented rise. According to the 2013 WHO data repository (*1*), 6.5% of the Pakistani population is over the age of 60. By 2050, the elderly are expected to constitute 15% of the total population (*2*). Longer life spans are, however, frequently associated with illnesses that cause disability and dependence.

According to the World Health Organization, older people residing in low-income countries have higher disability rates, and woman are at greater risk than men (*3*). Data on disability from Pakistan are scarce and do not include common impairments seen in the elderly, such as dementia and osteoarthritis.

In Pakistan, traditional family values, including revering elders, are still held, and providing care and support to the elderly is considered a social norm and a moral duty for family members. In the past few decades, however, joint family systems have shifted rapidly to nuclear families (i.e. parents and their dependent children) (*4*), so that elderly family members are often cared for by one caregiver rather than multiple relatives in an extended family (*5*). Moreover, in contrast to the western world, where professional caregiving is the norm, trained caregivers are scarce, expensive and at times unacceptable. A handful of nursing homes exists, which is not a culturally acceptable solution for caring for the elderly (*5*). This changing socio-cultural system is bound to make the burden on caregivers an issue that will require attention at all levels, as the physical and psychosocial effects of caregiving are well documented (*6, 7*).

We conducted a literature review of studies on caregivers and determined the factors responsible for their burden. Most studies identified the family as the primary caregivers for elderly family members. One regional study indicated that spouses were most adversely affected by a cognitive decline in a care receiver (*8*). A study of caregivers for patients with Alzheimer disease revealed that caregivers of male patients experienced the greatest burden. The burden of caregivers in joint families did not differ from those in nuclear families (*9*).

Limited national data were available on the characteristics of caregivers and their burden. Anecdotal evidence suggests that most caregiving is provided by families and mostly by women. We assessed the burden experienced by carers of the elderly in our setting and determined the factors associated with the burden of care provision.

Methods

Study design

We conducted a cross-sectional study of a convenience sample in 2013, in which research associates visited the homes of a local community in Karachi to collect data.

Sample size

The sample size was calculated with WHO software (version 2.0) (*10*). As no local data were available on the burden of caregivers in Pakistan, a proportion of 0.50 was used to achieve maximum variance with an error bound of 6% and a 5% significance level. The final sample size was calculated to be 267. After inflation by 10% for non-responders, the sample size was estimated to be approximately 300.

Inclusion criteria

All consenting people aged 60 years and above who required help with at least one or more of the activities of daily living (ADLs) or two or more of the instrumental activities of daily living (IADLs) were included. They are referred to below as "care recipients".

Exclusion criteria

Paid caregivers and elderly patients residing in nursing homes were excluded from the study, as these are not typical solutions for caregiving in Pakistan.

Definitions

A "caregiver" was defined as an adult 18 years of age or older, either a family member or a voluntary worker, who provides help with ADLs, health care and financial and social matters to care recipients.

"Caregiver burden" was defined as physical, psychological, social and financial problems that might be experienced by family members caring for impaired older adults (*8*).

ADLs include dressing, eating, walking, toileting and showering, and IADLs include shopping, managing money, using a telephone, arranging transport, housekeeping, preparing meals and taking medication.

Ethical approval

Ethical approval was obtained from the university ethics committee. Detailed, explicit consent was obtained from all participants. All questionnaires were coded, and data were entered with these codes to ensure participant confidentiality.

Data collection tools

The demographics of care recipients and caregivers, the characteristics of care receivers (ADLs, IADLs, co-morbid conditions, behavioural problems) and the duration and type of caregiving were obtained from answers to a questionnaire, which was translated into Urdu and then back-translated into English. A pilot study was conducted on 10% of the total sample size, and the results were used to modify the questionnaire.

Caregiver burden was measured on a five-point Likert scale of scores on a validated 12-item "perceived caregiver burden scale" used in regional studies (*11*). This three-part scale assesses the

impact on finances, abandonment by the extended family and sense of entrapment as experienced by the caregiver. (See Annex 1. Permission to use this scale was obtained from the author). The Cronbach's alpha for each subscale was greater than 0.77.

Data collection procedure

Respondents were approached during home assessments conducted in local communities in Karachi. Households with elderly residents were identified from community volunteers, and research associates visited the identified homes to administer the questionnaire to each of the caregivers in the household. The participating families were given feedback on caregiver stress.

Statistical analysis

All data were entered into Epidata 3.1 and analysed with SPSS version 19. Proportions were generated for the categorical variables gender, number of care recipients, behaviour, ADLs, IADLs and presence of co-morbid conditions. Mean and standard deviation were reported for continuous variables such as the age of the caregiver and recipient and the duration of caregiving. The outcome variable was the caregiver burden. The mean scores of the answers to questions on the burden of caregivers were calculated, and the scores were then split from the median to form a binary variable (burdened/not burdened). Chi-squared tests were used to assess the associations between ADLs, IADLs and the burden on caregivers, with a significance level of 0.05.

Results

The socio-demographic characteristics of caregivers and care recipients, ADLs and IADLs and co-morbid illnesses are listed in Table 1. The mean age of caregivers was 47.23 ± 15.5 years. Most of the caregivers were female (241; 68.9%), married (311; 88.9%), daughters-in-law (119; 34%) and spouses (94; 26.8%). More than one third had secondary education (139; 39.7%). The mean age of the care recipients was 71.1 ± 10.1 years, and most were female (208; 59.4%). Caregivers provided assistance for ADLs like dressing (57; 16.3%), bathing (60; 17.2%) and walking (160; 45.7%). Assistance for IADLs was mainly for shopping (279; 79.9%), preparing meals (226; 64.6%) and using a telephone (163; 46.6%). One third of care recipients (35.4%) required help in managing money, and 33.3% were helped in taking medication. Only 37.2% were fully mobile, while 45.7% required assistance from the caregiver; 13.7% had an assisted device, and 3.4% were bedridden.

The co-morbid illnesses of care recipients included osteoarthritis (220; 63%), hypertension (169; 48.4%) and diabetes (105; 30.1%). Memory loss was reported in 131 (37.4%). Agitation was the commonest behavioural problem (183; 52.3%). Approximately half the caregivers had a positive score for perceived care burden.

The association between ADLs and caregiver burden is shown in Table 2. Caregivers who provided help in

Annex 1. Perceived caregiver burden

Subscale 1: Imapct on finances		**1**	**2**	**3**	**4**	**5**
1	My financial resources are adequate to pay for things that are required for caregiving					
2	It is difficult to pay for the elderly person's health needs and services					
3	Caring for the elderly person has put a financial strain on the family					
4	If I could afford it, I would find some other way to care for the elderly person					
Subscale 2: Abandonment by extended family						
5	Since caring for the elderly person, I feel that my family has abandoned me					
6	It is very difficult to get help from my family in taking care of the elderly person					
7	Others have left caring for the elderly person to me					
Subscale 3: Sense of entrapment						
8	Since caring for the elderly person, it seems like I am tired all the time					
9	I feel overwhelmed by the problems I have caring for the elderly person					
10	I get very discouraged with caring for the elderly person					
11	Since caring for the elderly person, sometimes I hate the way life has turned out					
12	At this time in my life, I don't think I should be caring for the elderly person					

1- strongly disagree, 2- disagree, 3- agree, 4- strongly agree, 5- I don't know

Table 1. Distribution of socio-demographic characteristics of caregivers and receivers and activities of daily living, instrumental activities of daily living and co-morbid illnesses of care recipients (*n*=350)

Characteristic	Frequency
Caregivers	
Gender	
Male	109 (31.1%)
Female	241 (68.9%)
Marital status	
Married	311 (88.9%)
Single	34 (9.7%)
Widowed or divorced	5 (1.4%)
Relationship	
Son	64 (18.3%)
Daughter	48 (13.7%)
Daughter-in law	119 (34%)
Sibling	1 (0.3%)
Other	118 (33.7%)
Educational status	
Illiterate	29 (8.3%)
Primary grades 1–5	41 (11.7%)
Secondary grades 6–10	139 (39.7%)
Higher secondary (grade 12)	67 (19.1%)
Graduate (grade 14 and above)	72 (20.6%)
Madrasah	1 (0.3%)
Other	1 (0.3%)
Age (years)	47.23 ± 15.53 (SD)
Care recipient	
Male	141 (40.3)
Female	209 (59.7%)
Age (years)	71.1 ± 10.1 (SD)
Care provided	
Duration (years)	14.86 ± 13.52 (SD)
Other caregivers	
Yes	162 (46.3%)
No	188 (53.7%)
Other participants aged ≥ 60 years receiving care (information missing for one participant)	
Yes	82 (23.4%)
No	267 (76.3%)
Other responsibilities	
None	13 (3.7%)
Caring for children	23 (6.6%)
Household chores	215 (61.4%)
Caring for another dependent	12 (3.4%)
Other	87 (24.9%)
Activities of daily living	
Help in changing clothes (information missing for two participants)	
Yes	57 (16.3%)
No	291 (83.1%)
Help in walking	
Yes	61 (17.4%)
No	289 (82.6%)

Table 1. Distribution of socio-demographic characteristics of caregivers and receivers and activities of daily living, instrumental activities of daily living and co-morbid illnesses of care recipients (*n*=350) (*continued*)

Characteristic	Frequency
Help in eating	
Yes	31 (8.9%)
No	319 (91.1%)
Help in toileting	
Yes	47 (13.4%)
No	303 (86.6%)
Help in bathing (information missing for one participant)	
Yes	60 (17.1%)
No	289 (82.6%)
Instrumental activities of daily living	
Help in shopping	
Yes	279 (79.7%)
No	71 (20.3%)
Help in taking medicines	
Yes	118 (33.7%)
No	232 (66.3%)
Help in using telephone	
Yes	163 (46.6%)
No	187 (53.4%)
Help in managing money	
Yes	124 (35.4%)
No	226 (64.6%)
Help in preparing meals	
Yes	226 (64.6%)
No	124 (35.4%)
Help in hygiene (combing hair, cutting nails)	
Yes	69 (19.7%)
No	281 (80.3%)
Co-morbid illnesses of care recipients	
Diabetes (information missing for one participant)	
Yes	105 (30.1%)
No	244 (69.9%)
High blood pressure (information missing for one participant)	
Yes	169 (48.4%)
No	180 (51.6%)
Cerebrovascular accident (information missing for one participant)	
Yes	51 (14.6%)
No	298 (85.4%)
Osteoarthritis (information missing for one participant)	
Yes	220 (62.9%)
No	129 (37.1%)
Osteoporosis (information missing for one participant)	
Yes	114 (32.7%)
No	235 (67.3%)
Leakage of urine (information missing for one participant)	
Yes	73 (20.9%)
No	276 (79.1%)
Leakage of stools (information missing for one participant)	
Yes	28 (8.0%)
No	321 (92.0%)

Table 1. Distribution of socio-demographic characteristics of caregivers and receivers and activities of daily living, instrumental activities of daily living and co-morbid illnesses of care recipients (*n*=350) (*concluded*)

Characteristic	Frequency
Depression	
Yes	128 (36.6%)
No	222 (63.4%)
Memory loss	
Yes	131 (37.4%)
No	219 (62.6%)
Other chronic illness (information missing for two participants)	
Yes	48 (13.7%)
No	300 (85.7%)
Ambulatory status	
Fully mobile	130 (37.1%)
Mobile with help of caregiver	160 (45.7%)
Mobile with an assisted device	48 (13.7%)
Bedbound	12 (3.4%)
Behavioural problems of care recipients	
Agitation (irritability)	
Yes	183 (52.3%)
No	167 (47.7%)
Aggression (shouting, hitting)	
Yes	121 (34.6%)
No	229 (65.4%)
Verbal abuse	
Yes	71 (20.3%)
No	279 (79.7%)
Low mood (sadness, crying)	
Yes	138 (39.4%)
No	212 (60.6%)
Forgetfulness (information missing for one participant)	
Yes	123 (35.2%)
No	226 (64.8%)
Social withdrawal	
Yes	29 (8.3%)
No	321 (91.7%)
Difficulty in sleeping	
Yes	126 (36%)
No	224 (64%)
Wandering (leaving home without informing caregiver)	
Yes	8 (2.3%)
No	342 (97.7%)
Other behavioural problems	
Yes	20 (5.7%)
No	330 (94.3%)
Perceived care burden	
Yes	176 (50.3%)
No	(49.7%)

Table 2. Associations between activities of daily living and instrumental activities of daily living and the burden on caregivers (*n*=350)

	Burdened	Not burdened	*P*
Activities of daily living	*n* (%)	*n* (%)	
Help in changing clothes (information missing for two participants)			
Yes	23 (40.4)	34 (59.6)	0.10
No	152 (52.2)	139 (47.8)	
Help in walking			
Yes	23 (37.7)	38 (62.3)	0.03
No	153 (52.9)	136 (47.1)	
Help in eating			
Yes	16 (51.6)	15 (48.4)	0.87
No	160 (50.2)	159 (49.8)	
Help in toileting			
Yes	19 (40.4)	28 (59.6)	0.14
No	157 (51.8)	146 (48.2)	
Help in bathing (information missing for one participant)			
Yes	22 (36.7)	38 (63.3)	0.01
No	154 (53.3)	135 (46.7)	
Instrumental activities of daily living			
Help in shopping			
Yes	156 (55.9)	123 (44.1)	0.00
No	20 (28.2)	51 (71.8)	
Help in taking medicines			
Yes	63 (53.4)	55 (46.6)	0.40
No	113 (48.7)	119 (51.3)	
Help in using telephone			
Yes	87 (53.4)	76 (46.6)	0.28
No	89 (47.6)	98 (52.4)	
Help in managing money			
Yes	86 (69.4)	38 (30.6)	0.00
No	90 (39.8)	136 (60.2)	
Help in preparing meals			
Yes	135 (59.7)	91 (40.3)	0.00
No	41 (33.1)	83 (66.9)	
Help in hygiene			
Yes	25 (36.2)	44 (63.8)	0.00
No	151 (53.7)	130 (46.3)	

walking and bathing had a significantly higher burden than those who did not ($P < 0.05$). The IADLs with which caregivers were significantly burdened were help with shopping, managing money, preparing meals and ensuring hygiene ($P < 0.05$).

Table 3 shows the correlations between behavioural problems, IADLs, financial impact and total co-morbidity and the caregivers' perception of their burden, for all caregivers and for the 176 who perceived that they were burdened. Behavioural problems were moderately correlated (0.30), overall dependence for IADLs was weakly correlated (0.21), and total co-morbidity was poorly correlated (0.07) (Table 3).

The financial impact of caregiving was strongly correlated (0.79) with caregivers' burden ($P < 0.005$); thus, 28 of the 36 caregivers (77.8%) who said that their role had a financial impact also considered themselves burdened. Of the 314 caregivers who found no financial impact, 148 (47.1%) considered themselves burdened.

Binary logistic regression analysis with adjustment for caregiver's age, education, marital status and length of

Table 3. Correlation between total score of perceived caregiver burden and scores for behavioural problems, IADLs, financial impact and co-morbidity for all caregivers (n = 350) and for those who perceived a burden (*n* = 176)

Characteristic	All caregivers		Caregivers who perceived a burden	
	Pearson coefficient	*P*		
Behaviour (sum of behavioural problems)	0.30	0.00	0.25	0.03
IADLs (sum of IADLs)	0.21	0.00	0.29	0.00
Financial impact (sum of subscale items of perceived caregiver burden scale)	0.79	0.00	0.60	0.00
Total co-morbidity (sum of co-morbid conditions score)	0.07	0.08	0.26	0.00

care showed that male caregivers were more likely to perceive themselves as burdened (adjusted odds ratio [OR], 1.86; 95% confidence interval [CI], 1.03;3.35). Looking after care recipients with sleep disturbances and receiving verbal abuse were also associated with caregiver burden (adjusted OR, 1.84; 95% CI, 0.96;3.51 and 2.43; 1.05;5.62, respectively). Stroke was also significantly associated with perceived caregiver burden (adjusted OR, 3.03; 95% CI, 1.34;6.86) (Table 4).

Discussion

This study fulfilled its objectives by identifying common health problems in elderly people residing in a local community in Pakistan and their association with the burden experienced by their caregivers. The most commonly reported co-morbid conditions were diabetes, hypertension and osteoarthritis. Pakistan is considered to have high rates of diabetes and hypertension (*12*), and both are risk factors for dementia in the elderly (*13,14*), possibly accounting for the high rates of memory loss found in our study. Depression was also commonly reported. Depression is linked to dementia in a complex relationship via risk factors, symptoms and functional decline (*15*).

Most of the elderly in this study did not require help with ADLs, despite a high burden of noncommunicable illness. Their low level of dependence may reflect co-morbid conditions with few complications or of lesser severity. A previous study also found low rates of dependence in elderly people living in the community (*7*).

The study shows that most care providers are women, consistent with our culture, in which housewives normally assume the role of caregiver, while male members are responsible for earning money outside the home to provide for their families. The situation is similar in other parts of the world (*16*). A study of 48 low- and middle-income countries also found that women more often assume caregiver roles than men (*17*).

The relationship between the caregiver and the care receiver was predominantly a spouse or child, as found in previous studies (*18–20*). Daughters-in-law were the caregivers in a significant number of households in our study, as found in studies in India and the Republic of Korea (*21–23*). Even among immigrants of Indian and Pakistani descent in the USA, daughters-in-law were the primary care givers, adhering to the cultural norms of their country of origin (*24*). Family frameworks and structures differ among countries. Daughters almost always leave home after marriage to take over responsibilities in their new home; they therefore are more likely to care for their in-laws and less likely to be the primary caregivers for their own parents. This study did not show whether the burden of caregivers is different when they care for in-laws rather than parents.

Half the caregivers considered that they were burdened. Similar percentages have been found in other studies in the Region (*19,25–27*). In studies that indicated a higher caregiver burden, the care receivers were more dependent or had more debilitating illnesses. As in previous studies, (*18, 21,26,28*), caregivers for elderly people who were dependent for ADLs perceived a greater burden. In contrast, another study reported that caregiver burden correlated more closely with the needs of the caregiver rather than the functional impairment of the care recipient (*27*).

As expected, stroke was associated with a higher caregiver burden, probably due to greater physical and cognitive dependence. Problematic behaviour of care recipients, such as verbal abuse and difficulty in sleeping, were also predictors of a greater burden, possibly by creating physical and emotional difficulties for the caregiver. This finding is supported by those of other studies (*24,28–30*).

The strongest correlation with caregiver burden in our study was financial constraints due to caregiving. In our country, the majority of the population lives below the poverty level, and there is no subsidized health care or discounted prescriptions; therefore, families often bear the cost of health care for the elderly, resulting in financial strain. This factor has also been cited by other authors (*31*).

Surprisingly, in contrast to other studies in which women considered themselves more heavily burdened, we found that men perceived themselves

Table 4. Associations between demographic characteristics of care receivers and caregivers, behavioural problems and co-morbid illnesses of care receivers and level of perceived caregiver burden (*n*=350)

Characteristic	Unadjusted odds ratio	95% CI	Adjusted odds ratio[1]	95% CI
Age of care receiver	0.97	0.95;0.99	0.97	0.94;1.00
Sex of care receiver				
Female	1		1	
Male	1.27	0.83;1.95	1.38	0.82,2.38
Sex of caregiver				
Female	1		1	
Male	2.16	1.35;3.43	1.90*	1.08;3.36
Behavioural problems				
Agitation	1.37	0.90;2.09	0.86	0.45;1.65
Aggression	1.59	1.02;2.48	1.36	0.63;2.95
Verbal abuse	2.27	1.32;3.92	2.45*	1.06;5.65
Depression	1.37	0.89;2.11	1.12	0.59;2.12
Memory loss	1.83	1.17;2.86	0.84	0.34;2.03
Social withdrawal	1.44	0.66;3.12	2.00	0.67;6.01
Difficulty in sleeping	1.88	1.21;2.93	2.00*	1.06;3.77
Wandering	0.32	0.06;1.61	2.05	0.29;14.41
Others behavioural problems	0.31	0.11;0.87	0.08*	0.02;0.39
Co-morbid conditions				
Diabetes	1.32	0.83;2.10	1.51	0.83;2.75
Hypertension	0.87	0.57;1.32	0.89	0.51;1.56
Stroke	1.24	0.68;2.25	2.67*	1.20;5.98
Osteoarthritis	1.12	0.72;1.73	1.55	0.87;2.78
Osteoporosis	0.23	0.14;0.38	0.13*	0.06;0.26
Urine leaking	1.09	0.65;1.83	1.85	0.83;4.07
Stool leaking	0.44	0.19;1.00	0.20*	0.05;0.69
Depression	1.61	1.03;2.50	1.61	0.82;3.16
Memory loss	1.72	1.11;2.67	1.85	0.82;4.17
Chronic illness	0.66	0.36;1.23	0.67	0.31;1.44

** $P < 0.05$*
[1]Adjusted for caregiver's age, education, marital status and length of caregiving

as more burdened when faced with the challenge of caring for the elderly. This finding is supported by that of another study in Pakistan, in which male caregivers were more "stressed" (*32*); however, a study in India showed no difference in the stress levels of male and female caregivers (*22*). In Pakistan, caregiving is a "gender incongruent" role for men, who are the breadwinners and primarily fulfil responsibilities away from home. In-home caregiving is thus harder for men employed out of the home.

The factors associated with caregiver burden raise concern that there are no support systems to offer respite, either in the form of day-care centres or alternative care providers. There are no financial subsidies to help families care for their elderly. An important question is whether caregiver burden results in neglect of the elderly or affects the quality of caregiving in our setting.

Limitations

While we were able to identify factors associated with caregiver burden, we did not examine its effects. Further studies are required on the impact of this burden on caregivers and caregiving. Another limitation is that this study was conducted in suburban Karachi, and the factors associated with caregiver burden may be different in rural communities. Although financial constraints were a significant source of caregiver burden, detailed socioeconomic data were not obtained, and the source of the financial burden could not be explored.

As family members continue to be the largest source of caregiving for the

elderly, recognition of their roles and the implications for both the caregiver and the care receiver is essential. Physicians should recognize the needs of caregivers, in addition to providing care to their elderly patients. Both informal and formal support systems should be in place for caregivers. Establishing alternative care services and educational programmes to create awareness of caregiver burden would help in dealing with this issue of increasing importance.

Conclusion

Caregiver burden is a significant issue for those who care for elderly family members, financial constraints being a strong factor. In view of the growing number of elderly people and the high caregiver burden found in our study, physicians should recognize and advocate for caregivers in order to ease their responsibilities.

Funding: None.

Competing interests: None declared.

References

1. Global Health Observatory. Pakistan. Geneva: World Health Organization; 2014 (http://apps.who.int/gho/data/node.country.country-PAK?lang=en, accessed 20 March 2015).
2. Health of the elderly. Cairo: WHO Regional Office for the Eastern Mediterranean; 2014 (http://www.emro.who.int/entity/elderly-health/index.html, accessed 18 February 2015).
3. World report on disability 2011. Geneva: UNICEF; 2011 (http://www.unicef.org/protection/World_report_on_disability_eng.pdf, accessed August 2016).
4. Itrat A, Taqui AM, Qazi F, Qidwai W. Family systems: perceptions of elderly patients and their attendents presenting at a university hospital in Karachi, Pakistan. J Pak Med Assoc 2007;57:106.
5. Sabzwari SR, Azhar G. Ageing in Pakistan – a new challenge. Ageing Int 2011;36:423–427.
6. Chan A, Malhotra C, Malhotra R, Rush AJ, Østbye T. Health impacts of caregiving for older adults with functional limitations. Results from the Singapore survey on informal caregiving. J Aging Health 2013;25:998–1012.
7. Inocian EP, Inocian EP, Ysatam EI. The dependency needs in the activities of daily living performance among Filipino elderly. Int Res J Med Med Sci 2014;2:44–50.
8. Thommessen B, Aarsland D, Braekhus A, Oksengaard AR, Engedal K, Laake K. The psychosocial burden on spouses of the elderly with stroke, dementia and Parkinson's disease. Int J Geriatr Psychiatry 2002;17:78–84.
9. Pattanayak RD, Jena R, Tripathi M, Khandelwal SK. Assessment of burden in caregivers of Alzheimer's disease from India. Asian J Psychiatry 2010;3:112–116.
10. Lwanga SK, Lemeshow S. Sample size determination in health studies: a practical manual. Geneva: World Health Organization; 1991.
11. Gupta R. The perceived caregiver burden scale for caregivers of elderly people in India. J Appl Gerontol 2007;26:120–138.
12. Ramachandran A, Ma RC, Snehalatha C. Diabetes in Asia. Lancet 2010;375:408–418.
13. Gorelick PB. Risk factors for vascular dementia and Alzheimer disease. Stroke 2004;35(Suppl 1):2620–2622.
14. Biessels GJ, Staekenborg S, Brunner E, Brayne C, Scheltens P. Risk of dementia in diabetes mellitus: a systematic review. Lancet Neurol 2006;5:64–74.
15. Korczyn AD, Halperin I. Depression and dementia. J Neurol Sci 2009;283:139–142.
16. Pinquart M, Sörensen S. Gender differences in caregiver stressors, social resources, and health: an updated meta-analysis. Psychol Sci Soc Sci 2006;61:P33–P45.
17. Hosseinpoor AR, Bergen N, Chatterji S. Socio-demographic determinants of caregiving in older adults of low- and middle-income countries. Age Ageing 2013;42:330–338.
18. Yang X, Hao Y, George SM, Wang L. Factors associated with health-related quality of life among Chinese caregivers of the older adults living in the community: a cross-sectional study. Health Qual Life Outcomes 2012;10:1.
19. Abdollahpour I, Noroozian M, Nedjat S, Majdzadeh R. Caregiver burden and its determinants among the family members of patients with dementia in Iran. Int J Prev Med 2012;3:544–551.
20. Morimoto T, Schreiner AS, Asano H. Caregiver burden and health- related quality of life among Japanese stroke caregivers. Age Ageing 2003;32:218–223.
21. Lee M, Yoon E, Kropf NP. Factors affecting burden of South Koreans providing care to disabled older family members. Int J Aging Human Dev 2007;64:245–262.
22. Gupta R, Pillai VK, Levy EF. Relationship quality and elder caregiver burden in India. J Soc Interv Theory Pract 2012;21:39–62.
23. Prince M. Care arrangements for people with dementia in developing countries. Int J Geriatr Psychiatry 2004;19:170–177.
24. Gupta R, Pillai VK. Caregiver burden in South Asian families: a systems theory perspective. J Ethnic Cultur Divers Soc Work 2000;9:41–53.
25. Limpawattana P, Theeranut A, Chindaprasirt J, Sawanyawisuth K, Pimporm J. Caregivers burden of older adults with chronic illnesses in the community: a cross-sectional study. J Community Health 2013;38:40–45.
26. Salama R. Caregiver burden from caring for impaired elderly: a cross-sectional study in rural Lower Egypt. Ital J Public Health 2012;9:e8662-10.
27. Garlo K, O'Leary JR, Van Ness PH, Fried TR. Burden in caregivers of older adults with advanced illness. J Am Geriatr Soc 2010;58:2315–2322.
28. Stolley JM, Reed D, Buckwalter KC. Caregiving appraisal and interventions based on the progressively lowered stress threshold model. Am J Alzheimers Dis Other Demen 2002;17:110–120.
29. Arai Y, Kumamoto K, Washio M, Ueda T, Miura H, Kudo K. Factors related to feelings of burden among caregivers looking after impaired elderly in Japan under the long-term care insurance system. Psychiatry Clin Neurosci 2004;58:396–402.
30. Machnicki G, Allegri RF, Dillon C, Serrano CM, Taragano FE. Cognitive, functional and behavioral factors associated with the burden of caring for geriatric patients with cognitive impairment or depression: evidence from a South American sample. Int J Geriatr Psychiatry 2009;24:382–389.
31. Salmon JR, Kwak J, Acquaviva KD, Brandt K, Egan KA. Transformative aspects of caregiving at life's end. J Pain Symptom Manage 2005;29:121–129.
32. Ahmad K. Informal caregiving to chronically ill older family members: caregivers' experiences and problems. S Asian Stud 2012;27:101.

Adherence of preventive oral care products in the Syrian market to evidence-based international recommendations

D. Habes [1], R. Mahzia [2], K. Nakhleh [3] and E. Joury [4,5]

التزام منتجات العناية الوقائية بالفم في السوق السورية بالتوصيات الدولية المستندة إلى الأدلة

دعاء حابس، ريم محظية، كمال نخلة، استير جوري

الخلاصة: لم تقم أي دراسة بالتحري عن توافر منتجات العناية الوقائية بالفم في السوق السورية وعن التزامها بالتوصيات الدولية المستندة إلى الأدلة. ولذا فإن الدراسة المقطعية الحالية شملت جميع منتجات العناية الوقائية بالفم المتوفرة في السوق السورية، فجُمعت بيانات في عام 2012 – وحُدِّثت في عام 2016 – عن توافرها وخصائصها والتزامها بالتوصيات الدولية المستندة إلى الأدلة. فوُجد أن القليل من المنتجات الوقائية ملتزمة بالتوصيات. ولم يكن تركيز الفلوريد مذكوراً في 3 معاجين أسنان فلوريدية أخرى. وبصرف النظر عن الانخفاض الكبير في عدد منتجات العناية بالفم في السوق السورية – بسبب الأزمة السورية – فإن عدم التزام بعض المنتجات المتوفرة لا يزال قائماً. وثمة حاجة إلى نهج متعدد القطاعات على مستوى السياسات لمعالجة أوجه القصور الهامة هذه. فينبغي أن تقوم وزارة الصحة السورية بإصلاح القوانين المتعلقة بالمنتجات الفلوريدية كي تصبح خاضعة لأنظمة مراقبة الأدوية، ويجب على اللجنة العربية السورية للمقاييس والمعايير أن تحدِّث معاييرها، وينبغي أن تقوم الجمعية السورية لطب الأسنان العام بتوزيع كتيِّب وقائي على أطباء الأسنان.

ABSTRACT No study has investigated the availability and adherence of preventive oral care products on the Syrian market to evidence-based international recommendations. Data were collected in 2012, and updated in 2016, in terms of availability, characteristics and adherence to evidence-based international recommendations. Few preventive products adhered to the recommendations. Despite the large decrease in the number of oral care products on the Syrian market, due to the Syrian crisis, nonadherence of some of the available products is still present. A multisectorial approach at a policy level is needed to address such important limitations. The Syrian Ministry of Health should reform regulations for fluoride products to become subject to drug monitoring systems; the Syrian Arab Committee for Measurements and Standards needs to update its standards; and the Syrian General Dental Association should distribute a preventive booklet to dental practitioners.

Conformité des produits de soins dentaires préventifs du marché syrien avec les recommandations internationales fondées sur des données probantes

RÉSUMÉ Aucune étude n'a examiné à ce jour la disponibilité et la conformité des produits de soins dentaires préventifs sur le marché syrien avec les recommandations internationales fondées sur des données probantes. Des données ont été collectées en 2012, et mises à jour en 2016, en ce qui concerne la disponibilité, les caractéristiques et la conformité de ces produits avec les recommandations internationales fondées sur des données probantes. Peu de produits préventifs étaient conformes aux recommandations. Malgré une forte diminution du nombre de produits de soins dentaires sur le marché syrien du fait de la crise actuelle dans le pays, la non-conformité de certains produits disponibles reste d'actualité. Une approche multisectorielle au niveau politique est nécessaire pour remédier à ces lacunes importantes. Le ministère syrien de la Santé doit réformer les réglementations existantes sur les produits à base de fluor afin que ceux-ci soient soumis à des systèmes de suivi des médicaments ; le Comité arabe syrien des mesures et des normes doit mettre à jour ses normes ; et l'Association de dentisterie générale syrienne doit distribuer une plaquette de prévention à l'intention des praticiens dentaires.

[1]Department of Orthodontics, Faculty of Dentistry, Damascus University, Damascus, Syrian Arab Republic. [2]Department of Oral Pathology, Faculty of Dentistry, Damascus University, Damascus, Syrian Arab Republic. [3]Angle House Orthodontics, London, United Kingdom. [4]Population and Patient Health, King's College London Dental Institute, University of London, London, United Kingdom. [5]Department of Oral Medicine, Faculty of Dentistry, Damascus University, Damascus, Syrian Arab Republic (Correspondence to: easter.joury@kcl.ac.uk).

Introduction

Preventing oral diseases in the Middle East is of paramount importance. Oral health is an essential integral part of general health and has a profound impact on individuals' wellbeing and quality of life. The Middle East countries are facing a marked increase in the prevalence and severity of dental caries and periodontal diseases (*1*). Furthermore, the rates of dental caries in the Eastern Mediterranean Region are higher than in most industrialized countries (*2,3*). This relentless increase in the burden of oral diseases is observed across different age groups. Based on the WHO oral health data bank, the mean number of decayed, missing and filled deciduous teeth at 5 years of age in the Middle East is 5.7. There is a variation in this number across the region. For example, based on the aforementioned data bank, the mean number of decayed, missing and filled deciduous teeth is 1.7 in Saudi Arabia, 2.3–2.7 in the Syrian Arab Republic and Kuwait and 3.4 in Jordan and Lebanon (*4–6*). Dental caries increases with age in Middle East countries (*7*). More than 90% of cases of dental caries throughout the Eastern Mediterranean Region remain untreated, leading to rising rates of edentulousness in older populations (*8*).

The above raises serious questions about the effectiveness and appropriateness of the traditional western-style, treatment-oriented oral health strategies and approaches adopted in Middle East countries to address the burden of oral diseases. The major limitations of such strategies, particularly in relation to their ineffectiveness and high requirement for human and financial resources, emphasize the urgency of reorienting oral health services to focus on prevention to address the growing burden of oral diseases. This view was endorsed by the World Dental Federation Vision 2020 (*9*).

One of the essential requirements for reorienting oral health services toward prevention is providing an evidence-based preventive toolkit for clinical teams (*10*). Such a preventive toolkit leads to a range of positive changes in dental professional practices and allows all patients equal access to modern preventive advice and interventions and improved methods of self-care. It includes, besides evidence-based guidance for primary dental care teams, lists of available preventive oral care products, such as fluoride toothpastes, high-concentration fluoride toothpastes, mouth rinses, fluoride varnish, and pit and fissure sealants. Such products might be the only means, in the majority of Middle East countries, to fluoridate the mouth to decrease the prevalence of dental caries. Despite the effectiveness of water fluoridation in decreasing dental caries (*11*), it is either impractical because of the poor infrastructure for piped water supplies, or undesirable in some Middle East countries that have high levels of natural fluoride (*6*). For example, in the Syrian Arab Republic, the majority of areas have low fluoride content in the water (>0.5 ppm), which is below the required level for caries prevention, whereas a few areas, such as Palmyra and Alhasaka, have elevated fluoride content (1.9 ppm) (*12*). Thus, it is clear that the main focus for fluoridating the mouth in the Middle East is to use the aforementioned preventive oral care products.

Developed countries, such as the United Kingdom, have developed a list of their preventive oral care products based on careful consideration of their adherence to evidence-based recommendations (*10*). Such a list helps dental professionals to give informed advice on preventive care and take appropriate actions. Also, the recommendations have prompted several manufacturers to reformulate their fluoride products with more effective and safe levels for caries control, and to include evidence-based labelling and instructions on how to use self-care products.

Although the above mentioned translational (applied) research is undertaken in the majority of developed countries, little has been conducted in developing countries. None of the countries in the Middle East has developed such an evidence-based preventive toolkit for oral health care. Thus, in the light of the lack of such important translational research in the Middle East, the present study aimed to investigate the availability and adherence of preventive oral care products on the Syrian market to evidence-based international recommendations.

Materials and methods

Study design and preventive oral care products

The current study adopted a cross-sectional design. We investigated all preventive oral care products available on the Syrian market, including self-care and professionally applied products. Control of caries and gum disease is related to tooth brushing with fluoride toothpaste and physical removal of plaque, respectively (*13,14*). Self-care products were manual and powered toothbrushes, interdental plaque control products (dental floss and tape and interdental brushes), toothpastes (fluoridated toothpastes, toothpastes containing ingredients that reduce plaque, gingivitis and bleeding gums, such as tin fluoride, triclosan with co-polymer or zinc citrate) and mouth rinses (containing fluoride or antibacterial ingredients, such as chlorhexidine). The professionally applied preventive products included fluoride varnish/gels, and pit and fissure sealants.

Ethics and permissions

Ethical approval and permission to conduct the study were obtained from Damascus University Faculty of Dentistry Research Ethics Committee (no 1186/2012), the Syrian Ministry of

Health and the Syrian Directorate of Medical Supplies.

Data collection

Data were collected between February and April 2012, and updated in March 2016, on the availability and characteristics of preventive oral care products on the Syrian market (Table 1).

We did not collect data on products related to dentures/removable appliances, such as brushes, pastes, disinfectant products, adhesives, dry mouth rinses, tooth powders, desensitizing, whitening and other types of toothpastes, and anaesthetic rinses. This was because these self-care products are not related to the prevention of dental caries and gum diseases. Also, data on fluoride supplements were not collected because these are no longer internationally recommended. This was based on the conclusion of a recent systematic review of fluoride tablets, drops, lozenges and chewing gums indicating that the evidence for the effect of these additional sources of fluoride on deciduous teeth is unclear (*15*).

Data collection procedures

A list of Syrian manufacturers and importers of preventive oral care products was prepared using the governmental records of the Syrian Ministry of Health in the Directorates of Pharmaceutical Affairs, Medical Supplies and Oral Health. Next, manufacturers and companies were contacted and asked to provide a full list of their manufactured or imported preventive oral care products. After developing an exhaustive list of oral care products available on the Syrian market, two researchers (DH and RM) undertook field visits to 36 pharmacies (including all central pharmacies in Damascus) and 12 dental supply stores to examine directly the products and extract relevant data. Relevant information was extracted from the packaging and instruction leaflets of the oral care products.

Evidence-based international recommendations on preventive oral care products

Data collected in the current study on preventive oral care products were checked against evidence-based international recommendations. The latter are summarized in Table 2.

Data synthesis and analysis

The frequency distribution of preventive oral care products was calculated. The characteristics (features, concentrations of active agents and instructions for use) of available preventive oral care products were checked against evidence-based international recommendations.

Results

There were 216 self-care and 9 professionally applied preventive products available on the Syrian market in 2012.

There were 58 manual toothbrushes available (Table 3), of which, 44 were

Table 1 Characteristics of preventive oral care products

Oral care product	Information
Manual toothbrush	Head size, texture type (soft, medium or hard), filament design (round/sharp end, length, compaction and angulation), handle design, tooth-brushing instructions, labelling language and other unique features.
Powered toothbrush	Filament design (round/sharp end, length, compaction and angulation), action type, charging (electric or battery), tooth-brushing instructions and labelling language.
Dental floss/tape	Type (e.g., waxed/unwaxed, containing antibacterial agents and/or NaF), flavour, length, instructions for use and labelling language.
Interdental brush	Head shape, handle, instructions for use and labelling language.
Toothpaste	Active agents [e.g., fluoride (NaF and/or sodium monofluorophosphate); antibacterial agents (triclosan (*18*))], active agent concentration, dental indications, instructions/recommendations for use (age, amount, frequency and other recommendations such as need for parents'/carers' supervision (*13*), and caution not to rinse or lick) and labelling language.
Mouth rinse	Active agents [e.g., fluoride (NaF and/or sodium monofluorophosphate); antibacterial agents (chlorhexidine)], active agent concentration, dental indications, instructions/recommendations for use (timing and duration of application, and other recommendations in terms of age-related contraindications, caution not to swallow or rinse after use and side effects in case of prolonged use for >1 month) and labelling language.
Fluoride varnish/gel	Concentration, application duration and frequency, post-application instructions, clear contraindication for use at home and labelling language.
Pit and fissure sealant	Polymerization method (light- or self-cured), material (resin or glass ionomer cement), instructions for use and labelling language. For self-cured products, data also included mixing, working and curing time.

Table 2 Evidence-based international recommendations on preventive oral care products

Oral care product	Evidence-based international recommendations
Manual toothbrush	Should have a small head (19 mm) and medium texture. Instructions for tooth brushing should include: starting brushing as soon as teeth erupt in the mouth (*13*); brushing teeth and gum line twice daily with a fluoridated toothpaste (*13*,*19*); brushing last thing at night and on one other occasion (*19*,*20*); avoiding brushing immediately after eating or drinking acidic food or drinks (*21*); and parents' role in tooth brushing for children aged up to 7 years.
Powered toothbrush	Should have an oscillating, rotating action.
Fluoride toothpaste	Toothpastes containing NaF are more effective in caries prevention than others containing sodium monofluorophosphate (*13*). Fluoride concentration should be no less than 1000 ppm for children aged up to 3 years (*22*) and 1350–1500 ppm for children aged 3 years and adults (*22*). Instructions for use should include: use of a smear of fluoride toothpaste for children aged up to 3 years (*23*) and a pea-sized amount for children aged 3 years (*23*); spitting out toothpaste without rinsing the mouth with water to maintain fluoride concentration (*24*); and not eating or licking fluoride toothpaste by children to avoid fluorosis (*23*,*25*).
High-concentration fluoride toothpaste	Should be dispensed by prescription and have a concentration of 2800 ppm for those aged 10 years and 5000 ppm for those aged 16 years (*22*).
Fluoride mouth rinse	Daily fluoride mouth rinses should be used in children aged no less than 8 years and the fluoride concentration should be 0.05% (*26*). Instructions for use should include application at different times to tooth brushing, to increase the time during which teeth are exposed to fluoride (*22*,*26*).
Antibacterial mouth rinse	Chlorhexidine is the most effective antibacterial agent and usually comes in concentrations of 0.2% or 0.12% (*27*).
Fluoride varnish and gel	The ideal fluoride concentration in varnish should be 2.2% (*16*). Fluoride varnish is more effective in dental caries control that fluoride gel (*16*).

for adults and 14 for children. Only two of the 58 available toothbrushes adhered to evidence-based international recommendations, by having a small head and medium texture (Table 4). There were only two powered toothbrushes available and both had the required oscillating and rotating actions (Tables 3 and 4).

Both types of interdental plaque control products were available, namely, dental floss and tape (10 products) and interdental brushes (10 products) (Table 3).

Out of 103 available toothpastes (Table 3), only 83 contained fluoride, of which, 52 were formulated with NaF (the most effective form of fluoride). Furthermore, there were 22 toothpastes that contained active antibacterial agents (chlorhexidine or triclosan) and one that contained tin fluoride (Table 3).

Three fluoride toothpastes did not declare their fluoride concentration and another 22 declared their fluoride concentration in percentages, g or μg/g rather than ppm. Forty-three toothpastes had a fluoride concentration of 1350–1500 ppm and only three had a concentration of 1000 ppm (Table 3). None of the latter declared its exclusive indication for use in children aged up to 3 years (Table 4). There were 13 toothpastes that included ineffective concentrations of fluoride (i.e. <1000 ppm) (Table 4). Seventeen high-concentration fluoride toothpastes (>1500 ppm) were available, of which, only six had the recommended concentration (2800–5000 ppm) of fluoride and two exceeded the maximum recommended concentration (>5000 ppm). All 17 of these toothpastes were potentially toxic for children as they were indicated for daily use for all ages, including children younger than the evidence-based recommended age for use (Table 4).

Several fluoride toothpastes included instructions that contradicted the evidence-based recommendations. For example, the instructions for six fluoride toothpastes recommended rinsing the mouth with water after use. The instructions for three toothpastes with 1000 ppm fluoride recommended use in children aged more than 3 years (Table 4). In contrast, few fluoride toothpastes included instructions for use that were coherent with evidence-based recommendations. For example, 28 and 25 fluoride toothpastes recommended the use of a smear or pea-sized amount of toothpaste and parent supervision, respectively. Also, the instructions for seven toothpastes recommended not swallowing the toothpaste. For labelling language, 11 toothpaste instructions did not use Arabic.

There were 33 mouth rinses available (Table 3). Fifteen mouth rinses contained fluoride, of which, nine were formulated with NaF. Seven of the 18 antibacterial mouth rinses contained chlorhexidine. Fourteen fluoride mouth rinses included instructions that contradicted evidence-based recommendations, namely, use after tooth brushing

(11 products) and rinsing with water after use (three products). Although 16 mouth rinses included a clear contraindication for use in children aged up to 6 years, 15 did not include such a clear contraindication (Table 4), and another six products did not use Arabic in their instructions for use.

Finally, with respect to professionally applied preventive care products, there were three fluoride gel products and six pit and fissure sealants. No fluoride varnish was available. One of the available fluoride gels was potentially toxic for children, as it was recommended for home use and its instructions included the use of fluoride trays (plastic trays to be filled with fluoride gel). All the available fluoride gels had fluoride concentrations less than the recommended level (2.2%) (Table 4).

The updated data in 2016 showed a large decrease in the number of oral care products available on the Syrian market. Nevertheless, nonadherence of some of the available products was still present (Tables 3 and 4).

Table 3 Availability of preventive oral care products on the Syrian market in 2012 and 2016

Oral care product	Frequency	
	2012	2016
Manual toothbrush	58	31
Powered toothbrush	2	2
Dental floss/tape	10	6
Interdental brush	10	4
Fluoride toothpaste (all concentrations)	83	35
Fluoride toothpaste (1000 ppm)	3	2
Fluoride toothpaste (1350-1500 ppm)	43	23
High-concentration fluoride toothpaste	17	4
Chlorhexidine or triclosan toothpaste	22	12
Tin fluoride toothpaste	1	0
Fluoride mouth rinse	15	6
Antibacterial mouth rinse	18	13
Fluoride varnish	0	0
Fluoride gel	3	3
Glass ionomer cement sealant	5	2
Resin sealant	1	1

Discussion

This is believed to be the first study in the Middle East to investigate the availability and adherence of preventive oral care products to evidence-based international recommendations. The present study was conducted on preventive oral care products available on the Syrian market. The findings indicate that products that adhered to evidence-based recommendations were either few in number or not available. For example, out of 58 manual toothbrushes, there were only two that had recommended features. Also, while three fluoride gels were available, no fluoride varnish was found. The latter is more effective than the former for prevention of dental caries (*16*).

The most worrying findings were the fluoride concentration and instructions for use in a number of fluoride toothpastes. Several products had fluoride concentrations that were low and thus ineffective in caries prevention, or high with potential long-term toxic effects in children. For example, 13 fluoride toothpastes claimed to have anti-caries effects although they had fluoride concentrations <1000 ppm. Another three 1000-ppm fluoride toothpastes claimed to have anti-caries effects in children aged more than 3 years. Furthermore, 17 high-concentration fluoride toothpastes were available for purchase without prescription and had instructions for use in children younger than the safe evidence-based recommended age. The daily use of such high-concentration fluoride toothpastes, particularly among young children, could have long-term toxic effects, such as, enamel and skeletal fluorosis. Other potential sources for such toxic effects of fluoride were: fluoride mouth rinses, of which, 15 did not mention their contraindication for use in children aged less than 6 years; and fluoride gels, of which, one included instructions for use at home with special trays. Fluoride gels should be professionally applied, in small amounts, using special brushes (*10*). Three toothpastes did not also adhere to evidence-based recommendations by not declaring their fluoride concentrations. This is consistent with the findings of van Loverern et al. (*17*). They reported that many fluoride toothpaste products available in countries without established market economies, such as the Syrian Arab Republic, have unclear labelling concerning the type and concentration of fluoride. That study also showed that the concentration of free (active) fluoride in many toothpastes available on the Syrian market is far below the concentration that is declared on the products. This suggests that although some of the toothpastes currently available on the Syrian market claim to adhere to international evidence-based recommendations for concentration of fluoride, in practice, they may not.

Comparing the current study with other published studies is not easy. This is due to the paucity of published literature on the availability and adherence of oral care products available on the market to evidence-based international

Table 4 Nonadherence to evidence-based international recommendations of preventive oral care products available on the Syrian market

Oral care product	Frequency		Aspect of nonadherence	Implications of nonadherence
	2012	2016		
Manual toothbrush	56	30	Have soft or hard texture and/or large head.	Ineffective removal of plaque, abrasive effect on teeth, difficulty in reaching remote teeth.
Powered toothbrush	0	0	Not applicable.	Not applicable.
Fluoride toothpaste (<1000 ppm)	13	3	Low concentration of fluoride.	Ineffective in caries prevention.
Fluoride toothpaste (1000 ppm)	3	2	Indication for use in children aged >3 years.	Ineffective in caries prevention.
Fluoride toothpaste (>1000 to <1350 ppm)	4	2	Inappropriate concentration of fluoride.	Ineffective in caries prevention for adults and children aged >3 years.
Fluoride toothpaste (concentration not declared)	3	1	Not declaring fluoride concentration.	Might be ineffective in caries prevention or might cause fluorosis.
High-concentration fluoride toothpaste (>1350 ppm)	17	4	Indications for daily use and use in children aged less than evidence-based recommended age (10 and 16 years).	Risk of enamel and skeletal fluorosis.
Fluoride mouth rinse	15	2	Indications for use in children aged <6 years.	Risk of swallowing and related enamel and skeletal fluorosis.
Fluoride gel	3	3	All had fluoride concentration <2.2% and 1 product indicated domestic use with special trays for application.	Not having optimal caries prevention, and risk of enamel and skeletal fluorosis when used at home and applied using trays.

recommendations. To the best of our knowledge, the only published study is from the United Kingdom (published in 2009 and updated in 2014) (*10*). The United Kingdom applies strict measures to the oral care products available on its market, thus, all oral care products listed in that study were adherent to evidence-based international recommendations.

Despite the recent decrease in the number of oral care products available on the Syrian market, due to the current political crisis in the country, some of the available products are still nonadherent.

Based on the findings of the current study, it is clear that the Syrian Ministry of Health should review its regulations and carry out necessary reforms for fluoride toothpastes, rinses and gels so that they become subject to drug monitoring systems. Also, because several preventive care products include instructions for use that contradict the evidence-based recommendations, the Syrian Arab Committee for Measurements and Standards should update its standards using current evidence-based international recommendations. The latest update took place in 1995.

Effective communication should be established so that Syrian manufacturers reformulate their preventive oral care products to have evidence-based effective and safe fluoride concentrations, labelling and instructions for use. They should also be encouraged to produce fluoride varnish. In addition, strict regulations should be imposed on imported preventive oral care products. All available self-care products should have instructions for use written in Arabic, so they can be read and understood by Syrian consumers.

Data collected in the current study were arranged in a user-friendly booklet to assist Syrian general dental practitioners implement evidence-informed preventive care. Similar to developed countries, such a booklet should be adopted by the Syrian General Dental Association and distributed to general dental practitioners.

In conclusion, few oral preventive products available on the Syrian market adhered to evidence-based international recommendations. Fluoride varnish was not available. Some fluoride products (30 toothpastes and three gels) had fluoride concentrations that were low and thus ineffective in caries prevention, or high, with potential long-term toxic effects in children. Another three fluoride toothpastes did not declare their fluoride concentration. A multisectorial approach is needed to address such important limitations at a policy level. The Syrian Ministry of Health should reform regulations for fluoride products to become subject to drug monitoring systems; the Syrian Arab Committee for Measurements and Standards needs to update its standards; and the Syrian General Dental Association should distribute a booklet for preventive care to dental practitioners.

Funding: None.

Competing interests: None declared.

References

1. Abid A, Maatouk F, Berrezouga L, Azodo C, Uti O, El-Shamy H, et al. Prevalence and severity of oral diseases in the Africa and Middle East region. Adv Dent Res. 2015 Jul;27(1):10–7. PMID:26101335
2. Al Agili DE. A systematic review of population-based dental caries studies among children in Saudi Arabia. Saudi Dent J. 2013 Jan;25(1):3–11. PMID:23960549
3. Behbehani JM. Faculty of Dentistry, Kuwait University, designated as a World Health Organization Collaborating Centre for Primary Oral Health Care. Med Princ Pract. 2014;23 Suppl 1:10–6. PMID:24504110
4. Global oral health data bank. Geneva: World Health Organization; 2013 (http://www.who.int/oral_health/databases/global/en/, accessed 7 November 2015).
5. Data and statistics: WHO. Geneva: World Health Organization; 2014 (http://www.emro.who.int/data-and-statistics.html, accessed 7 November 2015).
6. Sheiham A, Williams DM. Reducing inequalities in oral health in the Africa and Middle East region. Adv Dent Res. 2015 Jul;27(1):4–9. PMID:26101334
7. Bernabé E, Sheiham A. Extent of differences in dental caries in permanent teeth between childhood and adulthood in 26 countries. Int Dent J. 2014 Oct;64(5):241–5. PMID:24863963
8. Williams DM, Sheiham A, Honkala E. Addressing oral health inequalities in the Africa and Middle East Region. J Dent Res. 2015 Jul;94(7):875–7. PMID:26101232
9. Glick M, Monteiro da Silva O, Seeberger GK, Xu T, Pucca G, Williams DM, et al. FDI Vision 2020: shaping the future of oral health. Int Dent J. 2012 Dec;62(6):278–91. PMID:23252585
10. Delivering better oral health: an evidence-based toolkit for prevention, 3rd edition. London: Department of Health and British Association for the Study of Community Dentistry; 2014 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/367563/DBOHv32014OCT-MainDocument_3.pdf, accessed 26 October 2015).
11. Iheozor-Ejiofor Z, Worthington HV, Walsh T, O'Malley L, Clarkson JE, Macey R, Alam R, Tugwell P, Welch V, Glenny AM. Water fluoridation for the prevention of dental caries. Cochrane Database Syst Rev. 2015;18;6:CD010856.
12. Beiruti N, Menghini G, Taifour D. Study on the fluoride in drinking water in Syria. Syrian J Stomatol. 1999;35:62–70.
13. Marinho VCC, Higgins JPT, Sheiham A, Logan S. Fluoride toothpastes for preventing dental caries in children and adolescents. Cochrane Database Syst Rev. 2003;(1):CD002278. PMID:12535435
14. Lang NP, Schätzle MA, Löe H. Gingivitis as a risk factor in periodontal disease. J Clin Periodontol. 2009 Jul;36 Suppl 10:3–8. PMID:19432625
15. Tubert-Jeannin S, Auclair C, Amsallem E, Tramini P, Gerbaud L, Ruffieux C, et al. Fluoride supplements (tablets, drops, lozenges or chewing gums) for preventing dental caries in children. Cochrane Database Syst Rev. 2011 Dec 7;(12):CD007592. PMID:22161414
16. Wong MCM, Glenny AM, Tsang BWK, Lo ECM, Worthington HV, Marinho VCC. Topical fluoride as a cause of dental fluorosis in children. Cochrane Database Syst Rev. 2010 Jan 20;(1):CD007693. PMID:20091645
17. van Loveren C, Moorer WR, Buijs MJ, van Palenstein Helderman WH. Total and free fluoride in toothpastes from some non-established market economy countries. Caries Res. 2005 May–Jun;39(3):224–30. PMID:15914985

Association between oral health knowledge and practices of Saudi pregnant women in Dammam, Saudi Arabia

B.O. Gaffar,[1] M. El Tantawi,[1] A. Al-Ansari[1] and A.S. AlAgl[1]

الارتباط بين المعلومات والممارسات المتعلقة بصحة الفم لدى النساء السعوديات الحوامل في الدمام بالمملكة العربية السعودية

بلقيس جعفر، مها الطنطاوي، عاصم الأنصاري، عادل العقل

الخلاصة: لقد قيَّمت هذه الدراسة الارتباط بين المعلومات والممارسات المتعلقة بصحة الفم لدى السعوديات الحوامل تم اختيارهن من بين زائرات مستشفى حكومي في الدمام بالمملكة العربية السعودية عام 2014. حيث أجابت النساء على أسئلة حول المعلومات المتعلقة بصحة الفم أثناء الحمل والمعلومات المتعلقة بصحة الفم لدى الرضع. كما جرى تقييم ممارساتهن المتعلقة بالمحافظة على صحة الفم (تنظيف الأسنان بالفرشاة أو بالخيط أو استخدام السواك) ومعدل زيارة أطباء الأسنان. لقد وُجد أن معظم النساء (٪70>) يعرفن أن تسوس الأسنان عند الأطفال يمكن الوقاية منه، وأن الحمل يؤثر على صحة الفم، وأن معالجة الأسنان أثناء الحمل يمكن أن تؤثر سلباً على الرضع. ومعظم النساء (٪80>) قمنَ باتباع عادات للمحافظة على صحة الفم، ولكن ٪18 منهن فقط قمن بزيارة طبيب الأسنان بانتظام. ولدى إجراء تحليل تحوُّفي تبين أن المعلومات المتعلقة بصحة الفم لم تكن مرتبطة ارتباطاً ملحوظاً بالممارسات المذكورة منهن لحفظ صحة الفم. وكانت النساء اللواتي زرن طبيب الأسنان بانتظام أكثر معرفة بكيفية الوقاية من التسوس لدى الأطفال، وبأن معالجة الأسنان أثناء الحمل كانت مرتبطة بصحة الرضع.

ABSTRACT This study assessed the association between oral health knowledge and practices of pregnant Saudi women selected from visitors to a government hospital in Dammam, Saudi Arabia in 2014. Women answered questions on oral health knowledge during pregnancy and knowledge of infant oral health. Most women (> 70%) knew that dental caries in children can be prevented, that pregnancy affects oral health and that dental treatment during pregnancy can negatively affect infants. Most women (> 80%) performed oral hygiene procedures but only 18% regularly visited the dentist. In a regression analysis, oral health knowledge was not significantly associated with reported oral hygiene practices. Women who visited the dentist regularly were more likely to know how to prevent caries in children, and that dental treatment during pregnancy and infant health were associated.

Association entre les connaissances et les pratiques de santé bucco-dentaire des femmes enceintes saoudiennes à Dammam (Arabie saoudite)

RÉSUMÉ La présente étude avait pour objectif d'étudier l'association entre les connaissances et les pratiques en matière de santé bucco-dentaire de femmes enceintes saoudiennes sélectionnées dans un hôpital public à Dammam, Arabie saoudite, en 2014. Les femmes interrogées ont répondu à des questions concernant leurs connaissances sur la santé bucco-dentaire pendant la grossesse et la santé bucco-dentaire du nourrisson. La plupart des femmes (plus de 70 %) avaient connaissance du fait que les caries dentaires chez l'enfant peuvent être évitées, que la grossesse a une influence sur la santé bucco-dentaire, et que les traitements dentaires pendant la grossesse peuvent avoir un impact négatif sur le nourrisson. La plupart des femmes (plus de 80 %) appliquaient des pratiques d'hygiène buccale, mais seulement 18 % se rendaient régulièrement chez un dentiste. Une analyse de régression a montré que les connaissances en matière de santé bucco-dentaire n'étaient pas associées de façon significative à l'application de pratiques d'hygiène buccale. Les femmes consultant régulièrement un dentiste étaient plus susceptibles de savoir comment prévenir les caries chez l'enfant, et qu'un traitement dentaire pendant la grossesse et la santé du nourrisson étaient corrélées.

[1] *Department of Preventive Dental Sciences, College of Dentistry, University of Dammam, Dammam, Saudi Arabia (Correspondence to M. El Tantawi: maha_tantawy@hotmail.com).*

Received: 21/06/15; accepted: 31/05/16

Introduction

Pregnancy is a critical period that involves physiological and psychological changes. These alterations may impose a burden on many women, leading them to neglect their general and oral health. There is a positive association between oral health problems such as periodontitis and adverse pregnancy outcomes such as preterm birth and eclampsia, and good oral health can reduce the risk of these outcomes (*1–5*). In the same context, several factors are known to be associated with children's oral health status, including maternal oral health knowledge and status, education, occupation and age (*6–10*).

Saudi Arabia is known for its high prevalence of caries (*11,12*). Children as young as 71 months have high rates of severe caries (*13,14*). Caries prevention programmes aim to control promoting factors (*15*) and reinforce protective factors (*16*). Oral health education programmes are cost-effective methods that can decrease disease risk through modifying social and dietary factors (*17*). These programmes aim to improve knowledge of oral health issues, and are based on the assumption that proper oral health practices occur when people have adequate knowledge (*17*). Many studies have investigated the applicability of this model among pregnant women in several countries with different cultures (*18–20*), and similar studies have been conducted among pregnant women in some regions of Saudi Arabia (*21,22*). However, there is inadequate information about whether knowledge of oral health issues leads to adoption of proper practices by Saudi pregnant women. The present study was conducted to: (*1*) assess oral health knowledge and reported oral health practices in pregnant Saudi women; and (*2*) investigate the association between these reported practices and oral health knowledge.

Methods

Study design and setting

A cross-sectional study was designed to collect data from pregnant women visiting a Ministry of Health hospital in Dammam, Saudi Arabia from February to April 2014. Approval for the study was obtained from the Research Ethics Committee of the College of Dentistry, University of Dammam (#EA2014003). The study was conducted in full accordance with the Helsinki Declaration. Responding to the questionnaire was considered an agreement to participate in the study.

Study sample

The estimated sample size was calculated to be 196 women (sample size calculator: http://www.dartmouth.edu/~eugened/power-samplesize.php). The following assumptions were used to estimate sample size: type I error = 5%; type II error = 20%; and odds that proper knowledge (of the relation between dental care during pregnancy and fetal health) is associated with seeking care during pregnancy = 2.5. Correct knowledge of this issue was assumed to be present in 50% of pregnant women, and actual regular seeking of care by visiting the dentist was assumed to be done by 20% of pregnant women.

Consecutive women were selected from those visiting the hospital between October and December 2014 who fulfilled the inclusion criteria that included: Saudi pregnant women; literate or accompanied by a literate companion to read and respond to the questionnaire; and free from systemic diseases as verified from the hospital records. This governmental hospital was selected for recruitment of study participants because of its large and well-equipped obstetrics and gynaecology department, to which pregnant women are referred from several cities in the Eastern Province, with an estimated 100 pregnant women visiting monthly for various reasons. Other hospitals were not included because of their lower patient flow, which would have added only a small number to our sample. In addition, the diversity of patients from the selected hospital had a better chance of representing Saudi pregnant women in the Eastern Province than samples based on small hospitals with limited pools of patients.

Data collection tool

Data were collected using a self-administered, anonymous questionnaire in Arabic. The questionnaire was assessed for content and face validity and pilot tested on 20 women who were not part of the study. Previously published Arabic questionnaires could not be accessed because we could not reach their authors. Individual questions in the questionnaire were used and reliability was not assessed because there was no calculation of overall scores that expressed concept/status.

The study purpose was explained in an attached covering letter. The questionnaire included 20 close-ended questions that were separated into three sections. The first section was based on demographics and whether the women had children before the current pregnancy and the second section assessed oral health knowledge. In the second section, women answered true, false or do not know to each of 10 statements. They were also asked about their source of oral health information. The third and last section in the questionnaire assessed oral health practices. It included questions about: whether the participant performed any oral hygiene practices; frequency of brushing, flossing and using miswak; and if she had regular dental visits. The questionnaire was distributed to pregnant women attending the prenatal clinic for routine follow-up. Completed questionnaires were collected at the same session. Data were coded and entered into an Excel file.

Statistical analysis

Descriptive statistics were calculated to characterize the sample and assess the level of knowledge and oral health practices of the study sample. Univariate logistic regression models were developed for which the outcomes were: practicing oral hygiene (yes/no); and visiting the dentist regularly before and after pregnancy (yes/no). The independent variables were university education, having children, and knowledge related to each of the two outcomes. For oral hygiene practices, association with knowledge of the following was investigated: oral health relation with pregnancy; oral health relation with pregnancy outcomes; relation between maternal and infant oral health; transmission of cariogenic microorganisms to infant through saliva; and correct methods to prevent caries in children. For regularly visiting the dentist, the following were investigated as independent variables in addition to those listed above: could dental visits be scheduled during pregnancy; effect of dental treatment on infants; and actual practice of oral hygiene. Multivariate regression models were constructed to adjust mutually for all included variables. Odds ratios and confidence intervals were calculated.

Results

Two hundred and seventeen Saudi pregnant women were approached with the questionnaire and 197 (91%) responded. The greatest percentages of participants were in the age groups 21–30 and 31–40 years (47.4% and 42.2% respectively) and had less than university education (69.6%). Two thirds (59.1%) of them already had at least one child (Table 1).

The majority of participants knew that food affects oral health (88.7%), infants should not sleep while breast or bottle feeding (86.5%), oral health is affected by pregnancy (82.8%), caries in children can be prevented (75.5%) and dental treatment does not negatively affect fetal health (72.9%). Around half the participants knew that dental visits can be scheduled during pregnancy (53.6%) and that pregnancy hormones can affect oral health (44.7%). A minor proportion of participants knew that cariogenic bacteria can be transmitted from mother to child through saliva (28.9%), the correct methods to prevent caries in children (27.7%), and

Table 1 Characteristics of the sample of Saudi Arabian pregnant women included in the study (*n* = 197)

Variable	No. (%)
Age (years)	
≤ 20	12 (6.2)
21–30	91 (47.4)
31–40	81 (42.2)
> 41	8 (4.2)
Education	
Less than university	128 (69.6)
University and above	56 (30.4)
Has children	
Yes	114 (59.1)
No	79 (40.9)

Table 2 Responses related to self-reported oral health practices among Saudi pregnant women (*n* = 197)

Variable	No. (%)
Practicing oral hygiene	
Yes	161 (81.7)
No	36 (18.3)
Brushing	
Less than once daily (every other day or less frequently)	17 (8.8)
Once daily	77 (39.7)
Twice or more daily	100 (51.5)
Flossing	
Always	13 (6.8%)
Sometimes	84 (43.8)
Never	95 (49.5)
Miswak	
Always	17 (8.8)
Sometimes	92 (47.7)
Never	84 (43.5)
Dental visits	
Did not visit the dentist before or after pregnancy	66 (35.1)
Regularly visited the dentist before pregnancy but not after	62 (33)
Did not visit the dentist regularly before pregnancy but started after	26 (13.8)
Regularly visited the dentist for check-up before and after pregnancy	34 (18.1)

Table 3 **Association between knowledge and practicing oral hygiene and regularly visiting the dentist (*n* = 197)**

Variable	Practicing oral hygiene: OR (95% CI)		Regular visits to dentists: OR (95% CI)	
	Univariate regression	Multivariate regression	Univariate regression	Multivariate regression
University education	1.01 (0.44–2.29)	1.00 (0.41–2.34)	2.20 (0.85–5.70)	2.18 (0.83–5.71)
Has children	0.41 (0.20–0.88)*	0.32 (0.13–0.80)*	0.69 (0.32–1.46)	0.72 (0.27–1.56)
Knowledge				
Oral health affected by pregnancy	0.72 (0.34–1.52)	0.69 (0.23–1.49)	0.67 (0.30–1.52)	0.65 (0.35–1.48)
Oral health affects pregnancy	0.69 (0.26–1.79)	0.61 (0.24–1.70)	0.41 (0.14–1.26)	0.40 (0.11–1.22)
Oral health affects infants' oral health	0.34 (0.08–1.53)	0.30 (0.10–1.43)	0.84 (0.27–2.65)	0.85 (0.23–2.61)
Cariogenic microorganisms can be transmitted to children by saliva	0.85 (0.37–1.96)	0.89 (0.40–1.87)	0.74 (0.31–1.78)	0.72 (0.33–1.81)
Correct methods to prevent caries in children	2.33 (0.85–6.44)	2.48 (0.80–6.51)	2.97 (1.34–6.62)*	2.76 (1.07–7.12)*
Dentist can be visited during pregnancy	–	–	1.64 (0.76–3.57)	1.62 (0.74–3.58)
Dental treatment does not negatively affect fetal health	–	–	7.11 (1.63–31.05)*	5.14 (1.12–9.17)*
Practicing oral hygiene	–	–	2.60 (0.75–9.08)	2.59 (0.77–9.10)

**Statistically significant where CI does not include the null value*
CI = confidence interval; OR = odds ratio

that maternal oral health may affect pregnancy outcomes (22.6%).

Most participants obtained oral health information from dentists or the media (36% and 30.6%, respectively), which together accounted for 66.6% of oral health information sources, followed by family and friends (12.9%) and several different sources (8.1%). Some patients (12.4%) reported no source of health information.

One hundred and sixty-one (81.7%) participants reported performing oral hygiene procedures, with 100 (51.5%) of them brushing at least twice daily, 84 (43.8%) sometimes flossing and 92 (47.7%) sometimes using miswak (Table 2). Only 34 (18.1%) reported regular dental visits before and after pregnancy.

Table 3 shows the association between oral health practices and knowledge in addition to two potential confounders: education and having children. Having children was associated with lower odds of practicing oral hygiene procedures, which remained statistically significant in the multivariate model that included knowledge and education [odds ratio (OR) in the multivariate model = 0.32]. This was the only factor in the model that was significantly associated with performing oral hygiene procedures. Knowledge of the correct methods to prevent caries in children was associated with higher odds of regular visits to the dentist (OR in multivariate regression = 2.76). Correct knowledge of the relation between dental treatment during pregnancy and fetal health was also associated with higher odds of regular dental visits (OR in multivariate model = 5.14). Practicing any form of oral hygiene was not associated with visiting the dentist (OR = 2.60, 95% confidence interval = 0.75–9.08).

Discussion

This study assessed the association between oral health knowledge and practices among Saudi pregnant women. The majority of the participants (>70%) revealed good oral health knowledge related to pregnancy and infancy. This disagrees with some previous studies (*19,23*) but agrees with many others (*9,18,20,22*). This reasonable level of knowledge may be related to the fact that one-third of women relied on dentists as a source of oral health information. Some participants had poor knowledge, which may be attributed to their educational level, as only one-third had a university degree. This agrees with Moawed et al., who found that women with lower education level had a lower score for oral health knowledge, particularly about the relation between periodontitis and preterm birth (*22*). Similarly, Chacko et al. (*24*) found that women with higher education expressed more awareness about bacterial

transmission from mother to child and about caries preventive methods, although this finding was not statistically significant. The present study also highlighted the role of dentists and mass media in providing oral health information. Chacko et al. (*24*) found that oral health information was delivered mainly through non-healthcare providers, and those who received information from healthcare workers had better oral health knowledge.

Half the participants reported brushing their teeth twice daily, although another half of them never flossed. These findings were similar to other studies that assessed oral health practices (*18–20,22*). Having children was negatively associated with performing oral hygiene procedures; most probably because mothers' time was taken up by tending to their children. Some studies have found a significant relation between regular dental visits and oral health knowledge; especially information about complications of bad oral health and bacterial transmission to infants (*18,22*). This is also similar to our findings. Dentists should therefore allocate time to explain the role of maternal oral health in preventing negative pregnancy outcomes, in addition to the maternal role in controlling transmission of cariogenic bacteria to infants. An emphasis on aspects related to child health may be important in motivating pregnant women to care more for their own health. Preventive programmes using mass media may also be of value in providing correct oral health information, as well as programmes provided by nurses at antenatal clinics, while expectant mothers wait for check-ups.

The importance of oral health in ensuring positive pregnancy outcomes is acknowledged (*1–5*). Nevertheless, hormonal alterations affecting oral health during pregnancy cannot be prevented. As such, pregnant women need regular dental check-ups as part of their prenatal care. In the present study, only 18.1% visited the dentist before and after pregnancy and 33% stopped their dental visits during pregnancy. This agrees with previous studies that found that women may decrease or stop attending dental check-ups during pregnancy (*18,19,22,25,26*).

Health practices are assumed to be related to knowledge and a good level of knowledge is followed by adoption of proper practices (*19*). This was not the case in our study, which showed only a limited relation between oral health knowledge and practices. Our study also showed that adopting one oral health practice does not necessarily mean that others will be followed. We did not find an association between performing oral hygiene and regular dental visits, which disagrees with Moawed et al. (*22*).

The main limitation of our study was relying on self-reports, in which the desire to give the correct response may have overestimated oral health practices. Future studies assessing oral hygiene clinically using plaque indices and assessing actual visits from records may avoid this bias. Our study explored some important aspects such as the extent of oral health knowledge among Saudi pregnant woman in and around Dammam and the relation between their oral health knowledge and practices.

In conclusion, Saudi pregnant women had basic oral health knowledge but this knowledge was not strongly associated with reported self-care through performing oral hygiene procedures. Similarly, pregnant women were more likely to visit the dentist during pregnancy if they had proper knowledge about the effect of oral health and dental treatment on children's oral health. Incorporating messages related to infant oral health in the information package delivered to pregnant women may further encourage Saudi pregnant women to visit the dentist regularly.

Funding: None.

Competing interests: None declared.

References

1. Han YW. Oral health and adverse pregnancy outcomes – what's next? J Dent Res. 2011 Mar;90(3):289–93. PMID:21041548
2. Sanz M, Kornman K; Working group 3 of joint EFP/AAP workshop. Periodontitis and adverse pregnancy outcomes: consensus report of the Joint EFP/AAP Workshop on Periodontitis and Systemic Diseases. J Clin Periodontol. 2013 Apr;40 Suppl 14:S164–9. PMID:23627326
3. Corbella S, Taschieri S, Francetti L, De Siena F, Del Fabbro M. Periodontal disease as a risk factor for adverse pregnancy outcomes: a systematic review and meta-analysis of case-control studies. Odontology. 2012 Jul;100(2):232–40. PMID:21739194
4. Ide M, Papapanou PN. Epidemiology of association between maternal periodontal disease and adverse pregnancy outcomes–systematic review. J Clin Periodontol. 2013 Apr;40 Suppl 14:S181–94. PMID:23627328
5. Kumar A, Basra M, Begum N, Rani V, Prasad S, Lamba AK, et al. Association of maternal periodontal health with adverse pregnancy outcome. J Obstet Gynaecol Res. 2013 Jan;39(1):40–5. PMID:22845916
6. Bozorgmehr E, Hajizamani A, Malek Mohammadi T. Oral health behavior of parents as a predictor of oral health status of their children. ISRN Dent 2013 May 8; 2013:741783. PMID:23738088
7. Dye BA, Vargas CM, Lee JJ, Magder L, Tinanoff N. Assessing the relationship between children's oral health status and that of their mothers. J Am Dent Assoc. 2011 Feb;142(2):173–83. PMID:21282684
8. Weintraub JA, Prakash P, Shain SG, Laccabue M, Gansky SA. Mothers' caries increases odds of children's caries. J Dent Res. 2010 Sep;89(9):954–8. PMID:20505046
9. Kishi M, Abe A, Kishi K, Ohara-Nemoto Y, Kimura S, Yonemitsu M. Relationship of quantitative salivary levels of Streptococcus mutans and S. sobrinus in mothers to caries status and colonization of mutans streptococci in plaque in their

2.5-year-old children. Community Dent Oral Epidemiol. 2009 Jun;37(3):241–9. PMID:19508271

10. Saied-Moallemi Z, Virtanen JI, Ghofranipour F, Murtomaa H. Influence of mothers' oral health knowledge and attitudes on their children's dental health. Eur Arch Paediatr Dent. 2008 Jun;9(2):79–83. PMID:18534175
11. Al Agili DE. A systematic review of population-based dental caries studies among children in Saudi Arabia. Saudi Dent J. 2013 Jan;25(1):3–11. PMID:23960549
12. Al-Ansari AA. Prevalence, severity, and secular trends of dental caries among various saudi populations: A literature review. Saudi J Med Med Sci. 2014;2(3):142–50.
13. Al-Malik MI, Holt RD, Bedi R. Prevalence and patterns of caries, rampant caries, and oral health in two- to five-year-old children in Saudi Arabia. J Dent Child (Chic). 2003 Sep-Dec;70(3):235–42. PMID:14998208
14. Baghdadi ZD. Managing dental caries in children in Saudi Arabia. Int Dent J. 2011 Apr;61(2):101–8. PMID:21554279
15. Daly B, Watt R, Batchelor P, Treasure E. Essentials of dental public health. Oxford: Oxford University Press; 2002.
16. Pine C, Harris R, editors. Community oral health, 2nd ed. London: Quintessence; 2007.
17. Watt RG. Strategies and approaches in oral disease prevention and health promotion. Bull World Health Organ. 2005 Sep;83(9):711–8. PMID:16211164
18. George A, Johnson M, Blinkhorn A, Ajwani S, Bhole S, Yeo AE, et al. The oral health status, practices and knowledge of pregnant women in south-western Sydney. Aust Dent J. 2013 Mar;58(1):26–33. PMID:23441789
19. Bamanikar S, Kee LK. Knowledge, attitude and practice of oral and dental healthcare in pregnant women. Oman Med J. 2013 Jul;28(4):288–91. PMID:23904926
20. Abiola A, Olayinka A, Mathilda B, Ogunbiyi O, Modupe S, Olubunmi O. A survey of the oral health knowledge and practices of pregnant women in a Nigerian teaching hospital. Afr J Reprod Health. 2011 Dec;15(4):14–9. PMID:22571100
21. Al-Zahrani AM, Al-Mushayt AS, Otaibi MF, Wyne AH. Knowledge and attitude of Saudi mothers towards their preschool children's oral health. Pak J Med Sci. 2014 Jul;30(4):720–4. PMID:25097504
22. Moawed S, Hawsawi A, Al Ahmed SS, Al-Atawi N, Awadien AAZ. Knowledge and oral health care practices among Saudi pregnant women. Life Sci J. 2014;11(5):32–41 (http://www.lifesciencesite.com/lsj/life1105/005_23165blife110514_32_41.pdf, accessed 2 June 2016)
23. Jain R, Oswal KC, Chitguppi R. Knowledge, attitude and practices of mothers toward their children's oral health: A questionnaire survey among sub-population in Mumbai (India). J Dent Res Sci Develop. 2014;1(2):40–5.
24. Chacko V, Shenoy R, Prasy HE, Agarwal S. Self-reported awareness of oral health and infant oral health among pregnant women in Mangalore, India – a prenatal survey. Int J Health Rehab Sci. 2013;2(2):109–15.
25. Boggess KA, Urlaub DM, Massey KE, Moos MK, Matheson MB, Lorenz C. Oral hygiene practices and dental service utilization among pregnant women. J Am Dent Assoc. 2010 May;141(5):553–61. PMID:20436103
26. Al-Swuailem AS, Al-Jamal FS, Helmi MF. Treatment perception and utilization of dental services during pregnancy among sampled women in Riyadh, Saudi Arabia. Saudi J Dent Res. 2014;5(2):123–9

Short communication

Primary healthcare reform in the United Nations Relief and Works Agency for Palestine Refugees in the Near East

A. Santoro[1], N. Abu-Rmeileh[2], A. Khader[3], A. Seita[3] and M. McKee[4]

إصلاح نظام الرعاية الصحية الأولية في وكالة الأمم المتحدة لغوث وتشغيل اللاجئين الفلسطينيين في الشرق الأدنى

اليسيو سانتورو، نيفين أبو رميلة، علي خضر، أكيهيرو سيتا، مارتن ماك كي

الخلاصة: يشهد اللاجئون الفلسطينيون الذين تقدَّم لهم خدمات من قبل وكالة الأمم المتحدة لغوث وتشغيل اللاجئين الفلسطينيين (الأونروا) في الشرق الأدنى تزايداً في معدلات الأمراض غير السارية. ولمواجهة التحديات المالية والتنظيمية التي تنشأ عن ذلك، بدأت الأونروا – في عام 2011 – برنامجاً على مستوى الوكالة لإصلاح نظام الرعاية الصحية الأولية، يسترشد بإطار نموذج الرعاية المزمنة. فأعيد تنظيم الخدمات الصحية باتباع نهج يتمحور حول الأسرة، تقدمه فِرَق صحة الأسرة متعددة الاختصاصات، مدعَّمةً بآخر مستجدات النصائح التقنية. كما طُبِّق نظام شامل للمعلومات السريرية – اصطلح على تسميته: الصحة الإلكترونية – لجمع كَمٍّ كبير من المعلومات الصحية، مع التركيز على استمرارية المعالجة. وكانت الأونروا قادرة على إحداث هذه التغييرات واسعة النطاق في حدود مواردها المتاحة، بإعادة تخصيص الموارد المالية، وإصلاح آليات الدفع المتبعة لديها، وتحديث سياساتها المعنية بشراء الأدوية. ولكن على الرغم من أن المكونات الخاصة بإصلاح نظام الرعاية الصحية الأولية في الأونروا تظهر نتائج واعدة، إلا أن هناك حاجة إلى بذل مزيد من الجهود لمساعدة المرضى أكثر من ذلك وتعزيز مشاركة المجتمع.

ABSTRACT Palestinian refugees served by the United Nation Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) are experiencing increasing rates of diagnosis of non-communicable diseases. In response, in 2011 UNRWA initiated an Agency-wide programme of primary healthcare reform, informed by the Chronic Care Model framework. Health services were reorganized following a family-centred approach, with delivery by multidisciplinary family health teams supported by updated technical advice. An inclusive clinical information system, termed e-Health, was implemented to collect a wide range of health information, with a focus on continuity of treatment. UNRWA was able to bring about these wide-ranging changes within its existing resources, reallocating finances, reforming its payment mechanisms, and modernizing its drug-procurement policies. While specific components of UNRWA's primary healthcare reform are showing promising results, additional efforts are needed to empower patients further and to strengthen involvement of the community.

Réforme des soins de santé primaires à l'Office de secours et de travaux des Nations Unies pour les réfugiés de Palestine dans le Proche-Orient

RÉSUMÉ Les réfugiés palestiniens secourus par l'Office de secours et de travaux des Nations Unies pour les réfugiés de Palestine dans le Proche-Orient (UNRWA) sont confrontés à une recrudescence des maladies non transmissibles. En conséquence, l'UNRWA a lancé en 2011 un programme de réforme des soins de santé primaires à l'échelle de l'Office, guidé par le modèle de soins chroniques. Les services de santé ont été réorganisés sur la base d'une approche orientée vers la famille, avec des prestations de santé dispensées par des équipes de médecine familiale multidisciplinaires soutenues par un conseil technique mis à jour. Un système d'information clinique exhaustif, appelé e-Health, a été mis en œuvre pour collecter une grande quantité d'informations, l'accent étant mis sur la continuité du traitement. L'UNRWA a été en mesure de mener ces changements d'envergure à partir des ressources existantes, en réattribuant des fonds, en réformant ses mécanismes de paiement, et modernisant ses politiques d'approvisionnement en médicaments. Si les composants spécifiques de la réforme de l'UNRWA en matière de soins de santé primaires donnent des résultats prometteurs, davantage d'efforts doivent être déployés pour autonomiser davantage encore les patients et renforcer l'engagement communautaire.

[1]Department of Public Health and Infectious Diseases, La Sapienza University, Rome, Italy (Correspondence to A. Santoro: a.santoro@unrwa.org), [2]Institute of Community and Public Health, Birzeit University, Birzeit, West Bank, [3]United Nation Relief and Works Agency for Palestine Refugees in the Near East Headquarters, Amman, Jordan, [4]Faculty of Public Health and Policy, European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine, London, United Kingdom.

Received: 25/01/16; accepted: 06/05/16

Introduction

The burden of noncommunicable diseases (NCDs) is high among many refugee populations (*1–5*). Tragically, the Middle East has a long experience of forced migration (*1*). Hypertension and diabetes are widespread among Syrian and Iraqi refugees displaced to Lebanon (*2–5*). Palestinian refugees scattered across the WHO Eastern Mediterranean Region experience patterns of NCDs that are similar to those in non-refugee Palestinians living in the West Bank and Gaza (*6–8*).

Although Palestinian refugees do have partial access to health services in some host countries, their health needs are mostly met by the United Nation Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), which provides assistance through its network of 138 primary health centres. There is a widespread consensus that primary healthcare should play a central role in effective management of NCDs (*9*). Consequently, in 2011 UNRWA initiated extensive reform of the structure of primary healthcare, designed to respond appropriately to the growing burden of NCDs among Palestinian refugees (*6*).

This paper analyses the current response of UNRWA to the changing needs of Palestinian refugees and outlines a way forward. The primary healthcare reform is analysed in the light of the Chronic Care Model (CCM).

Chronic care model

The CCM has been a major influence on the management of NCDs in many countries (*9*). It envisages organization of services around health teams, adherence to evidence-based guidelines, support for self-management, and development of appropriate information systems (*10*). In 2002, the WHO adapted the CCM to the circumstances of low- and middle-income countries (LMICs). Community empowerment and effective integration of the components of the model into existing health system assets were included in the updated model (Table 1) (*9,11*).

Analysis of primary healthcare reform

Delivery system design

Inspired by the success of a similar policy in Egypt (*12,13*), UNRWA's primary healthcare reform is designed to have a family-centred perspective. Each family is assigned to a specific multidisciplinary family health team (FHT), staffed by doctors, midwives and nurses. Consequently, health care is no longer provided vertically, based on the doctors' specialization, but horizontally, according to the health needs of the family (*14*). Task shifting is a major pillar of UNRWA's reform. Maternal, child and NCD services are mainly provided by nurses and midwives, who play the role of gate-keepers, referring to doctors only when complications arise, aided by carefully designed guidelines, termed technical instructions (TIs). Compelling evidence suggests that these groups can provide high-quality care (*15,16*). UNRWA is now conducting a wide-ranging assessment of human resource allocation to inform future policies on task shifting systematically (*17*).

Decision support

Clinical protocols play a critical role in improving healthcare quality (*18,19*). In 1993, UNRWA launched its NCD programme to tackle diabetes and hypertension. Since then, it has adopted and regularly updated an increasing number of TIs, working closely with the WHO. TIs are made available to nurses and midwives delivering services for those with NCDs (*20*). The aim is to standardize the management of preventative and curative services, with algorithms to plan follow-up encounters. TIs also seek to increase efficiency, by limiting access to doctors to those who need their specialist expertise. This gives patients more time for high-quality interactions and protects doctors from excessive workload. Since implementation of UNRWA's reform in 2011, the average number of consultations per day has reduced by 8.7% (*6*).

Clinical information systems

Clinical information systems should underpin the effective functioning of the CCM (*21,22*). However, experience in both developed and resource-constrained countries has highlighted the massive challenges in implementing them (*23,24*). Nevertheless, UNRWA has succeeded in developing its own electronic medical record system, e-Health. This in-house development has helped to contain costs (*6*). e-Health was piloted in Jordan and subsequently rolled out to the majority of UNRWA's health centres across the WHO Eastern Mediterranean Region. The system was carefully designed to complement the FHT component of the reform. Individual patient's records are integrated to create family files that are designed to enhance continuity of care. When any family member attends a health centre, the record highlights non-attendance by other members. UNRWA evaluations show that e-Health provides accurate information about numbers of patients, services provided and outcomes of care (*25–29*).

Health systems

Strong systems of governance are critical to successful reforms (*30*). The UNRWA Headquarters in Amman led the reform, taking account of the Agency's existing assets. The Agency revised its financial allocation strategy to ensure that the provision of health services remains free of charge for all Palestinian refugees. The drug-procurement policies were also redesigned (*31*). Health information systems units were established at all levels to facilitate the collection and utilization of electronic data to inform

policy making (*25–29*). Furthermore, new staff payment mechanisms are regularly updated in order to incentivize the health workforce. The UNRWA Headquarters also convenes regular meetings with frontline staff to streamline strategies across operational fields.

Self-management support

UNRWA's primary healthcare reform seeks to strengthen patient–provider encounters and, in turn, to foster patients' ability to self-manage their conditions (*14*). However, a recent clinical audit conducted across UNRWA's operational fields identified weaknesses in lifestyle counselling and limited evidence of self-management of NCDs (*32*). Consistently, self-management of diabetes in Jordan and Saudi Arabia is a particular problem (*33,34*). In Saudi Arabia, it is constrained by the exclusion of glucometers from patients' benefits packages (*34*). The same exclusion applies to UNRWA because of budget limitations. However, in the light of promising results from some LMICs for the use of mobile phones as a means to improve NCD self-management (*24, 35–38*), UNRWA has recently piloted an SMS reminder system (*39*).

Community

UNRWA has piloted community participation initiatives in Jordan and the Syrian Arab Republic, seeking to incorporate them within the Agency's broader primary health reform. Community volunteers are tasked to promote healthy behaviour and to detect patients who do not adhere to NCD treatment. However, budget constraints have curbed the systematic adoption of such policies. UNRWA is currently exploring potential strategies to implement affordable community-based initiatives. A recent diabetes campaign exemplifies the Agency's pledges on community participation (*6*).

The beneficial effects of community-based initiatives in NCD management have been reported in several LMICs, suggesting that they could be "successfully introduced across varied cultural settings and within diverse health systems" (*40*). Peer-run educational strategies have also attracted attention (*41*). The British Expert Patient Programme has attracted much attention and lessons could be learnt from it (*42*).

Conclusions and way forward

Since its establishment in 1949, UNRWA has always responded to emerging challenges. In 1985, the *New England Journal of Medicine* celebrated the "impressive achievements of the Agency in the fields of sanitation and preventative services for communicable diseases" (*43*). However, over the last 15 years, the growing burden of NCDs faced by Palestinian refugees has created a need for massive reorganization of healthcare delivery.

In 2011, UNRWA's primary health reform was launched. While scientifically rigorous evaluation of its impact is needed, some cautious optimism is justified. From its outset, the Agency has based its reform on the CCM, which is seen as an appropriate framework to guide primary healthcare policies (*44*). The result is that, in 2014, the WHO Regional Office for the Eastern Mediterranean depicted UNRWA's healthcare policy as "a good example of how primary health care reform … … could improve quality of care and patient satisfaction under difficult situations" (*45*).

Some components of the reform have already achieved positive results. Khader and colleagues highlighted the role played by e-Health in supporting drug-procurement policies, monitoring NCD risk factors, and evaluating the quality of care over time by identifying the occurrence of late complications of NCDs (*25–29*). Additionally, the Agency's internal assessments reported widespread satisfaction with the new FHT approach among both providers and patients. Yet, progress in improving self-management and community participation raises some concerns. Patient self-management of NCDs has been weak both before and after the reform (*32,46*), whereas implementation of innovative and affordable community-oriented initiatives remains under consideration.

Hopefully, evidence can inform the way forward. Educational policies targeting patients and families need to be designed to support patient self-management (*47,48*). It is critical to involve the community in peer education. A recent Cochrane review highlights the crucial role of group-based self-management training strategies (*49, 50*). Moreover, the use of technology can

Table 1 Updated chronic care model (CCM)

Delivery system design	To restructure medical practices to facilitate team care
Decision support	To assure that providers have access to evidence-based guidelines
Clinical information systems	To provide timely access to data about patients and patient populations
Self-management support	To help patients acquire skills and confidence to self-manage
Health systems	To serve as the foundation by providing structure and goals
Community	To link with community resources and establish policy

Source: (21)

support adherence to protocols and facilitate patients' follow-up (*51–54*).

Community strengthening is especially relevant given the upcoming mental health policy of UNRWA. Despite shrinking resources, the Agency has pledged to integrate mental health services within its basic package of health services, and the Mental Health and Psychosocial Support and Protection (MHPSP) programme is currently being piloted in Gaza (*6*).

This paper analyses UNRWA's primary healthcare reform in the light of the CCM framework, on which it is based. The Agency has responded positively to the recent calls of the WHO Director-General Margaret Chan to address the failures to deliver in the light of the Alma Ata primary healthcare principles (*55*). The forthcoming mental health policy demonstrates the Agency's willingness to go beyond its financial constraints. However, the areas of self-management and community participation urgently need further commitment.

Funding: None.

Competing interests: None declared.

References

1. Morabia A, Benjamin GC. The refugee crisis in the Middle East and public health. Am J Public Health. 2015 Dec;105(12):2405–6. PMID:26469670
2. Strong J, Varady C, Chahda N, Doocy S, Burnham G. Health status and health needs of older refugees from Syria in Lebanon. Confl Health. 2015 Apr 9;9:12. PMID:26056531
3. Misery beyond the war zone: life for Syrian refugees and displaced populations in Lebanon. Geneva: Medecins Sans Frontieres; 2013 (http://www.msf.org.uk/sites/uk/files/lebanon-report-light.pdf, accessed 29 July 2016).
4. El-Khatib Z, Scales D, Vearey J, Forsberg BC. Syrian refugees, between rocky crisis in Syria and hard inaccessibility to healthcare services in Lebanon and Jordan. Confl Health. 2013 Sep 3;7(1):18. PMID:24004474
5. Global annual report public health 2007. Geneva: United Nations High Commissioner for Refugees; 2008.
6. Annual report 2014. Amman: United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA); 2015.
7. Giacaman R, Khatib RLS, Shabaneh L, Ramlawi A, Sabri B, Sabatinelli G, et al. Health status and health services in the occupied Palestinian territory. Lancet 2009;373:837–49.
8. Husseini A, Abu-Rmeileh NME, Mikki N, Ramahi TM, Ghosh HA, Barghuthi N, et al. Cardiovascular diseases, diabetes mellitus, and cancer in the occupied Palestinian territory. Lancet. 2009 Mar 21;373(9668):1041–9. PMID:19268350
9. Beaglehole R, Epping-Jordan J, Patel V, Chopra M, Ebrahim S, Kidd M, et al. Improving the prevention and management of chronic disease in low-income and middle-income countries: a priority for primary health care. Lancet. 2008 Sep 13;372(9642):940–9. PMID:18790317
10. Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? Eff Clin Pract. 1998 Aug–Sep;1(1):2–4. PMID:10345255
11. Pruitt S, Annandale S. J E-J, Fernández Díaz JM, Khan M, Kisa A, et al. Innovative care for chronic conditions: building blocks for action. Geneva: World Health Organization; 2002.
12. Regional Health Systems Observatory. Health systems profile Egypt. World Health Organization Regional Office for the Eastern Mediterranean; 2006 (http://apps.who.int/medicinedocs/documents/s17293e/s17293e.pdf, accessed 29 July 2016).
13. Gadallah MA, Allam MF, Ahmed AM, El-Shabrawy EM. Are patients and healthcare providers satisfied with health sector reform implemented in family health centres? Qual Saf Health Care. 2010 Dec;19(6):e4. PMID:20231176
14. Modern and efficient UNRWA health services. Family health team (FHT) approach. Amman: United Nation Relief and Works Agency for the Palestine Refugees in the Near East; 2011 (http://www.unrwa.org/sites/default/files/Health%20Reform%20Strategy.pdf, accessed 29 July 2016).
15. Watts SA, Gee J, O'Day ME, Schaub K, Lawrence R, Aron D, et al. Nurse practitioner-led multidisciplinary teams to improve chronic illness care: the unique strengths of nurse practitioners applied to shared medical appointments/group visits. J Am Acad Nurse Pract. 2009 Mar;21(3):167–72. PMID:19302693
16. Nouwens E, van Lieshout J, van den Hombergh P, Laurant M, Wensing M. Shifting cardiovascular care to nurses results in structured chronic care. Am J Manag Care. 2014 Jul 1;20(7):e278–84. PMID:25295547
17. Workload indicators of staffing need (WISN). Geneva: World Health Organization; 2008.
18. Grimshaw J, Freemantle N, Wallace S, Russell I, Hurwitz B, Watt I, et al. Developing and implementing clinical practice guidelines. Qual Health Care. 1995 Mar;4(1):55–64. PMID:10142039
19. Unwin N, Mugusi F, Aspray T, Whiting D, Edwards R, Mbanya JC, et al. Tackling the emerging pandemic of non-communicable diseases in sub-Saharan Africa: the essential NCD health intervention project. Public Health. 1999 May;113(3):141–6. PMID:10910412
20. Prevention and control of non-communicable diseases. Amman: United Nation Relief and Works Agency for the Palestine Refugees in the Near East, 2009 Contract No.: NO.: HD/DC/01/1997 Revision No. 4.
21. Siminerio LM. The role of technology and the chronic care model. J Diabetes Sci Technol. 2010 03 01;4(2):470–5. PMID:20307409
22. Cebul RD, Love TE, Jain AK, Hebert CJ. Electronic health records and quality of diabetes care. N Engl J Med. 2011 Sep 1;365(9):825–33. PMID:21879900
23. The NHS IT nightmare. Lancet. 2011 Aug 13;378(9791):542. PMID:21840444
24. Douglas GP, Gadabu OJ, Joukes S, Mumba S, McKay MV, Ben-Smith A, et al. Using touchscreen electronic medical record systems to support and monitor national scale-up of antiretroviral therapy in Malawi. PLoS Med. 2010 08 10;7(8):e1000319. PMID:20711476
25. Khader A, Farajallah L, Shahin Y, Hababeh M, Abu-Zayed I, Kochi A, et al. Cohort monitoring of persons with hypertension: an illustrated example from a primary healthcare clinic for Palestine refugees in Jordan. Trop Med Int Health. 2012 Sep;17(9):1163–70. PMID:22845700
26. Khader A, Farajallah L, Shahin Y, Hababeh M, Abu-Zayed I, Kochi A, et al. Cohort monitoring of persons with diabetes mellitus in a primary healthcare clinic for Palestine refugees in Jordan. Trop Med Int Health. 2012 Dec;17(12):1569–76. PMID:23051859

27. Khader A, Ballout G, Shahin Y, Hababeh M, Farajallah L, Zeidan W, et al. Diabetes mellitus and treatment outcomes in Palestine refugees in UNRWA primary health care clinics in Jordan. Public Health Action. 2013 Dec 21;3(4):259–64. PMID:26393043

28. Khader A, Ballout G, Shahin Y, Hababeh M, Farajallah L, Zeidan W, et al. Treatment outcomes in a cohort of Palestine refugees with diabetes mellitus followed through use of E-Health over 3 years in Jordan. Trop Med Int Health. 2014 Feb;19(2):219–23. PMID:24341942

29. Khader A, Ballout G, Shahin Y, Hababeh M, Farajallah L, Zeidan W, et al. What happens to Palestine refugees with diabetes mellitus in a primary healthcare centre in Jordan who fail to attend a quarterly clinic appointment? Trop Med Int Health. 2014 Mar;19(3):308–12. PMID:24387037

30. Nuno R, Coleman K, Bengoa R, Sauto R. Integrated care for chronic conditions: the contribution of the ICCC Framework. Health Policy. 2012;105(1):55–64.

31. Ewen M, Al Sakit M, Saadeh R, Laing R, Vialle-Valentin C, Seita A, et al. Comparative assessment of medicine procurement prices in the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). J Pharm Policy Pract. 2014 10 21;7(1):13. PMID:25379183

32. Shahin Y, Kapur A, Khader A, Zeidan W, Harries AD, Nerup J, et al. Clinical audit on the provision of diabetes care in the primary care setting by United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). J Diabetes Mellitus. 2015;5:12–20.

33. Khattab M, Khader YS, Al-Khawaldeh A, Ajlouni K. Factors associated with poor glycemic control among patients with type 2 diabetes. J Diabetes Complications. 2010 Mar–Apr;24(2):84–9. PMID:19282203

34. Al Johani KA, Kendall GE, Snider PD. Self-management practices among type 2 diabetes patients attending primary healthcare centres in Medina, Saudi Arabia. East Mediterr Health J. 2015 10 02;21(9):621–8. PMID:26450858

35. Tweya H, Gareta D, Chagwera F, Ben-Smith A, Mwenyemasi J, Chiputula F, et al. Early active follow-up of patients on antiretroviral therapy (ART) who are lost to follow-up: the 'Back-to-Care' project in Lilongwe, Malawi. Trop Med Int Health. 2010 Jun;15 Suppl 1:82–9. PMID:20586965

36. Losina E, Touré H, Uhler LM, Anglaret X, Paltiel AD, Balestre E, et al.; ART-LINC Collaboration of International Epidemiological Databases to Evaluate AIDS (IeDEA); CEPAC International investigators. Cost-effectiveness of preventing loss to follow-up in HIV treatment programs: a Côte d'Ivoire appraisal. PLoS Med. 2009 Oct;6(10):e1000173. PMID:19859538

37. Lester RT, Ritvo P, Mills EJ, Kariri A, Karanja S, Chung MH, et al. Effects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya1): a randomised trial. Lancet. 2010 Nov 27;376(9755):1838–45. PMID:21071074

38. Bui TD, Kadzakumanja O, Munthali C. Mobilizing for the Lilongwe Diabetes Peer Support Programme in Malawi. Malawi Med J. 2014;26(4):124–5. PMID:26167262

39. Schermerhorn J, Buckley S, Habaibeh M, Ballout G, Seita A. Reminders, refugees, and Ramadan: characterizing missed immunization appointments among Palestine refugees in Jordan; 2014.

40. Fisher EB, Boothroyd RI, Coufal MM, Baumann LC, Mbanya JC, Rotheram-Borus MJ, et al. Peer support for self-management of diabetes improved outcomes in international settings. Health Aff (Millwood). 2012 Jan;31(1):130–9. PMID:22232103

41. Funnell MM. Peer-based behavioural strategies to improve chronic disease self-management and clinical outcomes: evidence, logistics, evaluation considerations and needs for future research. Fam Pract. 2010 Jun;27 Suppl 1:i17–22. PMID:19509083

42. Richardson G, Kennedy A, Reeves D, Bower P, Lee V, Middleton E, et al. Cost effectiveness of the Expert Patients Programme (EPP) for patients with chronic conditions. J Epidemiol Community Health. 2008 Apr;62(4):361–7. PMID:18339831

43. Lilienfield LS, Rose JC, Corn M; United Nations Relief and Works Agency. UNRWA and the health of Palestinian refugees. N Engl J Med. 1986 Aug 28;315(9):595–600. PMID:3736649

44. Epping-Jordan JE, Pruitt SD, Bengoa R, Wagner EH. Improving the quality of health care for chronic conditions. Qual Saf Health Care. 2004 Aug;13(4):299–305. PMID:15289634

45. Report on the regional consultation on strengthening service provision through the family practice approach. Cairo: World Health Organization Regional Office for the Eastern Mediterranean; 2014 (http://applications.emro.who.int/docs/IC_meet_rep_2015_EN_16267.pdf, accessed 29 July 2016).

46. Yusef JI. Management of diabetes mellitus and hypertension at UNRWA primary health care facilities in Lebanon. East Mediterr Health J. 2000 Mar–May;6(2–3):378–90. PMID:11556027

47. Miller TA, Dimatteo MR. Importance of family/social support and impact on adherence to diabetic therapy. Diabetes Metab Syndr Obes. 2013 11 06;6:421–6. PMID:24232691

48. Rutten G. Diabetes patient education: time for a new era. Diabet Med. 2005 Jun;22(6):671–3. PMID:15910614

49. Deakin T, McShane CE, Cade JE, Williams RD. Group based training for self-management strategies in people with type 2 diabetes mellitus. Cochrane Database Syst Rev. 2005 Apr 18;(2):CD003417. PMID:15846663

50. Sanchez I. Implementation of a diabetes self-management education program in primary care for adults using shared medical appointments. Diabetes Educ. 2011 May–Jun;37(3):381–91. PMID:21454887

51. Roblin DW. The potential of cellular technology to mediate social networks for support of chronic disease self-management. J Health Commun. 2011;16 Suppl 1:59–76. PMID:21843096

52. Nundy S, Dick JJ, Goddu AP, Hogan P, Lu CY, Solomon MC, et al. Using mobile health to support the chronic care model: developing an institutional initiative. Int J Telemed Appl. 2012; Article ID 871925, http://dx.doi.org/10.1155/2012/871925.

53. Lall D, Prabhakaran D. Organization of primary health care for diabetes and hypertension in high, low and middle income countries. Expert Rev Cardiovasc Ther. 2014 Aug;12(8):987–95. PMID:24934722

54. Chi BH, Stringer JS. Mobile phones to improve HIV treatment adherence. Lancet. 2010 Nov 27;376(9755):1807–8. PMID:21071073

55. Primary health care. Now more than ever. Geneva: World Health Organization; 2008.

WHO events addressing public health priorities

Enhancing preparedness and response capacities to Zika virus infection[1]

WHO Director-General Dr Margaret Chan, on the advice of the Emergency Committee set up under the International Health Regulations (2005), declared that clusters of microcephaly and other neurological disorders reported in Brazil, following a similar cluster in French Polynesia in 2014, constitute a public health emergency of international concern. Following this declaration, the WHO Office for the Eastern Mediterranean Region (EMR) conducted two rounds of emergency meetings with a view of enhancing preparedness and readiness for Zika virus infection and associated conditions, in conjunction with representatives of the ministries of health of 12 countries. The first round was held on 22–23 February in Cairo, Egypt, inaugurated by Dr Jaouad Mahjour, Director of Programme Management; while the second round was held in Casablanca, Morocco, on 28–29 February, inaugurated by Dr Yves Souteyrand, WHO Representative for Morocco. The objectives of the meetings were to:

- provide information and technical documents about Zika virus infection and associated conditions
- present the draft regional plan for preparedness and response to Zika virus infection; and
- agree upon priority activities to be implemented by Member States and WHO to enhance preparedness and response capacities to Zika virus infection.

In a message delivered during the inaugural sessions, Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean, urged Member States to remain vigilant and be prepared to face and manage new global health threats such as Zika virus with adequate knowledge, information and skills to prevent, detect and respond to these threats. He noted that the causal relationship between the increase in incidence of microcephaly and neurological disorders and the circulating Zika virus was currently being investigated. Until further knowledge, establishing and strengthening entomological surveillance and vector control in countries with presence of the *Aedes* mosquito would ensure early detection and effective monitoring of any abnormal increase in neonatal malformations or neurological disorders for which no known medical could be identified. He closed by encouraging participants to take the opportunity of the meeting to better understand the risks of transmission of Zika virus in the Region, global and regional strategies that could be adopted to early detect possible introduction and prevent local transmission, and plan for public health measures for effective response. Discussing Zika virus situation in the EMR and recommendations for effective prevention and control measures were among outcomes of the meetings.

Overview of Zika virus: current situation in the Region

No human infection from Zika virus has so far been reported from any country in the EMR. However , serological evidence of the circulation of Zika virus has been reported in at least two countries in the Region. The current situation does not rule out the possibility of occurrence of Zika virus infection, as travel is likely to contribute to the risk of importation of cases to any country in the Region. While the risk of importation is equally high in all countries in the Region, the risk of local transmission following introduction of the virus through a viraemic patient returning from countries with active Zika virus circulation remains high in areas where the mosquitoes that primarily transmit this virus exist. According to this risk stratification, countries need to enhance preparedness and readiness measures.

Aedes mosquitoes, which primarily transmit Zika virus infection to humans, are present in a number of EMR countries, including Djibouti, Egypt, Oman, Pakistan, Saudi Arabia, Somalia, Sudan and Yemen. Vector-borne diseases pose particular challenges to national public health authorities, because of their complex nature requiring multidisciplinary competencies and strong rapid interaction between committed sectors. *Aedes* mosquitoes have been found in at least eight countries of the Region, while their presence or absence is still to be assessed in others. Therefore, a strong entomological surveillance system is needed in the Region.

Key public health measures for preventing Zika virus infection

Mosquito surveillance is a key component of any local integrated vector management programme. Preventing or limiting the transmission of dengue, chikungunya and Zika viruses is completely dependent on the control of mosquito vectors and reduction of person-mosquito contact.

[1] This report is extracted from the Summary report on the Regional meeting to enhance preparedness and response capacities to Zika virus infection, Cairo, Egypt 22-23 February 2016; and Casablanca, Morocco 28–29 February 2016 (http://apps.who.int/iris/bitstream/1/206084/10665/IC_Meet_Rep_2016_EN_16740.pdf)

Aedes aegypti and *A. albopictus* are the mosquito species mostly incriminated/ suspected as vectors of arboviral diseases. Entomological sampling methods to assess *Aedes* population density and evaluate the control interventions have been largely implemented, especially in Asian countries. There is a need to introduce and adapt those methods in countries through standardized protocols, including traditional Stegomyia indices to be used in outbreak prevention.

The main sampling tools for collection of all stages of *Aedes* mosquitoes were described; however, it was noted that mosquito-based surveillance is not the preferred method for monitoring or predicting dengue, chikungunya or Zika virus outbreaks. For these arboviruses, it is more efficient to detect cases in people. Lack of entomological capacity is one of the main contributing factors to poor entomological surveillance for arboviruses. Countries need to conduct routine entomological surveillance, research and share with the scientific community, irrespective of whether the scope of the research area features high on the research agenda (i.e. molecular diagnostics). Malaria laboratories can diversify to include other arboviruses; an inventory of resources for medical entomology in the Region (i.e. experts, training institutes, research agencies and laboratories working for medical entomology) needs to be assembled. Furthermore, a network of medical entomologists needs to be established to support the work of entomological surveillance and vector control for arboviral diseases.

There is a strong need to build/strengthen an early warning system to predict, early detect and assess transmission of vector-borne diseases in the Region, through operational research and integrating vector surveillance with syndromic-based and event-based disease surveillance.

The key vector control measures targeting all stages of *Aedes* mosquitoes was highlighted, which include environmental, mechanical, biological, chemical and genetic methods. Insecticide resistance (pyrethroid and temephos), population movement, climate change remain key concerns.

Operations support

A draft regional plan for enhancing preparedness and response to Zika virus was presented. The plan outlined the following six objectives and areas of work, under which priority activities will be implemented within the next six months:

1. Providing leadership and coordination for enhanced preparedness and response capacities
2. Enhancing capacities required under the IHR (2005) at international points of entry
3. Establishing effective surveillance systems and conducting risk assessment for Zika virus disease and potential complications
4. Reinforcing entomological surveillance and vector control
5. Improving access to quality diagnostics testing and rapid turnaround of results; and

Box 1 Key recommendations for prevention of Zika virus infection in the EMR

- Identifying hot spots (risk mapping) through a uniform and standardized risk assessment and stratify areas by spatial and geographic distribution of Aedes mosquitoes and past arbovirus epidemics
- Developing or updating a geo-referenced atlas of *Aedes* and their current susceptibility status, which should be used as basis for developing an insecticide resistance management strategy and using this information to update the categorization of high risk, low risk and receptive countries
- Establishing a sentinel surveillance system for *Aedes* mosquitoes in areas with high density including at points of entry and collecting data regularly to pre-empt and detect occurrence of high densities of *Aedes* mosquitoes and target these areas for vector control
- Developing or updating an integrated vector management strategy with strong focus on entomological surveillance and control measures, supported by a clear operational plan defining each sector's role
- Establishing an early warning system for detection of clusters of Zika virus infection and other vector-borne diseases
- Collecting retrospective data on birth registrations, tracing them back and trying to establish any baseline/comparator to assess the trend of congenital birth defects (especially microcephaly)
- Conducting regular public awareness campaigns to proactively inform the public of the Zika virus situation; urging communities to keep areas in and around homes free from mosquito breeding sites through applying appropriate risk communication messages and strategies in accordance with local culture and behavioural practice
- Developing/updating epidemic and pandemic contingency plans for Zika virus infection as well as standard operating procedures for an incident command system and for strengthening coordination
- Increasing knowledge and awareness of all aspects of Zika virus infection among clinicians, health care workers and other stakeholders
- Establishing sentinel surveillance of *Aedes* mosquitoes in areas with past information of *Aedes* distribution and taking prompt actions targeting breeding sites in a radius of 400 metres in the event of any increase in *Aedes* density
- Determining any possible link of microcephaly or other neurological disorders or Guillain-Barré syndrome with other arboviral infections in the endemic belt of *Aedes* mosquitoes during an active circulation of dengue/chikungunya/yellow fever virus in the past.

6. Improving risk communication and community engagement for Zika virus (* further details provided opposite)

To support the operationalization of this plan and respond to any emergency request for assistance from the countries in managing the risk associated with Zika virus, an incident management system (IMS) with designated staff has been established in the WHO Regional Office.

The meetings concluded with agreement on a set of actions recommended for urgent implementation by Member States with support from WHO and concerned partners in order to keep the Region free from Zika virus infection. Box 1 lists a selection of the key recommendations.

WHO has not recommended any travel or trade restrictions within countries, areas and/or territories with Zika virus transmission. Countries reporting sporadic Zika virus in travellers arriving from affected countries pose little, if any, risk of onward transmission. All travellers need to stay informed about Zika virus and other mosquito-borne diseases. Pregnant women need to be advised not to travel to areas of ongoing Zika virus transmission until more is known about the possible causal relationship between Zika virus and congenital malformation of newborns. The national health authorities may make public health and travel recommendations to their own populations, using a risk assessment approach.

Conclusion and next steps

The Regional Office will finalize the regional response plan based on the actions recommended above and will implement a set of priority activities to enhance preparedness and readiness before the next high-risk season. It will also identify a network of institutions, experts, reference laboratories and training centres in the Region to support Member States in implementation of the priority activities included in the regional response plan, such as the entomological surveillance, vector control, field investigation and laboratory detection as well as long-term capacity-building for prevention and control of arboviral diseases.

*Risk communication is real-time exchange of information, advice and opinions between experts, community leaders, or officials and people who are at risk. The ultimate purpose is to enable everyone at risk to take informed decisions to protect themselves and others from infection and mitigate the effects of Zika virus infection and its potential complications. Taking into consideration the varied context of countries in the Region, several scenarios were presented along with key considerations for risk communication, key messages and target audiences. Each scenario provides key points on how to communicate when a country prepares for Zika virus, when a country has the first confirmed case of Zika virus with travel history to an affected country, when a country has the first confirmed case of Zika virus with no travel history, and when a country experiences a Zika virus outbreak. Engaging communities at all phases of preparedness and response was emphasized, and vector control experts highlighted community participation as key to effective vector control management.

Members of the WHO Regional Committee for the Eastern Mediterranean

Afghanistan • Bahrain • Djibouti • Egypt • Islamic Republic of Iran • Iraq • Jordan • Kuwait • Lebanon
Libya • Morocco • Oman • Pakistan • Palestine • Qatar • Saudi Arabia • Somalia • Sudan • Syrian Arab
Republic • Tunisia • United Arab Emirates • Yemen

البلدان أعضاء اللجنة الإقليمية لمنظمة الصحة العالمية لشرق المتوسط

الأردن • أفغانستان • الإمارات العربية المتحدة • باكستان • البحرين • تونس • ليبيا • جمهورية إيران الإسلامية
الجمهورية العربية السورية • اليمن • جيبوتي • السودان • الصومال • العراق • عُمان • فلسطين • قطر • الكويت • لبنان • مصر
المغرب • المملكة العربية السعودية

Membres du Comité régional de l'OMS pour la Méditerranée orientale

Afghanistan • Arabie saoudite • Bahreïn • Djibouti • Égypte • Émirats arabes unis • République islamique d'Iran
Iraq • Libye • Jordanie • Koweït • Liban • Maroc • Oman • Pakistan • Palestine • Qatar • République arabe syrienne
Somalie • Soudan • Tunisie • Yémen

Correspondence

Editor-in-chief
Eastern Mediterranean Health Journal
WHO Regional Office for the Eastern Mediterranean
P.O. Box 7608
Nasr City, Cairo 11371
Egypt
Tel: (+202) 2276 5000
Fax: (+202) 2670 2492/(+202) 2670 2494
Email: emrgoemhj@who.int

Subscriptions and Permissions

Publications of the World Health Organization can be obtained from Knowledge Sharing and Production, World Health Organization, Regional Office for the Eastern Mediterranean, PO Box 7608, Nasr City, Cairo 11371, Egypt (tel: +202 2670 2535, fax: +202 2670 2492; email: emrgoksp@who.int). Requests for permission to reproduce, in part or in whole, or to translate publications of WHO Regional Office for the Eastern Mediterranean – whether for sale or for noncommercial distribution – should be addressed to WHO Regional Office for the Eastern Mediterranean, at the above address; email: emrgoegp@who.int.

Contents

Editorial

Highlights of WHO's work in the Eastern Mediterranean Region 363

Research articles

Deaths of children aged under 5 years and related factors in the Islamic Republic of Iran: a population-based case–control study 368

Collaboration between pharmacists and general practitioners in the health care system in the Islamic Republic of Iran 375

الإعلانات الدوائية التي تستهدف المستهلك مباشرة في الأردن من منظور جندري 383

Burden and associated factors for caregivers of the elderly in a developing country 394

Adherence of preventive oral care products in the Syrian market to evidence-based international recommendations 404

Association between oral health knowledge and practices of Saudi pregnant women in Dammam, Saudi Arabia 411

Short communication

Primary healthcare reform in the United Nations Relief and Works Agency for Palestine Refugees in the Near East 417

WHO events addressing public health priorities

Enhancing preparedness and response capacities to Zika virus infection 422