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المجلد الحادي والعشرون / عدد ٩
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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.

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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.

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المجلة الصحية لشرق المتوسط

EMHJ

Editorial

Global and regional health emergencies dominate discussions at the World Health Assembly and Regional Committee 2015

Ala Alwan[1]

The World Health Assembly, held in May each year, is traditionally an opportunity for Member States to review WHO's work over the past year and to agree on the priorities and strategies for improving global health in the years ahead. This year the Health Assembly was much the same in format, but the discussions were more intense, more in depth and more critical of WHO than they have been for many years.

In the past year, we have seen a series of large-scale global health emergencies, across the Region and across the world. Currently WHO, together with the United Nations and other partners, is simultaneously tackling multiple high-level emergencies, including five at the highest level, as well as several other emergency situations of concern. The outbreak of Ebola virus disease in West Africa stretched WHO's resources to the limits, while the scale of population movement and humanitarian crisis within a number of regions, including our own, has been unprecedented. Discussion at the Health Assembly was dominated by the impact and implications of such emergencies, both in specific discussions on WHO's response to large-scale emergencies, Ebola and the International Health Regulations, and in discussions on WHO reform and its proposed programme budget for 2016–2017.

Among the documents the Assembly considered was the report of the Ebola Interim Assessment Panel, which was requested by the WHO Executive Board at its special session on Ebola in January this year. In its report, the Panel highlighted the fact that WHO consists not only of the Secretariat but also the Member States and noted, "Together, the WHO leadership and the Member States need to take determined action to address the challenges at hand". It became very clear during the Health Assembly that these challenges are being taken extremely seriously. In response, action is being taken by WHO to strengthen outbreak and emergency response work. In our Region we have restructured this area of work and considerably scaled up in both the Regional Office and countries but much needs to done to respond to the increasing demands in the Region heavily affected by crisis. A US$ 100 million contingency fund will be set up at the global level to provide financing for field operations for the first 3 months of an emergency. Member States were supportive of WHO's essential role in leading and responding to global health emergencies and, while critical of aspects of its performance, appreciated that the Organization must be properly resourced and enabled to do the work expected of it. Later this year, Member States will meet again in a "financing dialogue" to discuss how the contingency fund and programme budget for 2016–2017 should be financed.

A number of other crucial issues for global health were discussed. The Health Assembly adopted a global action plan on antimicrobial resistance and urged Member States to implement it, while adapting it to their national priorities and specific contexts, and to mobilize resources accordingly. The plan requires Member States to have in place by 2017 national plans that will cover the use of antimicrobial medicines in both human health and animal health. This is a vital issue that no country can ignore. Later this year Oman will host, in collaboration with WHO, a high-level meeting of ministers of health and agriculture, to which all Member States of the Region have been invited.

The Health Assembly endorsed a resolution to improve access to sustainable supplies of affordable vaccines. This is a key issue for low- and middle-income countries, including those in our Region, aiming to extend immunization to the entire population, and particularly with the new generation of vaccines now available. Countries of our Region were instrumental in supporting the resolution tabled by Libya on this issue and on moving forward in implementing the global vaccine action plan endorsed in 2012. The Assembly also endorsed a global malaria strategy aimed at reducing the global disease burden by 40% by 2020 and by 90% by 2030. The strategy provides a comprehensive framework for countries to develop their own tailored programmes to achieve these targets.

The Health Assembly endorsed its first ever resolution on the health impacts of air pollution. The issue was intensely debated with many competing concerns. Nevertheless, in a show

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of unity, Member States came together to address an issue that is among the leading causes of disease and death, and the world largest single environmental health risk. Among other things, the resolution highlights the key role national health authorities need to play in raising awareness about the health impacts of air pollution, the need for cooperation between different sectors and integration of health concerns into all air pollution-related policies, and the need for improved morbidity and mortality surveillance of all illnesses related to air pollution.

Next month Ministers of Health of the Region gather again at the annual meeting of the WHO's regional governing body, the Regional Committee. There will be a special session highlighting, among other things, emergencies and humanitarian action in the Region and implementation of the International Health Regulations 2005. Both of these are core issues in relation to WHO's work in the Region, and to each other. Conflict and the humanitarian consequences continue across the Region, and now increasingly beyond it. We will be putting before Member States the action we have taken with partners in the past year to support communities and displaced populations, as well as the strategic steps we have taken to support the Region as a whole, including the establishment of a regional solidarity fund, enhancement of regional capacity and a strategy for monitoring and assessing implementation of the International Health Regulations. In turn, we will be looking to our Member States to endorse the course we are following and to guide us further on the way forward.

Self-management practices among type 2 diabetes patients attending primary health-care centres in Medina, Saudi Arabia

K.A. Al Johani,[1] G.E. Kendall[2] and P.D. Snider[2]

ممارسات العلاج الذاتي لدى مرضى السكري من النمط 2 الذين يراجعون مراكز الرعاية الصحية الأولية في المدينة المنورة بالمملكة العربية السعودية

خالد الجهني، جارث كيندل، بول سنايدر

الخلاصة: لقد كان الغرض من هذه الدراسة تقدير تواتر أنشطة العلاج الذاتي لدى مرضى السكري من النمط 2 في المملكة العربية السعودية. فتم استخدام النسخة العربية للاستبيان الخاص بملخص أنشطة العناية الذاتية بالسكري، للتعرف على ممارسات العلاج الذاتي لدى 210 مريضاً مصاباً بالسكري من النمط 2. فكان مستوى جلوكوز الدم لدى 15٪ فقط من المشاركين يدل على ضبط جيد لسكر الدم (الهيموجلين الجليكوزولاتي < 7 مليمول/ لتر). وأفاد معظمهم بأنهم أخذوا أدويتهم على النحو الموصوف لهم، لكن كثيرين منهم أظهروا مستويات منخفضة من الالتزام بممارسات العلاج الذاتي الأخرى (المتوسط العام 3.7 أيام في الأسبوع). وكان الذكور وذوو الدخل المنخفض أقل ميلاً إلى ممارسة أنشطة العناية الذاتية. وكان معظمهم قد تلقوا النصائح الأساسية الخاصة بالاضطلاع بأنشطة العناية الذاتية، لكن بعضهم فقط تلقوا معلومات أكثر تفصيلاً. هناك فرص متاحة لتحسين ممارسات العلاج الذاتي للسكري من النمط 2 في المملكة العربية السعودية ولزيادة نسبة المرضى الذين يحققون ضبطاً جيداً لسكر الدم.

ABSTRACT The purpose of this study was to estimate the frequency of self-management activities among people who have type 2 diabetes in Saudi Arabia. The Arabic version of the Summary of Diabetes Self-care Activities questionnaire was used to identify self-management practices among 210 patients with type 2 diabetes mellitus. Only 15% of participants had a blood glucose level indicative of good glycaemic control (glycosylated haemoglobin ≤ 7 mmol/L). Most reported that they took their medication as prescribed, but many demonstrated low levels of compliance with other self-management practices (overall mean 3.7 days per week). Males and those with lower incomes were less likely to practise self-care activities. Most were given basic advice to undertake self-care activities, but only some were given more detailed information. There are opportunities to improve type 2 diabetes mellitus self-management practices in Saudi Arabia and increase the proportion of patients who achieve good glycaemic control.

Pratiques d'auto-prise en charge chez des patients atteints de diabète de type 2 fréquentant des centres de soins de santé primaires à Médine (Arabie saoudite)

RÉSUMÉ L'objectif de la présente étude était d'estimer la fréquence des activités d'auto-prise en charge chez des personnes atteintes de diabète de type 2 en Arabie saoudite. La version en langue arabe du questionnaire *Summary of Diabetes Self-care Activities* a été utilisée pour identifier les pratiques d'auto-prise en charge chez 210 patients atteints de diabète sucré de type 2. Seuls 15 % des participants présentaient un taux glycémique révélateur d'un bon contrôle de leur glycémie (hémoglobine glycosylée ≤ 7 mmol/L). La plupart indiquaient avoir pris leur traitement comme prescrit, mais ils étaient nombreux à présenter des taux d'observance faibles pour d'autres pratiques d'auto-prise en charge (moyenne d'observance globale hebdomadaire : 3,7 jours sur sept). Les hommes et les personnes ayant des revenus plus faibles étaient moins susceptibles de pratiquer des activités d'autosoins. Pour la majorité, ils avaient reçu des conseils élémentaires pour réaliser des activités d'autosoins, mais seule une minorité d'entre eux avait eu des informations plus détaillées. Des opportunités existent pour améliorer les pratiques d'auto-prise en charge du diabète de type 2 en Arabie saoudite et augmenter le pourcentage de patients qui parviennent à un bon contrôle du taux de glycémie.

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Introduction

In the Eastern Mediterranean Region, 7.7% of the population has been diagnosed with diabetes, a figure which has been estimated to double in the next 20 years (*1*). In Saudi Arabia, research provides some evidence that diabetes is not well managed (*2–4*). Poor access to health care, ineffective management of chronic disease and poor referral patterns were identified as major challenges to optimum diabetes health care in the country (*5–7*).

Clearly, a great deal more research is required about the management of diabetes in Saudi Arabia. The present study follows from the successful translation of the Summary of Diabetes Self-care Activities (SDSCA) instrument into the Arabic language and its validation using a Saudi population sample (*8,9*). This is the first estimation of the frequency of self-management activities in Saudi Arabia that is based on international criteria, as reflected in the study instrument's subscales. The study may inform future projects to improve diabetes care and encourage researchers to undertake similar studies on a wider population base.

Methods

Setting and sample

This paper was part of a larger study that was conducted by June 2011. Out of 35 health-care centres in the Medina catchment area (population 1 100 093), the study was conducted in 3 out of 4 main health centres (average population covered by each centre was about 18 000) (*10*). The study locations were representative of Saudi Arabia's diabetes chronic disease management programmes (5). All type 2 diabetes patients attending the clinic during the 2-week data collection period were invited through posters and approached by the researcher and the researcher assistant to participate in the study (approximately 600). A convenience sample of 210 people (70 from each centre with males and females represented equally) agreed to participate in the study.

The inclusion criteria were: diagnosed with type 2 diabetes; able to participate without a mental disability that could affect his/her decisions; no physical disability affecting self-care; and above 26 years of age. Patients who were not registered at the chronic diseases clinics at the study locations were excluded.

Procedure

Participants were recruited through posters that were located in the study locations. In addition, the researcher and the researcher assistant invited patients in the waiting room to participate. Information about the study was mainly presented verbally in detail. Participants were informed that they may record their responses directly on the questionnaire or they may delegate a research assistant or nurse to the task. Although some participants recorded their responses themselves, the majority asked a research assistant or nurse to do so.

For each participant data about the glycosylated haemoglobin (HbA1C) level or fasting blood glucose (FBG) level that had been measured in the past 3 months were obtained from the medical records. The recruitment process was implemented until the required participant quota ($n = 70$) was attained in each centre, with a mean duration of 2 weeks for each study location.

Ethical approval was obtained from the authors' affiliated medical and research institutions in both Saudi Arabia and Australia. Verbal consent was obtained from the participants before commencing data collection.

Instruments

The study questionnaire consisted of 4 main sections: sociodemographic data; time since the diagnosis with diabetes and any complications experienced; the Arabic version of the SDSCA (A-SDSCA); and the extended A-SDSCA. In addition, a blood sample was drawn to obtain a recent HbA1C or FBG level.

Sociodemographic variables

Sociodemographic data were re-categorized to allow statistical comparisons between groups. Age was categorized as < 65 and ≥ 65 years. Income was categorized as a binary variable based on annual income in Saudi riyals (SR) (> 50 000 versus ≤ 50 000). Low-income group in this study were those who with annual income up to SR 50 000, taking into account the assumption that they were renting their homes.

Time since first diagnosis and incidence of complications

Previous studies have indicated that there is a positive relationship between diabetes duration and the incidence of medical complications (*11*). Duration of diabetes incidence was later collapsed and presented as a binary variable with categories < 8 years and ≥ 8 years. Participants were also asked to state if they had microvascular and macrovascular complications, such as cardiac, eye and kidney health problems (*1*).

A-SDSCA questionnaire

The main section of the A-SDSCA instrument consists of 4 self-care subscales: diet (2 items), exercise (2 items), blood glucose testing (2 items) and foot care (2 items) and 2 questions each about medications and smoking. The first 4 subscales ask the respondents to record on how many days (from 0 to 7), they have performed the specified self-care activity. Detailed information was presented in an earlier paper (*9*). Respondents are also asked if they smoked. If they answered "yes," they were asked how many cigarettes or waterpipes they smoked per day.

A-SDSCA extended questionnaire

Items included in the extension to the A-SDSCA aim to identify the amount of self-management diabetes education the participants have received. The extension consists of 4 sections: diet (8 items), exercise (6 items), blood glucose testing (5 items) and medications (5 items). To complete these sections, respondents are required to tick boxes for the specific advice that they have received from a doctor, nurse, dietician or diabetes educator at their health-care centre.

Blood glucose level

HbA1C level taken from the participant's medical record was the measure of blood glucose used if the test had been undertaken during the last 3 months. However, due to data limitation in the study locations, FBG was recorded as an alternative. Participants were identified as having a controlled blood glucose level if they had HbA1C ≤ 7 mmol/L or FBG ≤ 130 mg/dL (*12*). Any value above these thresholds was considered to be an uncontrolled blood glucose level.

Data analysis

Data analysis was undertaken using *SPSS*, version 17 software. The main A-SDSCA instrument was scored by calculating the mean for each item then calculating the mean for each subscale and computing the mean of the total A-SDSCA scale. Binary cut-off variables were also derived to identify the proportion of participants whose self-care management was within recommended self-management practices (*13,14*). Items from the extension part of the instrument were scored by computing frequencies and percentages. A series of binary variables were derived to summarize data regarding the sociodemographic characteristics of participants, length of time since diagnosis, diabetes complications and blood glucose level.

The frequencies of variables were tabulated. Next, a number of independent samples *t*-tests were undertaken to determine if any of the self-management activities undertaken by participants varied according to their sociodemographic characteristics, time since diagnosis, presence of complications and blood glucose levels. Statistical significance was defined at the $P < 0.05$ level (2-tailed). Finally, standard linear regression was performed to assess the independent relationship between the explanatory variables and the total A-SDSCA score and to determine the proportion of variance explained by these variables.

Results

Descriptive analysis

Participants' characteristics

As Table 1 shows, the majority of participants in this sample (82%) were aged 26–65 years and there was an equal number of males and females. One-third of participants (33%) had no formal education, and almost 55% had an annual income of SR < 50 000 (US$ < 13 000). Two-thirds (66%) of the recruited sample had been diagnosed with type 2 diabetes mellitus for more than 8 years. Blood glucose testing records indicated that only 15% of the participants had a blood glucose level in the range recommended by the 2008 American Diabetes Association (ADA) guideline. Medical complications had already affected some participants, in the form of heart disease (4%), hypertension (30%), kidney disease (2%) and eye disease (17%).

Mean scores for A-SDSCA scales and binary outcomes

The mean scores for A-SDSCA scales and binary outcomes for A-SDSCA scales are presented in Table 2. This shows that participants demonstrated low to medium mean levels of self-management; however, standard deviations of around 2.0 or more indicated a considerable variation in the number of days per week these activities were undertaken.

Table 1 **Characteristics of type 2 diabetes patients who participated in the study (*n* = 210)**

Variable	Respondents	
	No.	%
Age (years)		
26–65	172	82
> 65	37	18
Sex		
Male	105	50
Female	105	50
Income/year (Saudi riyals)		
< 50 000	116	55
≥ 50 000	94	45
Education level		
No formal education	70	33
Formal educated	139	67
Disease duration (years)		
< 8	71	34
≥ 8	138	66
Blood glucose		
Controlled	30	15
Uncontrolled	174	85

Data were missing in some categories.

Binary cut-off scores, which identify the proportion of participants whose self-care management was within ADA recommended guidelines, are also presented in Table 2. According to the information provided, 29% of participants were unable to manage their diet, 47% did not take enough exercise, 85% did not measure their blood glucose frequently, 41% were lax in their foot care and 25% did not take their medication as prescribed. A total of 27 participants (13%) were smokers at the time of data collection.

Responses to A-SDSCA extension questions

Table 3 presents responses to the A-SDSCA extension questions and shows that 91% of the participants indicated they were advised to follow a low-fat diet plan by their health-care providers; however, 5 patients (2%) reported they did not receive any dietary recommendations. The majority of participants (87%) were advised to engage in low-level exercise, such as walking on a daily basis, while 7 participants (3%) reported they did not receive advice that stressed the importance of exercise in everyday self-management practices. Other recommendations are presented in detail in Table 3.

Bivariate analysis

Bivariate relationships between patients' mean self-care scores and their sociodemographic/clinical characteristics are reported for the 5 self-care subscales of the A-SDSCA (diet, exercise, blood glucose, foot care and medication) in Table 4. It can be seen that there was a significant relationship between age and foot care, with those aged ≥ 65 years spending less time on average practising foot-care activities than younger participants.

Table 4 also shows that there were significant relationships between sex and diet, blood glucose testing and foot care, with males on average spending less time practising these activities (diffs –1.03, $P < 0.001$; –0.775, $P < 0.01$; and –2.63, $P < 0.001$ respectively).

Formal education was not significantly associated with most self-care activities. However, it can be seen that those with formal education spent less time practising foot care (diff –1.02; $P < 0.05$). Income was another potential risk factor and was significantly associated with blood glucose testing. Those with lower incomes spent less time on this activity (diff –1.16; $P < 0.001$).

Duration of time with diabetes was associated with good exercise self-management, but not with other activities. Participants who had been diagnosed for ≥ 8 years spent significantly fewer days per week exercising than those diagnosed for < 8 years (diff 0.806; $P < 0.05$). Those with controlled blood glucose spent more days on good diet than those with uncontrolled blood glucose (diff 1.07; $P < 0.001$) and more often tested their blood glucose (diff 0.886; $P < 0.05$).

Finally, Table 4 shows that participants who smoked spent more time than those who did not on diet and foot care (diff 1.29; $P < 0.001$ and diff 1.59;

Table 2 **Frequencies of positive responses and mean scores on self-care activity items of the Arabic version of the Summary of Diabetes Self-care Activities questionnaire of type 2 diabetes patients (*n* = 210)**

Subscale/item	Binary outcomes			Item scores (days/week[b])		Subscale scores (days/week[b])	
	No. of days/week activity performed[a]	Respondents					
		No.	%	Mean	SD	Mean	SD
Diet						3.60	1.70
Q1. Follow a healthful eating plan	≤ 2	61	29	3.48	2.13	–	–
Q2. Follow eating plan over the past month	≥ 3	149	71	3.58	2.14	–	–
Exercise						3.02	2.17
Q3. Participate in at least 30 min exercise	≤ 2	98	47	3.34	2.33	–	–
Q4. Participate in specific exercise session	≥ 3	109	52	2.63	2.32	–	–
Blood sugar checks						2.24	1.90
Q5. Test your blood sugar	≤ 4	179	85	2.43	2.04	–	–
Q6. Test your blood sugar as recommended	≥ 5	28	13	2.02	1.88	–	–
Foot care						3.49	2.37
Q7. Check your feet	≤ 2	87	41	3.72	2.60	–	–
Q8. Inspect the inside of your shoes	≥ 3	118	56	3.34	2.66	–	–
Medication	≤ 6	52	25			6.26	0.59
Overall	–	–	–	–	–	3.72	1.15

[a]Based on the American Diabetes Association 2008 guideline; [b]Scale range 0–7.
SD = standard deviation.

Table 3 **Responses of the type 2 diabetes patients to the extension questions on the Arabic version of the Summary of Diabetes Self-care Activities questionnaire**

Which of the following has your health-care team advised you to do?	Yes		No	
	No.	%	No.	%
Follow a low-fat eating plan	189	91	19	9
Follow a complex carbohydrate diet	154	73	55	27
Reduce calories you eat to lose weight	138	66	71	34
Eat lots of food high in dietary fibre	150	71	59	29
Received advice about my diet	204	98	5	2
Get low level exercise (such as walking) on a daily basis	182	87	27	13
Exercise for at least 20 min at least 3 times a week	81	39	128	61
Fit exercise into your daily routine	89	43	120	57
Received advice about exercise	202	97	7	3
Test your blood sugar using a machine to read the results	199	95	9	5
Test your urine for sugar	91	44	11	56
Received advice about blood sugar testing	201	97	7	3

$P < 0.001$), and they were more regular in taking their medication (diff 1.16; $P < 0.05$).

Multivariate analysis

The results of linear regression analysis, the independent relationships between the various characteristics of the participants and their total self-management scores, are presented in Table 5. Particie pants’ age, sex, income, level of education, length of time since diagnosis, level of glucose control and smoking habit accounted for 25% of the variability in their total self-management score (R^2 = 0.251). Table 5 shows that women were much more likely than men to undertake appropriate diabetes self-management ($\beta = 0.321$; $P < 0.001$) and smokers were more likely than non-smokers not to do so ($\beta = -0.192$; $P < 0.01$).

Other statistically significant results were found for income and the level of glucose control. Participants with an income SR > 50 000 were more likely than those with a lower income to undertake appropriate diabetes care activities ($\beta = 0.129$; $P = 0.055$). Those with a controlled glucose level were more likely than those with uncontrolled glucose to undertake appropriate diabetes care activities ($\beta = -0.122$; $P = 0.054$). Participant’s age, educational level and time since diagnosis had little impact on total self-management scores after adjustment for all other characteristics.

Discussion

Self-care management practices

A major finding of the study was that only 15% of participants had an HbA1C level ≤ 7 mmol/L (i.e. indicative of good glycaemic control) (*12*). This result is very similar to previous research findings in Saudi Arabia. Azab found that 21% of patients had a FBG < 4–6 mmol/L (*2*) and Al-Hussein showed that 21% of the sample had an acceptable HbA1C level of < 7 mmol/L (*4*).

Another important finding was that participants generally had poor glycaemic control, even though most of them reported that they took their

Table 4 **Bivariate relationships between sociodemographic/clinical variables of the type 2 diabetes patients and differences in mean self-care scores between groups on the 5 subscales**

Variable (groups)	t-test for differences in mean scores on self-care subscales				
	Diet	Exercise	Blood sugar checks	Foot care	Medication
Age (< 65 yrs = 1, ≥ 65 yrs = 2)	0.61	1.86^{b}	–0.34	2.81^{b}	–0.58
Sex (male = 1, female = 2)	–4.60	$-1.30^{a,b}$	$-2.90^{a,b}$	-9.49^{b}	–0.13
Formal education (no = 1, yes = 2)	0.93	-1.31^{b}	-0.67^{b}	2.22^{b}	0.22
Income (≤ SR 50 000 = 1, > SR 50 000 = 2)	$-1.50^{a,b}$	$-0.95^{a,b}$	-4.61^{b}	1.56^{b}	–0.61
Disease duration (< 8 yrs= 1, ≥ 8 yrs = 2)	0.37^{b}	2.57^{b}	0.16	1.78^{b}	-1.40^{b}
Blood glucose (controlled = 1, uncontrolled = 2)	2.23^{b}	0.91^{b}	2.30^{b}	1.32^{b}	-1.08^{b}
Smoking status (yes = 1, no = 2)	3.81^{b}	1.33^{b}	0.59	3.28^{b}	2.65^{b}

[a]*Equal variance not assumed;* [b]*$P \leq 0.05$.*

Table 5 **Multivariate relationships between sociodemographic/clinical variables of the type 2 diabetes patients and their overall self-care scores**

Predictors	B	SE B	β	*P*-value
Age ≥ 65 years	−0.256	0.222	−0.082	0.251
Female sex	0.753	0.173	0.321	0.000
Income > SR 50 000	0.305	0.158	0.129	0.055
Formal education	−0.067	0.181	−0.027	0.712
Disease duration ≥ 8 years	−0.128	0.161	−0.052	0.429
Glucose uncontrolled	−0.403	0.208	−0.122	0.054
Smoker	−0.684	0.237	−0.192	0.004

$F = 9.30$, $P = 0001$, $R^2 = 0.251$.

medication as prescribed. The finding that the study participants demonstrated low levels of compliance with most other self-management practices indicates that they did not understand the importance of these practices for moderating their blood glucose levels and minimizing the possibility of developing undesirable complications of the disease. Furthermore, the finding that only 15% of participants had good glycaemic control is strong evidence that medication alone is not the answer to the effective management of type 2 diabetes mellitus. These findings reflect serious limitations in the way type 2 diabetes mellitus self-management is promoted in the study locations.

With regard to self-care management, while 71% of participants reported eating a healthy diet 3 or more days per week, only 12% reported adhering to an optimal diet 7 days per week. This indicates how hard it is to maintain a healthy diet in Saudi Arabia, where social connections are strong and people are expected to attend all social gatherings to which they are invited to eat the traditional food provided (*15*). This is similar to the situation in the Philippines, where the people have a strong connection with rice as a source of carbohydrate (*16*). In the Arab context, there is a high probability that traditional social and cultural practices work against the efforts made by people with type 2 diabetes mellitus to maintain an optimal diet.

As to exercise, only 53% of the sample reported that they exercised 3 or more days per week as recommended. This percentage is lower than that reported in similar Asian studies. In a recent Chinese study, it was reported that 40% of participants who had type 2 diabetes mellitus maintained healthy exercise practices throughout the week (*17*). In another study, 54% of Korean people with type 2 diabetes mellitus who visited a general practitioner maintained good exercise practices (*11*). A possible reason for the large proportion of participants in the current study not exercising is that 18% were over 65 years of age. They may not be able to perform regular exercise due to general physical decline or poor health. However, it is much more likely to be attributable to the hot climate in Saudi Arabia, which constrains simple exercises such as walking. Also, Saudi Arabian culture is quite unlike Asian culture in that it does not encourage other types of healthy activities for older people such as yoga and *tai chi* (*18*).

The overall mean numbers of days per week that self-care activities were practised in this study was 3.7. While the practice of self-care activities is lower than that reported by studies in the United States that have also used the SDSCA instrument (*14,16*), it is comparable to that found in a recent study in Jordan, where the culture and context are similar to Saudi Arabia (*13*). In our study, participants' levels of self-management practices were based on whether or not they were performing within classification thresholds that were adapted from the ADA guidelines of 2008 (*12*). Whereas the results of this study showed that 29% of Saudi participants did not follow their recommended diet 3 or more days per week, the Jordan study found that approximately 19% of the Jordanian sample did not do so (*13*). Similarly, 68% of participants did not achieve the recommended physical exercise threshold (≤ 2 days/week) compared with 47% in the current study. Conversely, it was reported that 38% of the Jordanian participants tested their blood glucose at home at least 5 days per week, whereas only 15% of the Saudi participants did so. Compliance with medication was reasonable in both studies, but higher in Jordan (91% versus 75%). These results concur with other studies conducted in developed countries that have found a general preference for people to take medication for any health problem, as it is easier than changing their own behaviour (*19,20*).

Explanatory variables

Given the heterogeneity of sociodemographic characteristics among people with type 2 diabetes mellitus that has been noted in all countries, it is important to know if there are certain groups within the population who are likely to attend to self-care activities more or less than others. The results of this study show that in Saudi Arabia those who were older, male or low-income earners were less likely to practise specific self-care activities. While older age was solely associated with foot care, and low income was solely associated with blood glucose testing, male sex was significantly related to diet, blood glucose testing and foot care.

The results also showed that those who had good glycaemic control were more likely to manage their diet appropriately and test their blood glucose more regularly; those who had no formal education were more likely to care for their feet; and those who smoked were more likely to attend to diet, foot care and medication. In contrast to more developed countries, people in Saudi Arabia who have little formal education and thus low social status are more likely, rather than less likely, to follow medical advice. As to smoking, the 27 smokers in the study were predominantly younger people. They might not be involved in social gatherings to the same extent as older people, and thus not subjected to the unhealthy diet of rice and meat typically offered at these events. Another possible explanation is that smoking has decreased their appetite for food (*21*).

With regard to the practice of self-care activities, sex, income, glycaemic control and smoking were all independent explanatory factors. Given that glycaemic control is most likely an outcome of good self-management rather than a predictor of it and that smoking is known to do much more harm than good, it follows then that sex and income remain as the 2 potential issues for health-care providers to consider. Worldwide, low income has been identified as a barrier to attaining recommended self-management practices such as blood glucose monitoring (*22*). Low income restricts patients' ability to access health-care services and purchase specialized equipment. Low income, or financial strain, also acts as a proxy measure for the experience of life stress, which is associated with increased morbidity and mortality (*23*). The fact that health-care services are free in Saudi Arabia does not mean people who are on a low income have equal access or opportunity. As mentioned previously, the health-care system does not, for example, provide a glucometer for all patients with type 2 diabetes mellitus. Furthermore, it is likely that those on low incomes are not able to visit a health-care centre regularly due to difficulties with work scheduling, child-care and transport.

A possible explanation for better dietary practices among women could be that they are more likely to be mindful of their diet than men are (*24*). Because women are considered a dependent population group in Saudi, it is not surprising that they more readily adhere to advice about diabetes self-management (*18*). The culture, social norms and religious commands encourage those of lower status to abide by those in important educational and religious positions.

Advice given by health-care providers

The responses to the A-SDSCA extension questions in the current study make it clear that a great majority of participants were given at least basic advice by their health-care providers to undertake self-care activities. However, it is also evident that fewer people were given more detailed information about diet and exercise, such as eating fruit and vegetables and exercising continuously for at least 20 minutes 3 times per week. In this regard, the advice given fell short of meeting international standards of self-management education (*12*). The failure to encourage patients to practise self-management activities may be considered a major limitation of the current health education approach in primary health care in Saudi Arabia. Further research is required in Saudi to substantiate this claim or to refute it. If it is substantiated, the health-care authorities must act to improve the standard of self-management education given to people with type 2 diabetes mellitus.

Limitations of the study

The study has a number of strengths, but there are also 2 potential limitations. First, as participants were purposefully sampled to achieve equal representation of the sexes, and two-thirds of those people who were invited to participate declined to do so, sample bias is possible. However, the characteristics of those who did participate were very similar to those obtained in other Saudi studies and there is little indication that they were a socioeconomically advantaged group (*4,6,25*). More importantly, there was no indication that people declined to participate because they were illiterate. In fact, many people requested that the questions be read to them and that the researcher complete the questionnaire. Second, the exploratory cross-sectional study design did not allow cause-and-effect relationships between explanatory variables and self-management outcomes to be examined.

Conclusion

There are opportunities to improve type 2 diabetes mellitus self-management practices in Saudi Arabia. The contribution of nurses and other team members is scant in the literature. Appropriately qualified diabetes educators could take the lead in supporting patients to play an active role in managing their treatment plan, exploring effective self-management strategies, and learning to take advantage of the Saudi Ministry of Health and community resources. Due to the small sample in the current study, further studies are strongly recommended.

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Diet and the risk of head and neck squamous cell carcinomas in a Syrian population: a case–control study

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النظام الغذائي ومخاطر إصابة الرأس والعنق بالسرطانة حَرْشفية الخلايا لدى مجموعة سورية: دراسة حالات وشواهد

أميره النور، استير جوري، و فرح نجا، وائل حتاحت، وأحمد المناديلي

الخلاصة: لم يتم البحث في كون النظام الغذائي عامل خطر محتمل لإصابة الرأس والعنق بالسرطانة حرشفية الخلايا في الجمهورية العربية السورية. ففي دراسة حالات وشواهد بأحد المستشفيات أجريت مقابلات مع 108 أشخاص مصابين بالسرطان و105 شواهد حول الاستهلاك الغذائي باستخدام استبيان – باللغة العربية ذي مصدوقية – عن تواتر تناول الأطعمة. وتم جمع المعلومات الاجتماعية – السكانية والمعلومات السلوكية المتعلقة بالمخاطر الصحية بواسطة استبيان يملؤه الشخص بنفسه. وبعد تعديل العوامل المتعلقة بالسن والجنس والمستوى التعليمي وحالة العمل وتدخين التبغ أظهر تحليل التحوُّف المتعدد أن قلة تناول الخضروات(OR = 3.8؛ 95٪ CI 9.10-1.57) والحبوب/ منتجات الحبوب (OR = 2.6؛ 95٪ CI 5.99-1.12) والمشروبات الغنية بالكافيين (OR = 3.2؛ 95٪ CI 7.43-1.34) قد زادت من مخاطر إصابة الرأس والعنق بالسرطانة حرشفية الخلايا، في حين أن انخفاض مستوى تناول الدهون والزيوت قد قلل من هذه المخاطر (OR =0.6؛ 95٪ CI 1.30-0.24). ينبغي أخذ هذه النتائج بعين الاعتبار في برامج تعزيز الصحة الوطنية في الجمهورية العربية السورية.

ABSTRACT Diet has not been investigated as a potential risk factor for head and neck squamous cell carcinomas in the Syrian Arab Republic. In a hospital-based, unmatched case–control study 108 people with cancer and 105 controls were interviewed about dietary intake using a validated food frequency questionnaire in Arabic. Sociodemographic and health risk behavioural information were collected by a self-completed questionnaire. Adjusting for age, sex, education level, working status and tobacco smoking, the multiple regression analysis showed that low intake of vegetables (OR 3.8; 95% CI: 1.57–9.10), cereal/cereal products (OR 2.6; 95% CI: 1.12–5.99) and high-caffeine beverages (OR 3.2; 95% CI: 1.34–7.43) increased the risk of head and neck squamous cell carcinomas, whereas a low level of fats and oils intake decreased the risk (OR 0.6; 95% CI: 0.24–1.30). These findings should be considered in national health promotion programmes in the Syrian Arab Republic.

Alimentation et risque de carcinome squameux de la tête et du cou dans une population syrienne : étude cas-témoins

RÉSUMÉ L'alimentation n'avait pas encore été étudiée comme facteur de risque potentiel pour le carcinome squameux de la tête et du cou en République arabe syrienne. Dans une étude cas-témoins non appariés en milieu hospitalier, 108 personnes atteintes d'un cancer et 105 témoins ont été interrogés sur leurs apports alimentaires en recourant à la version en langue arabe d'un questionnaire validé sur la fréquence de consommation alimentaire. Les données sociodémographiques et comportementales en matière de risque pour la santé ont été recueillies à l'aide d'un autoquestionnaire. Après ajustment en fonction de l'âge, du sexe, du niveau d'études et du statut professionnel et tabagique, l'analyse de régression multiple a révélé qu'une faible consommation de légumes (OR 3,8 ; IC à 95 % : 1,57-9,10), de céréales/produits céréaliers (OR 2,6 ; IC à 95 % : 1,12-5,99) et de boissons à teneur élevée en caféine (OR 3,2 ; IC à 95 % : 1,34-7,43) augmentaient le risque de carcinome squameux de la tête et du cou, tandis qu'un faible apport en graisses et en huiles réduisait ce risque (OR 0,6 ; IC à 95 % : 0,24 - 1,30). Ces résultats doivent être pris en compte dans les programmes nationaux de promotion de la santé en République arabe syrienne.

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Introduction

Head and neck squamous cell carcinomas (HNSCC) are malignant tumours arising most frequently in the non-keratinized epithelial tissue of the upper part of the respiratory or gastrointestinal tracts. These tumours develop most commonly during the sixth or seventh decade of life, and significantly less frequently in individuals younger than 40 years (*1*). Squamous cell carcinoma (SCC) is the most frequent type of head and neck cancer. Tobacco, alcohol and diet are major risk factors (*2,3*).

The association between dietary intake and the risk of HNSCC has been investigated in a number of studies, whether in relation to single food items or dietary groups (*4,5*). For example, a low intake of vegetables and fruits, which leads to insufficient folate intake, was associated with an increased risk of HNSCC (*6*). In contrast, high intake of food rich in fats was associated with an increased risk of HNSCC (*7*). Generalizing these findings to other populations is not feasible, as dietary intake varies widely across different regions. Thus, local studies should be carried out to investigate the role of local diets in the risk of HNSCC. Should this link be established it will help national public health programmes in shaping dietary recommendations based on the on the role that these dietary groups play in the risk of HNSCC. No study has investigated the association between dietary intake and the risk of HNSCC in the Syrian Arab Republic. Thus, the aim of the current study was to test the association between intake of dietary food groups and the risk of HNSCC in a Syrian population.

Methods

Study design and sampling

The current study adopted a hospital-based, unmatched case–control design. Subjects were selected from all public hospital in Damascus city where patients with HNSCC are referred to receive treatment. These hospitals are: the University of Damascus Dental Hospital, Al-Bayrouny Hospital and Al-Mojtahed Hospital, which are the only public hospitals in the southern part of the country that provide treatment for cancer patients, including surgical treatment, chemotherapy and/or radiotherapy.

A sample size of 216 individuals was proposed to meet the current study requirements of demonstrating a 2.5-fold or greater odds ratio (OR) in dietary groups between cases and controls. This calculation set the power of the test at 80% and the level of significance at 5%. This sample size calculation allowed for no more than 5% potential exclusion due to incomplete data.

HNSCC are rare in younger age groups and therefore cases were those aged 40 years and above who had been recently diagnosed with HNSCC and were referred to the above-mentioned hospitals to receive treatment. Cases were approached in their first visit to hospital to receive treatment. Controls were healthy subjects attending the hospitals as the cases' companions (family members/friends living in the same community) and did not suffer from any diet-related diseases such as diabetes or cardiovascular diseases. Both cases and controls were residents in Damascus or suburban Damascus. Subjects with less than 20 natural teeth were excluded as having less than 20 natural teeth might affect diet and nutrition regardless of the medical condition.

Ethical approval for the study was obtained from the research ethics committee of University of Damascus Faculty of Dentistry. Written consent was obtained from each subject. Confidentiality of information collected in the current study was assured. The current study protocol was piloted on 20 participants (10% of the planned sample size).

Data collection and handling

Data collection took place between October 2011 and April 2012. Dietary data were collected by a face-to-face interview using a validated, semi-quantitative food frequency questionnaire (*8*). This has been validated on Lebanese/Syrian food items. This questionnaire includes 128 food items and 11 beverages. Subjects were asked to indicate the average frequency of intake of each food item (per month, per week or per day), over the last year. Thereafter, the average weekly intake of each food item was calculated. For example, the frequency of average monthly intake was divided by 4, whereas the frequency of average daily intake was multiplied by 7. Food items were grouped into 9 groups based on the universal classification of MyPyramid food groups (*9,10*). These 9 groups were dairy, meat/meat products, vegetables, fruits, cereals/cereal products, fats and oils, beverages high in caffeine content, beverages low in caffeine content, and sugars and syrups. Each dietary group was dichotomized into high and low levels.

Participants also filled a self-completed questionnaire about their sociodemographic characteristics and health risk behaviours: age, sex, educational level (classified for analysis as post-secondary school education or secondary-school education and below), working status (working or not working) and social class (classified for analysis into professional/non-manual occupation or manual occupation), tobacco smoking (classified for analysis into current/past smoker within the last 10 years or never smoker); and alcohol drinking (current, former or never drinker).

Statistical analysis

A univariate logistic regression was carried out to test the association between each dietary group and the risk of HNSCC. Next, a multiple logistic regression was performed to confirm the significance of identified associations between dietary groups and the risk of HNSCC, after adjusting for significant sociodemographic and health risk behaviours.

Results

Sociodemographic characteristics and health risk behaviours

The response rate of the selected sample was 100%. Only 3 controls were excluded due to incomplete data. The sociodemographic characteristics and health risk behaviours of the current study participants are summarized in Table 1. Only 1 participant reported alcohol drinking. The frequency distribution of the cases according to HNSCC site was as follows: 17 (15.7%) oral, 20 (18.5%) pharyngeal and 71 (65.7%) laryngeal cancers.

Univariate analysis of diet & HNSCC

The results of univariate logistic regression are summarized in Table 2. The risk of HNSCC increased with low levels of intake of vegetables (OR 3.0; 95% CI: 1.72–5.25; $P < 0.001$) and of cereals/cereal products (OR 2.0; 95% CI = 1.17–3.4; $P = 0.012$) (Table 2). Both low consumption of beverages high in caffeine (OR 2.7; 95% CI: 1.53–4.63; $P < 0.001$) and low intake of beverages low in caffeine (OR 2.0; 95% CI: 1.17–3.50; $P = 0.011$) increased the risk of HNSCC (Table 2). In contrast, a low level of fats and oils intake decreased the risk of HNSCC (OR 0.5; 95% CI: 0.27–0.82; $P = 0.008$) (Table 2). No significant associations between diary, meat/meat products, fruits, sugars and syrups groups and the risk of HNSCC were found ($P > 0.05$) (Table 2).

Multiple regression analysis of risk factors for HNSCC

After adjusting for age, sex, education level, working status and tobacco smoking, the multiple regression analysis confirmed the significance of the associations between intakes of the abovementioned food groups and the risk of HNSCC, except for beverages low in caffeine content (Table 2). Low levels of intake of vegetables (OR 3.8; 95% CI: 1.57–9.10), cereal/cereal products (OR 2.6; 95% CI: 1.12–5.99) and high-caffeine beverages (OR 3.2; 95% CI: 1.34–7.43) increased the risk of HNSCC, whereas a low level of fats and oils intake decreased the risk of HNSCC (OR 0.6; 95% CI: 0.24–1.30).

Discussion

The current case–control study found that low levels of intake of vegetables, cereal/cereal products and high-caffeine beverages might increase the risk of HNSCC, whereas a low level of fats and oils intake might decrease the risk of HNSCC, providing further evidence,

Table 1 Sociodemographic characteristics and health risk behaviours of the study sample

Variable	Controls (n = 105) No.	Controls (n = 105) %	Cases (n = 108) No.	Cases (n = 108) %	P-value (χ^2-test)
Age (years)					
40–50	68	64.8	36	33.3	
50–60	28	26.7	36	33.3	
60+	9	8.6	36	33.3	< 0.001
Sex					
Male	39	37.1	83	76.9	
Female	66	62.9	25	23.1	< 0.001
Education [a]					
High level	67	63.8	44	40.7	
Low level	38	36.2	64	59.3	0.001
Tobacco smoking					
Not smoking	88	83.8	33	30.6	
Smoking [b]	17	16.2	75	69.4	< 0.001
Work status					
Working	55	73.1	79	52.4	
Not working	50	47.6	29	26.9	0.002
Social class [c]					
High	42	52.5	36	64.3	
Low	38	47.5	20	35.7	0.218

[a]High level included post-secondary-school education (college, university and postgraduate studies) and low level included secondary-school education and below; [b]Current or past smoker (within the last 10 years); [c]Social class was measured by occupation; high social class included professional (non-manual) occupations and low social class included manual occupations. Since those not working (n = 79) cannot be classified in this variable, their social class information was considered missing.

Table 2 **Frequency distribution, unadjusted and adjusted odds of head and neck squamous cell carcinomas**

Variable	Total	Carcinoma cases		Unadjusted OR (95% CI)	*P*-value	Adjusted OR (95% CI)[a]	*P*-value
	No.	No.	%				
Dairy products							
High	107	57	53.3	1		1	
Low	106	51	48.1	0.8 (0.48–1.39)	0.452	0.6 (0.24–1.30)	0.176
Meat/meat products							
High	107	48	44.4	1		1	
Low	106	60	56.6	1.6 (0.93–2.75)	0.087	0.5 (0.20–1.20)	0.119
Vegetables							
High	109	41	37.6	1		1	
Low	104	67	64.4	3 (1.72–5.25)	< 0.001	3.8 (1.57–9.10)	0.003
Fruits							
High	130	62	47.7	1		1	
Low	83	46	55.4	1.4 (0.78–2.37)	0.272	2.0 (0.88–4.97)	0.095
Cereals/cereal products							
High	107	45	42.1	1		1	
Low	106	63	59.4	2.0 (1.17–3.48)	0.012	2.6 (1.12–5.99)	0.026
Fats and oils							
High	119	70	58.8	1		1	
Low	94	38	40.4	0.5 (0.27–0.82)	0.008	0.3 (0.10–0.62)	0.002
Beverages high in caffeine							
High	108	42	38.9	1		1	
Low	105	66	62.9	2.7 (1.53–4.63)	0.001	3.2 (1.34–7.43)	0.008
Beverages low in caffeine							
High	111	47	42.3	1		1	
Low	102	61	59.8	2.0 (1.17–3.50)	0.011	1.0 (0.44–2.31)	0.980
Sugars and syrups							
High	109	55	50.5	1		1	
Low	104	53	51.0	1 (0.60–1.75)	0.942	0.6 (0.26–1.32)	0.195

[a] *Adjusted for age, sex, education level, working status and tobacco smoking.*
OR = odds ratio; CI = confidence interval.

therefore, for the important role of diet in HNSCC.

The role of low levels of vegetables intake in the risk of HNSCC found in the current study is in agreement with Levi et al.'s study in Switzerland that showed a linkage between low vegetable intake and high risk of oral and pharyngeal cancer (*11*). Previous studies in China and Italy on vegetable and fruit intake and risk of oral and pharyngeal carcinomas have consistently reported protective effects for these plant foods (*12,13*). De Stefani et al. in Uruguay suggested that fruits are more protective than vegetables (*14*). In our study, the greatest reduction in risk was associated with a high intake of fresh vegetables (adjusted OR 3.8; 95% CI: 1.57–9.10). With regard to possible mechanism(s) of action of vegetables, it is tempting to attribute the protective effect of these foods to their high content of vitamins and bioactive substances, particularly vitamin C, carotenoids and flavonols (*15*). The lack of a significant role of fruits in the risk of HNSCC in the current study population might be attributed to the general high intake of this dietary group in the Syrian population.

In the present study, high intake of beverages low in caffeine (such as green/herbal teas) was associated with a protective effect. The protective effect of herbal teas has been attributed to an anti-proliferative effect and induction of apoptosis. Other suggested mechanisms relate to the antioxidative properties, the inhibition of lipoxygenase and cyclooxygenase, a rapid decrease of prostaglandin E2 and the inhibition of angiogenesis (*16*). The significance of beverages low in caffeine did not persist in the multiple regression model, suggesting a possible confounding effect of one or more of the sociodemographic and health risk behavioural variables in the model.

It is worth mentioning that there may be a "cleansing" effect of some of the plants and non-alcoholic beverages, as suggested previously by Franceschi et al. in Italy. They investigated the frequency of intake of a selected number of indicator foods on the risk of cancer of the mouth in smokers and non-smokers and suggested that the cleansing effect of some food, namely some vegetables and nonalcoholic drinks, may reduce the risk of mouth cancer (*17*). The role of vegetables in cleansing carcinogens inside the oral cavity could be attributed to their rich content of dietary fibres (*18*).

The role of low levels of cereals/cereal products intake in the risk of HNSCC, found in the present study, is in line with Lucenteforte et al.'s findings in Italy (*4*). Grains, particularly whole grains, are rich in dietary fibres, resistant starch, oligosaccharides and antioxidants, including trace minerals, all of which are considered protective against cancer. In addition, whole grains are important sources of phytoestrogens that have hormonal effects related to cancer protection (*19–21*).

The correlation between high fat intake and the risk of HNSCC identified in the present study is similar to a study conducted in the Islamic Republic of Iran in which high fat intake was highly positively associated with the risk of gastric cancer (*22*). The excess energy intake from high-fat diet elevates the intravascular level of insulin and energy substrate. The latter (i.e. the increased levels of intravascular insulin and intracellular energy stores) would, in turn, stimulate cell-signalling pathways, leading to an increased proliferation with defective cell cycle control, resulting in development of cancer (*23*).

The correlation between reduced risk of cancer and higher intake of high caffeine drinks has been established. These drinks, such as coffee, have been shown to have anti-tumour, anti-angiogenic and antioxidant properties. Coffee has an effect on cell proliferation and the cell-cycle process. Caffeine was found to enhance the cytotoxic activities of ionizing radiation in human leukaemia cells and decrease the level of apoptosis inhibitor (*24*).

Other dietary groups, namely dairy, meat/meat products and sugars and syrups, were not significantly associated with the risk of HNSCC in the present study. The findings reported in the literature are inconsistent regarding the role of these dietary groups and upper aerodigestive tract cancers (*25*).

One of the limitations of the current case–control study is possible recall bias. Yet efforts were exercised to minimize such a bias by blinding the participants to the current study's specific aim. Another potential limitation was interviewer bias. Nevertheless, the training and calibration the interviewer received would have largely minimized this potential bias. As in any other observational analytical study, causality between diet and the risk of HNSCC cannot be established. Analysing the data from this study is not an easy task keeping in mind that food in the Middle East is very complex and the culinary culture is very well-rooted and any food item is likely to be a mix of many individual food groups. While the study tried to stratify the intake according to the food groups, some overlap between the groups will exist. Nevertheless, the results of our study are in line with those of previous studies and this gives us confidence in the methodology and the food categorization used.

As a practical dietary guide based on the current study findings, increasing the intake of vegetables, cereals/cereal products and caffeinated beverages, and decreasing the intake of fats and oils, might decrease the risk of HNSCC.

More studies investigating the role of diet in the risk of HNSSC in the Eastern Mediterranean Region (EMR) are needed. Developing and validating food frequency questionnaires for research purposes are also needed in other countries in the EMR. Although Syrian and Lebanese diets are very similar, this is not the case for other EMR countries, such as those in the Gulf Cooperation Council. Randomized controlled trials to investigate the role of decreasing and/or increasing the intake of dietary groups in preventing HNSCC might establish a causal relationship between such dietary groups and the risk of HNSCC.

In conclusion, low levels of intake of vegetables, cereal/cereal products and high-caffeine beverages might increase the risk of HNSCC, whereas a low level of fats and oils intake might decrease the risk of HNSCC. These findings should be considered in national health promotion programmes in the Syrian Arab Republic.

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Clinical profile and factors associated with mortality in hospitalized patients with HIV/AIDS: a retrospective analysis from Tripoli Medical Centre, Libya, 2013

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العوامل السريرية والمحددات المرتبطة بحدوث الوفيات لدى المرضى المصابين بفيروس العَوَز المناعي البشري (الأيدز): تحليل بأثر رجعي بمركز طرابلس الطبي بليبيا عام 2013

نادر الشارف شلاكه ، نجاح عبد الرحمن غرد ، هند طلال زقلام ، سالمه على العواسي ، لطفي ابوكثير ، محمد عزالدين التاغدي ، عبدالنبي احمد الرايس

الخلاصة: في ليبيا لا يُعرف إلا القليل عن حالات دخول المستشفى المرتبطة بفيروس العوز المناعي البشري وعن الوفيات في المستشفيات. ولقد ضمت هذه الدراسة تحليلاً استعادياً لحالات دخول المستشفى المرتبطة بفيروس العوز المناعي البشري في مركز طرابلس الطبي في عام 2013. فمن بين 227 حالة تم تحليلها كان 82.4٪ منهم ذكوراً، وكانوا - بالمقارنة مع الإناث - أكبر سناً (40.0 مقابل 36.5 سنة)، وأفادوا باستخدام المخدرات حقناً (58.3٪ مقابل 0٪)، وكانت لديهم عدوى إضافية بفيروس التهاب الكبد C (65.8٪ مقابل 0٪). وكان العَوَز المناعي الشديد منتشراً لديهم (التعداد الوسطي لـ CD4 = 42 خلية/ ميكرولتر). وكان داء المبيضات التشخيصَ الأكثر شيوعاً (26٪)، وكان الالتهاب الرئوي بالمتكيسة الرئوية المرَض التنفسي الأكثر شيوعاً (8.8٪)، في حين تم تشخيص داء المقوسات الدماغي في 8.4٪ من المرضى. كما وجد أن الاستخدام الحالي لخليط عقاقير HAART مرتبط - بشكل مستقل - مع انخفاض مخاطر الوفيات في المستشفى (OR 0.33)، في حين كانت أعراض الجهاز العصبي المركزي (OR 4.12) والإنتان (OR 6.98) وانخفاض التعداد الكلي للمفاويات (OR 3.6) كانت مرتبطة مع زيادة المخاطر. كما كان التشخيص المتأخر بعَوَز مناعي شديد شائعاً - في هذه الدراسة - وكان ذلك مترافقاً مع زيادة الوفيات بالمستشفى.

ABSTRACT In Libya, little is known about HIV-related hospitalizations and in-hospital mortality. This was a retrospective analysis of HIV-related hospitalizations at Tripoli Medical Centre in 2013. Of 227 cases analysed, 82.4% were males who were significantly older (40.0 versus 36.5 years), reported injection drug use (58.3% versus 0%) and were hepatitis C virus co-infected (65.8% versus 0%) compared with females. Severe immunosuppression was prevalent (median CD4 count = 42 cell/µL). Candidiasis was the most common diagnosis (26.0%); *Pneumocystis pneumonia* was the most common respiratory disease (8.8%), while cerebral toxoplasmosis was diagnosed in 8.4% of patients. Current HAART use was independently associated with low risk of in-hospital mortality (OR 0.33), while central nervous system symptoms (OR 4.12), sepsis (OR 6.98) and low total lymphocyte counts (OR 3.60) were associated with increased risk. In this study, late presentation with severe immunosuppression was common, and was associated with significant in-hospital mortality.

Profil clinique et facteurs associés à la mortalité chez des patients hospitalisés vivant avec le VIH/sida : analyse rétrospective du Centre médical de Tripoli (Libye), 2013

RÉSUMÉ En Libye, les connaissances sur les hospitalisations et la mortalité en milieu hospitalier liées au VIH sont rares. Nous avons procédé à une analyse rétrospective des hospitalisations liées au VIH au centre médical de Tripoli en 2013. Sur 227 cas analysés, 82,4 % étaient des hommes nettement plus âgés (40,0 contre 36,5 ans), qui déclaraient s'injecter des drogues (58,3 % contre 0 %) et qui étaient atteints d'une co-infection par le virus de l'hépatite C (65,8 % contre 0 %) comparativement aux femmes. L'immunosuppression sévère était prévalente (numération des lymphocytes T-CD4 = 42 cellules/µL). Le diagnostic le plus fréquent était la candidose (26,0 %) ; la pneumonie à *Pneumocystis* était la maladie respiratoire la plus fréquente (8,8 %), tandis que la toxoplasmose cérébrale était diagnostiquée chez 8,4 % des patients). Un traitement antirétroviral hautement actif en cours était indépendamment associé à un faible risque de mortalité en milieu hospitalier (OR 0,33), tandis que les symptômes du système nerveux central (OR 4,12), la septicémie (OR 6,98) et les faibles numérations lymphocytaires totales (OR 3,60) étaient associés à un risque accru. Dans cette étude, une présentation tardive accompagnée d'une immunosuppression sévère était fréquente, et était associée à une mortalité élevée en milieu hospitalier.

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Introduction

Human immunodeficiency virus (HIV) and its associated acquired immune deficiency syndrome (AIDS) continue to exact a significant deal of morbidity and mortality worldwide, with over 35 million people infected by the year 2013 (*1*). In developed countries, the wide availability of highly active antiretroviral therapy (HAART) since the mid-1990s has significantly reduced AIDS-related hospitalizations and mortality, and improved the overall survival among affected individuals (*2–5*). It has also reduced rates of AIDS-defining caused by opportunistic infections, and changed the spectrum of HIV-related hospitalizations to become mostly due to chronic and non-AIDS-defining conditions, such as cardiovascular diseases and malignancy (*6–8*).

By contrast, AIDS is still the main reason for hospitalization in developing countries, with various opportunistic infections playing major roles in HIV-related morbidity and mortality (*9–11*). With such variations in the spectrum of HIV-related diseases, findings from developed countries might not be generalizable to our settings. In addition, although several studies have been conducted in other developing countries of Africa and Asia (*12–17*), the spectrum of diseases related to HIV/AIDS may have regional variations influenced by socioeconomic status, endemic infections, nutrition and availability of HAART and hepatitis coinfections. Knowledge regarding the spectrum of AIDS-defining illnesses and local prevalence of various opportunistic infections might be important for policy-makers and stakeholders to better manage limited screening, diagnostic and therapeutic resources and to plan actions to reduce morbidity and mortality. It might also be important in raising the awareness of physicians to most prevalent diagnoses and in taking decisions on empirical treatment and management plans.

With the paucity of published data on HIV/AIDS in Libya (*18*), the spectrum of AIDS-defining illnesses remains largely undetermined and little is known about the causes of HIV-related hospitalizations, clinical profiles and factors associated with mortality in hospitalized patients with HIV. In this study, we aimed to: define the spectrum of HIV-related causes of hospitalization; assess the profile of hospitalized HIV-positive adults; and examine the clinical and laboratory factors associated with in-hospital mortality among adults with HIV/AIDS admitted to Tripoli Medical Centre during the year 2013.

Methods

Study site

Tripoli Medical Centre is a university and tertiary referral hospital with a capacity of 1200 beds. It provides specialist medical services to patients from Tripoli and other cities in the western and central regions of Libya. The department of infectious diseases provides specialist HIV management as an ambulatory care as well as a 14-bed capacity dedicated for management of inpatients with HIV/AIDS.

Study design

This was a retrospective, observational analysis of HIV-related hospitalizations at the Centre from January to December 2013. As a routine screening, all admitted patients had their HIV, HBV and HCV status determined by 4th-generation enzyme-linked immunosorbent assay testing. Patients who were 15 years of age or more at the time of hospitalization and with positive HIV test results were identified through the department's inpatient registry. Their case notes and discharge summaries were then reviewed and relevant data abstracted using a standard data collection form. Ethical approval was granted by the department of medicine and the scientific committee at Tripoli Medical Centre.

Data collection

The following variables were collected anonymously: demographics (age, sex, marital status) and HIV risk factors (HAART use; clinical signs and symptoms at the time of hospitalization); serological testing for hepatitis C (HCV) and hepatitis B virus (HBV) infections; haematological and biochemical laboratory results at the time of hospital admission and before rehydration, blood transfusion or administration of antibiotics; diagnosis during hospitalization; and status upon discharge (alive or dead).

In-hospital diagnosis

Although efforts were made to ascertain the diagnoses, the lack of some diagnostic facilities at the Centre and the presence of patients with advanced illness at the time of presentation might have prohibited invasive diagnostic procedures. In such instances, the following criteria were used to establish a diagnosis:

- pulmonary tuberculosis (TB): a positive sputum smear or culture for acid-fast bacilli *or* a compatible clinical presentation *with* suggestive findings on chest X-ray or computerized tomography scan *and* a response to anti-TB treatment.
- extrapulmonary TB: a histopathological diagnosis from an extrapulmonary site (e.g. lymph node; pleura) *or* a compatible clinical presentation *with* suggestive findings on imaging scans *and* a response to anti-TB treatment.
- cerebral toxoplasmosis: a compatible clinical presentation *with* suggestive findings on brain magnetic resonance imaging *and* a response to anti-toxoplasmosis treatment.
- progressive multifocal leucoencephalopathy: a compatible clinical presentation *with* suggestive findings on brain magnetic resonance imaging.

- *Pneumocystis jiroveci*: a compatible clinical presentation *with* suggestive findings on chest X-ray/computerized tomography *and* a response to treatment (provided that TB was excluded).
- cryptococcal meningitis: a compatible clinical presentation *with* the detection of cryptococcal antigen in cerebrospinal fluid or serum.
- candidiasis: a compatible clinical presentation *and/or* findings on gastroscopy.
- sepsis: systemic inflammatory response syndrome *with* an identified focus of infection. Systemic inflammatory response syndrome was defined as 2 or more of the following: fever > 38 °C or < 36 °C; heart rate > 90 beats per minute; respiratory rate > 20 breaths per minute or an arterial carbon dioxide tension < 32 mmHg; and (d) white cell count > 12 000 or < 4000 cells/μL.

All individuals with central nervous system symptoms or signs were screened for cryptococcal infection using a cryptococcal antigen test. Patients with retinitis had cytomegalovirus DNA test (polymerase chain reaction assay), whereas for patients with oesophagitis, gastritis, enteritis or colitis and not responding to medications, endoscopy, biopsy and histopathological examination for cytomegalovirus were performed. Severe immunosuppression was defined as CD4 count < 200 cells/μL, and anaemia as haemoglobin < 13 mg/dL for males and < 12 mg/dL for females.

Statistical analysis

R, version 3.1.1, a language and environment for statistical computing (R Foundation for Statistical Computing, Austria,) was used to conduct planned analyses.

Quantitative variables were summarized using the median and interquartile range (IQR), and bivariate analysis was done using Mann–Whitney U-test. Categorical variables (grouped quantitative and qualitative variables) were summarized using frequency tables and percentages of total, while the bivariate analysis was performed using chi-squared or Fisher exact tests; they were presented graphically using bar charts.

A stepwise logistic regression analyses was conducted to calculate adjusted odds ratios (OR). To maintain the assumption of independent observations in patients with two hospitalizations, only data available from the last admission were used.

Missing values were excluded during the analysis of continuous variables, but were included as a "missing" category during the grouped analysis. All analyses were 2-sided, and *P*-values of < 0.05 were considered statistically significant.

Results

Our inpatient registry reported 340 hospitalizations in the year 2013; 227 were for individuals with positive HIV tests. During the study period, 211 HIV-positive patients were hospitalized; 16 of them had a re-hospitalization during the same year. The reason for re-hospitalization was different for all 16 patients (e.g. *Pneumocystis jiroveci* then skin Kaposi sarcoma 3 months after starting HAART).

Demographic characteristics

Table 1 summarizes the main demographic characteristics of the study group. The majority of patients were male (187, 82.4%) with a median age of 40 years (IQR 37.5–45 years) for males and 36.5 years (IQR 30–45 years) for females ($P = 0.01$). Most male patients were single (55.6%), reported injection drug use as a route of HIV transmission (58.3%) and tested positive on HCV serology test (65.8%). In contrast, most female patients were married (57.5%) or widowed (22.5%) and identified marital heterosexual contact as a route of HIV transmission (87.5%), while none of them tested positive on HCV or HBV serological tests.

Clinical symptoms and signs at admission

The clinical symptoms and signs at time of admission are summarized in Table 2. Fever was the most common presenting symptom (42.3%) followed by oral thrush (29.1%). When analysed as groups of symptoms at time of admission, constitutional symptoms were the most common (59.9%), followed by gastrointestinal (48.5%) symptoms.

Although the majority of patients were known to have HIV infection before admission (85.9%), most hospitalized patients were not on HAART (141, 62.0%), of whom 103 (45.4%) had never received HAART before.

In-hospital diagnoses

The spectrum of diagnoses is presented in Figure 1. Oral and oesophageal candidiasis was the most common diagnosis (26.0%) followed by extrapulmonary TB (9.3%) and sepsis (9.3%). *Pneumocystis jiroveci* was the most common respiratory disease (8.8%) whilst cerebral toxoplasmosis was the most commonly identified intracranial mass lesion (8.4%).

Laboratory test results at admission

Tables 3 and 4 summarize the laboratory test results at time of admission. Data on CD4 counts were available for 169 inpatients (74.4%). The median count was 42 cells/μL, with 150 patients (88.8% of available data) having CD4 counts < 200 cells/μL. Anaemia was reported in 200 (88.0%) patients and was severe in 39 (17.2%), while thrombocytopenia was reported in 95 (41.9%) patients. Both anaemia and thrombocytopenia were more commonly reported among males than females ($P = 0.043$ and $P < 0.001$ respectively).

Table 1 **Characteristics of hospitalized patients with HIV/AIDS**

Variable	Total		Male		Female		*P*-value
Total admissions (No., %)	227	100.0	187	82.4	40	17.6	
Age (years) [Median, (IQR)]	40	(36–45)	40	(37.5–45)	36.5	(30–45)	0.01[a]
Marital status (No., %)							< 0.001[c]
Single	110	48.5	104	55.6	6	15.0	
Married	84	37.0	61	32.6	23	57.5	
Divorced	10	4.4	9	4.8	1	2.5	
Widowed	9	4.0	0	0.0	9	22.5	
Unknown	14	6.2	13	7.0	1	2.5	
New HIV diagnosis (No., %)	32	14.1	23	12.3	9	22.5	0.15[b]
HIV risk factors (No., %)							< 0.001[c]
Injection drug use	109	48.0	109	58.3	0	0.0	
Heterosexual	40	17.6	5	2.7	35	87.5	
Homosexual	2	0.9	2	1.1	0	0.0	
Unknown	76	33.5	71	38	5	12.5	
HAART use (No., %)							0.8[c]
Never	103	45.4	83	44.4	20	50.0	
Current	82	36.1	69	36.9	13	32.5	
Defaulted	38	16.7	32	17.1	6	15.0	
Unknown	4	1.8	3	1.6	1	2.5	
Duration of hospital stay (days) [Median, (IQR)]	8	(3–16)	9	(3–16)	7	(3–16.2)	0.61[a]
HCV-Ab positive (No., %)	123	54.2	123	65.8	0	0.0	< 0.001[b]
HbsAg positive (No., %)	11	4.8	11	5.9	0	0.0	0.22[c]
Hospital mortality (No., %)	85	37.4	76	40.6	9	22.5	0.049[b]
Death within 48 h of admission (No., %)	30	13.2	28	15.0	2	5.0	0.15[b]

[a]Mann-Whitney U test; [b]Chi-squared-test; [c]Fisher exact test.
IQR = interquartile range; HAART = highly active antiretroviral therapy; HCV-Ab = anti-hepatitis C virus antibody; HBVsAg = hepatitis B virus surface antigen.

In-hospital mortality

The median duration of hospital stay was 8 days and overall mortality was high (85 patients, 37.4%), with a significantly higher rate among males than females (40.6% versus 22.5%; *P* = 0.049) (Table 1). Just over one-third of patients (30, 35% of all deaths) died within 48 hours of hospital admission.

Factors associated with in-hospital mortality

A total of 184 (87.2%) patients with complete data were included in a stepwise logistic regression analysis, and results on independent risk factors are summarized in Table 5. Current HAART use was independently associated with a low risk of in-hospital mortality (OR 0.33; 95% CI: 0.14–0.8; *P* = 0.015). Central nervous system symptoms (OR 4.12; 95% CI: 1.77–9.6; *P* = 0.001), sepsis (OR 6.98; 95% CI = 1.71–28.44; *P* = 0.007), hyponatraemia (OR 2.69; 95% CI: 1.12–6.44; *P* = 0.023) and low total lymphocyte counts (OR 3.6; 95% CI: 1.36–9.52; *P* = 0.01) were associated with increased risk.

Discussion

In 2013 at Tripoli Medical Centre, AIDS-defining opportunistic infections were the most common reasons for HIV-related hospitalizations. Inpatients were mostly middle-aged men who were known to be HIV-positive before admission; a finding similar to previous reports from both developed and developing countries (*7*,*9*). HIV-related hospitalizations were mostly among patients in their economically productive years, therefore increasing the socioeconomic burdens on the patients and their families.

Injection drug use was the most commonly identified HIV risk factor among males, with a concomitantly high prevalence of HCV coinfection. Although this is different to findings from developed (*7*) and other developing (*19*) countries where homosexual and heterosexual transmissions were the most common respectively, it was consistent with a previous report on the high prevalence of HIV/HCV coinfection among injection drug users in Libya

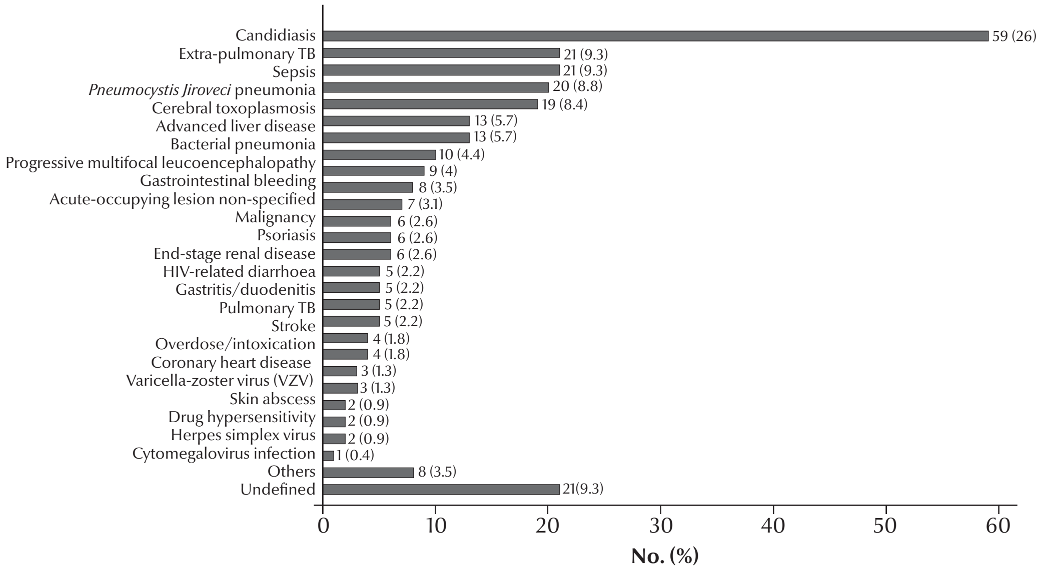

Figure 1 **Spectrum of in-hospital diagnoses of the studied HIV/AIDS patients**

Table 2 **Spectrum of clinical presentation at time of hospitalization**

Clinical presentation	Total (*n* = 227)		Males (*n* = 187)		Females (*n* =40)		*P*-value
	No.	%	No.	%	No.	%	
Fever	96	42.3	82	43.9	14	35.0	0.39[a]
Weight loss	35	15.4	34	18.2	1	2.5	0.024[a]
Night sweating	17	7.5	17	9.1	0	0.0	0.048[b]
Lymphadenopathy	12	5.3	11	5.9	1	2.5	0.7[b]
Oral thrush	66	29.1	54	28.9	12	30.0	1[a]
Skin lesions	22	9.7	18	9.6	4	10.0	1[b]
Cough	65	28.6	52	27.8	13	32.5	0.69[a]
Dyspnoea	65	28.6	52	27.8	13	32.5	0.69[a]
Pleural effusion	10	4.4	10	5.3	0	0.0	0.22[b]
Decreased level of consciousness	61	26.9	55	29.4	6	15.0	0.095[a]
Focal neurological deficit	21	9.3	12	6.4	9	22.5	0.004[b]
Convulsions	17	7.5	15	8.0	2	5.0	0.74[b]
Vomiting	38	16.7	32	17.1	6	15.0	0.93[a]
Diarrhoea	39	17.2	34	18.2	5	12.5	0.53[a]
Abdominal pain	18	7.9	11	5.9	7	17.5	0.022[b]
Jaundice	15	6.6	14	7.5	1	2.5	0.48[b]
Hepatomegaly	16	7.0	15	8.0	1	2.5	0.32[b]
Splenomegaly	6	2.6	6	3.2	0	0.0	0.59[b]
Ascites	17	7.5	17	9.1	0	0.0	0.048[b]
Dysphagia	30	13.2	24	12.8	6	15.0	0.91
Haematemesis	10	4.4	10	5.3	0	0.0	0.22[b]
Melaena	9	4.0	9	4.8	0	0.0	0.37[b]

[a] *Chi-squared-test;* [b] *Fisher exact test.*

Table 3 Laboratory profiles for hospitalized patients with HIV/AIDS: average values for each laboratory measure

Variable	Total Median (IQR)	Males Median (IQR)	Females Median (IQR)	*P*-value[a]
CD4 count (cells/μL) (*n* = 169)	42 (8–87)	41 (8–84)	43 (6–151)	0.99
WC count (cells$\times10^3$/μL) (*n* = 218)	5.1 (3.2–7.9)	5.1 (3.2–7.7)	5.2 (3.8–8.4)	0.53
Hb (g/dL) (*n* = 218)	10.1 (8.6–12.0)	10.3 (8.5–12.0)	10.0 (9.0–11.4)	0.9
Platelet count ($\times10^3$/μL) (*n* = 218)	166 (90– 237)	154 (83– 225)	227 (164–301)	< 0.001
BUN (mg/dL) (*n* = 202)	15.5 (10–27.5)	17.0 (11–29)	10.5 (9–16)	0.003
Creatinine (mg/dL) (*n* = 208)	0.8 (0.6–1.1)	0.9 (0.7–1.1)	0.6 (0.5–0.8)	< 0.001
Sodium (mmol/L) (*n* = 209)	133 (129–136)	132 (128–136)	136 (134–138)	< 0.001
Potassium (mmol/L) (*n* = 209)	4.0 (3.6–4.5)	4.0 (3.7–4.6)	4.0 (3.5–4.2)	0.11
ALT (U/L) (*n* = 152)	39.5 (29–54)	41.0 (29–59)	30.0 (27–40)	0.003
AST (U/L) (*n* = 177)	57 (36–90)	61 (36–94)	42 (27–62)	0.035
ALP (U/L) (*n* = 187)	124 (93–196)	137 (95–204)	111 (77–150)	0.057

CD4 = cluster of differentiation 4 cells; WC = white cells; Hb = haemoglobin; BUN = blood urea nitrogen; ALT = alanine aminotransferase; AST = aspartate aminotransferase; ALP = alkaline phosphatase.
IQR = interquartile range.
[a] Mann-Whitney U-test.

(*20*). Nonetheless, a proportion of patients denied any HIV risk factors, and others presented at an advanced stage and died before verifying any HIV risk factor (reported as "unknown"). This might have led to under-representation of some HIV risk activities previously reported in Libya (*21*).

Females, on the other hand, were mostly infected with HIV through marital heterosexual transmission, and were more likely to be unaware of their positive HIV disease status before admission. This finding implicates marriage as a potential HIV risk factor, and highlights the importance of pre-marriage counselling and HIV testing for monogamous couples. It also highlights a potential role for public education on the risk of HIV transmission and available protective tools to reduce such risk among serodiscordant couples (*22,23*). Furthermore, unawareness of HIV status among women in their reproductive years poses a significant risk of mother-to-child-transmission (*24*), and adds another challenge to national prevention programmes.

In this study, the majority of patients were hospitalized with AIDS-defining illnesses, of which opportunistic infections were the most common. *Pneumocystis jiroveci* was the most common respiratory disease, especially among females, while cerebral toxoplasmosis was the most commonly identified intracranial mass lesion. Extrapulmonary TB was more common than pulmonary TB, as previously reported in patients with very low CD4 counts (*25*). However, findings of such a low prevalence should be interpreted with caution. It is possible that some cases with TB were missed or misclassified as sepsis syndromes, as the only available diagnostic modalities were chest X-ray and sputum for acid-fast bacillus stain; both of which are known to have poor sensitivity in HIV cases, especially at very low CD4 counts (*26,27*). As reported in previous studies from Africa, implementing new diagnostic modalities such as GeneXpert MTB/RIF (*28*) and TB-LAM (*29*) has the potential to diagnose TB among seriously ill patients with severe immunosuppression and may improve their overall prognosis (*30,31*).

Although the spectrum of opportunistic infections might be comparable across developing countries, the prevalence of the most common opportunistic infections shows wide regional variations. For instance, pulmonary TB was most commonly reported in India (*32,33*), Islamic Republic of Iran (*14*), most countries of Africa (*9, 10,17,19*), Bangladesh (*34*) and China (*13*), with very small contributions from *Pneumocystis jiroveci* (*10,14*) and toxoplasmosis (*17,35*). In contrast, the most commonly reported opportunistic infections were *Pneumocystis jiroveci* in Oman (*12*), toxoplasmosis in Lebanon (*15*) and cryptococcal meningitis in Thailand (*16*).

Knowledge regarding the prevalence of various opportunistic infections among HIV patients in developing countries with limited resources may aid in developing screening protocols, establishing appropriate prevention programmes, and guiding decisions on empirical treatment. It may also allow for better allocation of and prioritization of scarce diagnostic resources.

The risk of and mortality due to sepsis are reported to be higher in HIV-positive compared with HIV-negative patients (*36–38*). The aetiology of sepsis could also be different, with fungal and mycobacterial infections playing important causative roles (*37,39*). In our study, the aetiological causes of sepsis could not be ascertained because many inpatients had received various antibiotics before admission, resulting

Table 4 **Laboratory profiles for hospitalized patients with HIV/AIDS: distribution of patients by groups for each laboratory measure**

Variable	Total		Male		Female		*P*-value
	No.	%	No.	%	No.	%	
CD4 count (cells/μL)							0.47[a]
< 50	94	41.4	77	41.2	17	42.5	
50–200	56	24.7	48	25.7	8	20.0	
200–350	11	4.8	7	3.7	4	10.0	
> 350	8	3.5	6	3.2	2	5.0	
Missing	58	25.6	49	26.2	9	22.5	
WC count (cells×10^3/μL)							0.52[b]
< 4	79	34.8	66	35.3	13	32.5	
4–11	114	50.2	93	49.7	21	52.5	
> 11	25	11.0	22	11.8	3	7.5	
Missing	9	4.0	6	3.2	3	7.5	
Hb (g/dL)							0.043[a]
< 8	39	17.2	36	19.3	3	7.5	
8–10	68	30.0	50	26.7	18	45.0	
10–13 (males);10–12 (females)	84	37.0	70	37.4	14	35.0	
> 13 (males); > 12 (males)	27	11.9	25	13.4	2	5.0	
Missing	9	4.0	6	3.2	3	7.5	
Platelet count (×10^3/μL)							< 0.001[b]
< 150	95	41.9	88	47.1	7	17.5	
150–400	114	50.2	90	48.1	24	60.0	
> 400	9	4.0	3	1.6	6	15.0	
Missing	9	4.0	6	3.2	3	7.5	
BUN (mg/dL)							0.02[a]
< 18	119	52.4	92	49.2	27	67.5	
> 18	83	36.6	76	40.6	7	17.5	
Missing	25	11.0	19	10.2	6	15.0	
Creatinine (mg/dL)							0.15[a]
< 1.3	169	74.4	137	73.3	32	80.0	
> 1.3	39	17.2	36	19.3	3	7.5	
Missing	19	8.4	14	7.5	5	12.5	
Sodium (mmol/L)							0.027[b]
< 135	141	62.1	124	66.3	17	42.5	
135–145	63	27.8	46	24.6	17	42.5	
> 145	5	2.2	4	2.1	1	2.5	
Missing	18	7.9	13	7.0	5	12.5	
Potassium (mmol/L)							0.35[b]
< 3.5	43	18.9	34	18.2	9	22.5	
3.5–5.5	158	69.6	132	70.6	26	65.0	
> 5.5	8	3.5	8	4.3	0	0.0	
Missing	18	7.9	13	7.0	5	12.5	
ALT (U/L)							0.038[a]
< 65	125	55.1	100	53.5	25	62.5	
> 65	27	11.9	27	14.4	0	0.0	
Missing	75	33.0	60	32.1	15	37.5	
AST (U/L)							0.071[a]
< 37	50	22	41	21.9	9	22.5	
> 37	127	55.9	110	58.8	17	42.5	
Missing	50	22.0	36	19.3	14	35.0	
ALP (U/L)							0.029[a]
< 136	100	44.1	78	41.7	22	55.0	
> 136	87	38.3	79	42.2	8	20.0	
Missing	40	17.6	30	16.0	10	25.0	

[a] Chi-squared test; [b] Fisher exact test;
CD4 = cluster of differentiation 4 cells; WC = white cells; Hb = haemoglobin; BUN = blood urea nitrogen; ALT = alanine aminotransferase; AST = aspartate aminotransferase; ALP = alkaline phosphatase.

Table 5 **Factors associated with in-hospital mortality in patients with HIV/AIDS (*n* = 184)**

Variable	Crude OR (95% CI)	*P*-value	Adjusted OR (95% CI)	*P*-value
HAART use				
Never	ref.			
Current	0.44 (0.22–0.91)	0.023	0.33 (0.14–0.80)	0.015
Defaulted	1.02 (0.45–2.35)	0.96	1.28 (0.49–3.40)	0.62
Unknown	1.42 (0.09–23.4)	0.81	2.11 (0.08–53.9)	0.65
Central nervous system symptoms [a]	2.59 (1.36–4.95)	0.005	4.12 (1.77–9.60)	0.001
Sepsis	11.5 (3.19–41.5)	< 0.001	6.98 (1.71–28.4)	0.007
Total lymphocyte count (cells×10³/µL) [b]				
1–3	ref.			
< 1	2.74 (1.26–5.98)	0.011	3.60 (1.36–9.52)	0.01
> 3	1.95 (0.41–9.19)	0.4	1.71 (0.27–10.9)	0.57
BUN (mg/dL) [a]				
< 18	ref.			
> 18	2.36 (1.27–4.39)	0.008	1.58 (0.67–3.77)	0.3
Creatinine (mg/dL) [b]				
< 1.3	ref.			
> 1.3	3.05 (1.43–6.50)	0.003	1.88 (0.64–5.49)	0.25
Sodium (mmol/L) [b]				
135–145	ref.			
< 135	2.01 (1.00–4.07)	0.056	2.69 (1.12–6.44)	0.027
> 145	2.00 (0.30–13.2)	0.47	0.45 (0.05–4.10)	0.48
Potassium (mmol/L) [b]				
3.5–5.5	ref.			
< 3.5	2.57 (1.23–5.34)	0.011	2.71 (1.14–6.41)	0.023
> 5.5	2.31 (0.45–11.9)	0.31	1.93 (0.33–11.2)	0.46

[a]Central nervous system symptoms included: coma, convulsions or focal neurological deficits; [b]Laboratory normal ranges for each test were used as reference groups.
HAART = highly active antiretroviral therapy; BUN = blood urea nitrogen; ref. = reference group.
OR = odds ratio; CI = confidence interval.

in negative blood culture results. Also special diagnostic techniques for TB, fungi and other atypical organisms known to cause sepsis among HIV patients were not available due to resource constraints. Consequently, our results might not be sufficient to clearly describe the spectrum of TB, atypical organisms and disseminated fungal infections among HIV inpatients.

Despite several years availability of HAART in Libya, late presentation and poor HAART uptake by patients were common; a finding similar to previous reports (*40–42*). Late presentation is known to be associated with poor response to HAART (*43*), increased mortality (especially shortly after commencing HAART) (*11,40–42,44–46*), and high cumulative risk of HIV transmission (*47*).

Furthermore, the finding that the majority of patients were known to be HIV-positive and yet were not on HAART highlights another significant gap in access to and retention of HIV care services. Previous studies have identified several factors as potentially contributing to late presentation, poor HAART uptake and low retention in HIV care. These factors include stigma, fear of status disclosure, complexity of treatment regimens and lack of psychosocial support (*48*); lack of confidentiality and fear of discrimination at health facilities, workplace and community (*49*); poor staff–patient relationships and underestimation of the need for HAART (*50*); and active drug use (*43,46*).

Stigma and fear of disclosure are particularly important among females living in a conservative society. Previous studies from other Arab countries have reported a high prevalence of stigma against HIV-positive patients and poor knowledge about the disease, especially among females (*51–53*).

Health system strategies and HIV service delivery interventions such as counselling, brief case management discussion with patients, simplified treatment regimens, screening and management of depression, and co-location with drug rehabilitation services could potentially improve access to and retention in HIV care, reduce late presentation and increase HAART uptake (*54,55*).

The fact that some patients were not aware of their HIV disease status until the development of opportunistic infections might also reflect low education and lack of awareness about the risk of HIV transmission. This could potentially be ameliorated through education programmes and HIV awareness campaigns targeting the general population, accompanied by screening high-risk groups such as injection drug users and sexually active youth. Once diagnosed, patients should then be promptly referred to specialist HIV care.

Anaemia was identified in the majority of our inpatients and was severe enough in 17% of them to require blood transfusion. Anaemia has previously been reported in many developed and developing countries (*13,19,56*) and has been linked with HIV-disease progression and poor outcomes (*57–59*). In the context of advanced medical illnesses such as AIDS, anaemia could be due to poor nutrition, infections such as candidiasis and TB, or the advanced stage of HIV disease itself (*60,61*).

We reported a high rate of in-hospital mortality of 37.4%, which was broadly similar to other developing countries where AIDS is still the main cause for hospitalization (*9,17,19,32,62*). By contrast, in developed countries during the era of HAART, in-hospital mortality is very low and it is mostly related to non-AIDS illnesses such as malignancy and cardiovascular diseases (*4,6,7,63*).

In this study, HAART use was associated with a reduced risk of mortality, a finding consistent with previous reports on improved survival among HIV patients receiving HAART (*3,64–66*). In addition, a presentation with central nervous system symptoms, development of hyponatraemia or a diagnosis of sepsis were independently associated with increased risk of mortality, generally reflecting the severity of underlying diseases (*67,68*). The lack of appropriate diagnostic tools (brain biopsy, GeneXpert MTB/RIF, TB LAM, special culture media for atypical pathogens) could have led to a delay in establishing diagnoses and late initiation of aetiology-specific treatments, which could have negatively affected patients' overall prognosis. In addition, a low total lymphocyte count, which serves as a valid surrogate indicator of immunosuppression in resource-limited settings (*69–71*), was also associated with increased mortality, emphasizing the impact of severe immunosuppression on HIV-related mortality (*4,7,9,19*). Patient's sex, HCV coinfection and anaemia were not predictive of mortality in this study. This could be due to the small number of females included, and the high prevalence of both HCV and anaemia among the study participants.

Our study has some limitations that should be acknowledged. The study was conducted retrospectively and some data on clinical and laboratory variables were missing. This study was of patients admitted to a tertiary health-care centre and its results may not be generalizable, as such settings tend to receive seriously ill cases who need specialized care and management. In some instances, a definitive diagnosis could not be reached. This might have been due to the serious and advanced condition of patients at presentation, which prevented further invasive diagnostics, or due to inadequate diagnostic facilities (e.g. culture media for atypical organisms); unavailability of diagnostic facilities (e.g. brain biopsy and histopathological diagnosis of cerebral toxoplasmosis, central nervous system TB and progressive multifocal leukoencephalopathy) and other resource constrains. Additionally, cause of death could not be confirmed due to lack of permissions for post-mortem studies, raising a possibility that other diagnoses (which might have been missed ante-mortem) might have also influenced patient outcomes (*72–74*).

Despite the limitations, our study has important strengths. To our knowledge, this is the first study to describe clinical, immunological and biochemical profiles and examine factors associated with mortality among hospitalized adults with HIV/AIDS in Libya. Our study also had a high-level representation on HIV-related hospital admissions, as Tripoli Medical Centre is one of the only 2 centres offering HIV care in western Libya.

Conclusion

The issue of late presentation and AIDS-related mortality is challenging and requires coordinated approaches and collaboration among various stakeholders. More efforts should be placed on improving access to HIV care, especially for females and marginalized risk groups such as injection drug use and homosexual men, successful linkage to care after diagnosis, prompt initiation of HAART, and retention on treatment and in care. There should also be strategies to integrate HIV treatment centres with mental health and drug rehabilitation services. Additionally, increasing HIV awareness and education in the community, screening high-risk populations, and improving the diagnostic capacity of referral laboratories might help in changing the current situation of HIV wards in Libya.

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Assessment of women's perspectives and experiences of childbirth and postnatal care using Q-methodology

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تقييم وجهات نظر وتجارب النساء تجاه الرعاية أثناء الولادة وما بعدها باستخدام منهجية-Q

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الخلاصة: من أجل استكمال القياسات المعيارية لنتائج رعاية الأمومة لا بد من تقييم رضاء النساء عنها. ولقد كان الهدف من هذه الدراسة الحصول على وجهات نظر النساء العراقيات تجاه خدمات الرعاية أثناء الولادة وبعدها والوقوف على تجاربهن في هذا المجال. وقد ضمت الدراسة عينة من 37 امرأة ذوات حالات تعليمية واجتماعيةواقتصادية مختلفة، ممن أنجبن خلال الأشهر الستة السابقة للدراسة. وتم استخدام منهجية-Q لجمع البيانات وتحليلها. فتم التعرف على ثلاث وجهات نظر وتجارب متمايزة في مجال خدمات الرعاية أثناء الولادة وبعدها، وهي: تصور عام بأن الرعاية أثناء الولادة وما بعدها سيئة مع عدم وجود رعاية ودعم مناسبَين على المستوى الشخصي. ورضا عالي المستوى عن خدمات الرعاية أثناء الولادة وما بعدها وتجربة إيجابية في هذا المجال لدى النساء الواثقات المدعومات بشكل جيد، ورضا ضعيف المستوى عن خدمات الرعاية أثناء الولادة وما بعدها من حيث تلبية الممارسات الثقافية التقليدية. إن تقييم الاحتياجات المتعلقة بمهارات واتجاهات مقدمي الخدمات وبالبيئة الاجتماعية- الثقافية الأوسع نطاقاً للرعاية أثناء الولادة وما بعدها لَهُوَ أمرٌ ضروري في العراق.

ABSTRACT To complement standard measures of maternity care outcomes, an assessment of women's satisfaction with care is needed. The aim of this study was to elicit the perspectives and experiences of Iraqi women about childbirth and postnatal care services. The study participants were a sample of 37 women of different educational and socioeconomic status who had given birth during the previous 6 months. Q-methodology was used for data collection and analysis. Three distinct viewpoints and experiences of childbirth and postnatal care services were identified: a general perception of poor childbirth and postnatal care with lack of appropriate interpersonal care and support; a high satisfaction and positive experience with childbirth and postnatal care services among the confident and well-supported women; and poor satisfaction with the childbirth and postnatal care services in terms of meeting traditional cultural practices. Needs assessment around providers' skills and attitudes and the wider sociocultural environment of childbirth and postnatal care is necessary in Iraq.

Évaluation des conceptions et des expériences des femmes en matière d'accouchement et de soins postnatals à l'aide de la méthode-Q

RÉSUMÉ Pour compléter les mesures standards des résultats des soins maternels, une évaluation de la satisfaction des femmes en matière de soins est nécessaire. L'objectif de l'étude était de découvrir les conceptions et les expériences des femmes iraquiennes en matière d'accouchement et de services de soins postnatals. Les 37 femmes de l'échantillon participant à l'étude avaient un statut socioéconomique et un niveau d'études variés et avaient accouché au cours des six mois précédents. La méthode-Q a été utilisée pour le recueil et l'analyse des données. Trois points de vue et expériences distincts de l'accouchement et de services de soins postnatals ont été identifiés : une perception générale de l'accouchement et des soins postnatals médiocre caractérisée par un manque de soins et de soutien interpersonnels appropriés ; un niveau de satisfaction élevé et une expérience positive de l'accouchement et des services de soins postnatals chez les femmes bien entourées et confiantes ; et un mauvais niveau de satisfaction en termes d'accouchement et de services de soins postnatals concernant le respect des pratiques traditionnelles et culturelles. Une évaluation des besoins vis-à-vis des compétences et des attitudes des prestataires et de l'environnement socioculturel plus large dans ce domaine est nécessaire en Iraq.

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Introduction

A large proportion of the 800 maternal deaths per day are preventable (*1*,*2*). There are many well-recognized effective interventions to prevent maternal mortality. However, availability, utilization, accessibility and quality of appropriate maternity care remain poor for many women. Most deaths occur due to poor service provision, as well as lack of access to and use of these services (*1*). Childbirth and postnatal care are among the recommended interventions for reducing maternal and newborn mortality (*3*). Although the traditional clinical measures of the quality of care are maternal and perinatal mortality and morbidity rates, a patient-centred measure such as women's satisfaction with care is also essential for an appropriate assessment of maternity care (*4*).

The Iraqi health-care system has been seriously affected during the last few decades as a result of different wars, internal conflicts, international sanctions and political instability (*5–7*). These damaging effects have had a particular negative impact on the availability and quality of maternity care services, which continue to suffer from serious problems (*5*,*8–10*). These events caused a significant drop in the important health indices, with the maternal mortality ratio and neonatal mortality rate remaining as high as 84 per 100 000 live births and 23 per 1000 live births respectively in 2010 (*11*).

It is increasingly recognized that one of the critical areas of the health services in Iraq that need substantial efforts in improvement is maternity care (*6*,*8*,*12*). Effective restructuring of this important aspect of population health requires a better understanding of its problems and needs, and the obstacles to its development. Research that has examined the Iraqi maternity care services particularly from women's perspectives is very limited. Therefore, the aim of this study was to elicit Iraqi women's perspectives and experiences about childbirth and postnatal care services.

Methods

Study design and setting

This explorative study was carried in Erbil, the capital of the Iraqi Kurdistan region, from May to July 2013. The research ethics committee of Hawler Medical University approved the study.

The study employed Q-methodology, a technique for identifying unique, different viewpoints, as well as commonly shared views. Q-methodology is particularly useful in research that explores human perceptions and interpersonal relationships (*13*). Q-methodology effectively combines the strengths of qualitative and quantitative dimensions (*14*,*15*). Typically, Q-methodology begins with a sample of statements (Q-set) that offers the fullest range of viewpoints on the study topic (*16*). A participant group (P-set), representing various sociodemographic groups relevant to the study topic, is asked to rank order (Q-sort) the Q-set along a standardized continuum. Q-analysis involves an inverted factor analytic procedure (*17–19*). Correlation between personal profiles groups together participants who hold similar viewpoints or opinions. By correlating across individuals, Q-factor analysis gives information about similarities and differences in viewpoint on a particular subject (*17*).

Sampling

As a general guideline, Q-studies consider 40–60 participants to be adequate. However, many good studies with adequate analysis have been successfully carried out with considerably smaller number of participants. It is generally recommended to use a number of participants that is smaller than the number of items in the Q-set (*20*). As the final set of statements of this study was 39 statements, it was decided to select 37 women to participate in this study. These 37 women were purposively selected to include women of reproductive age who had at least 1 child not older than 6 months and who had some experience with labour and postnatal care at a public facility. Efforts were made to select participants from different age groups, different educational levels and socioeconomic backgrounds and different geographical areas of Erbil city, to ensure maximum variability and diversity of respondents.

Data collection

Statement identification

To determine the issues concerning maternal health-care services 2 focus groups with 20 women were conducted, in addition to interviewing 5 women attending antenatal care facilities and labour wards and 2 nurses and a gynaecologist providing maternity care services. Statements were extracted from these transcripts. A review of the literature about Iraqi women's perspectives of maternity care services and the views of women of similar cultural background helped in compiling additional statements (*21*,*22*). The details of these activities are provided elsewhere as they were also used to determine the statements for another study to assess women's perspectives of antenatal care (*10*).

Study tool

The statement identification step helped in extracting 110 statements related to childbirth and postnatal care. These statements were reviewed and then repeated statements were discarded, statements of close similarity were combined and viewpoints of opposite meaning were removed (*7*). Statements related to the different dimensions of 3 levels of Donabedian's conceptual framework for assessing quality of care were selected: structure, process and outcome (*23*). The statement selection step resulted in 39 statements that potentially represented different aspects of childbirth and postnatal cares services. Each of these 39 statements received a random number and was typed onto a small card. Later, the Q-sort of a quasi-normal distribution with a specific number of cells equal to the number of the Q-sample statements was developed (Figure 1).

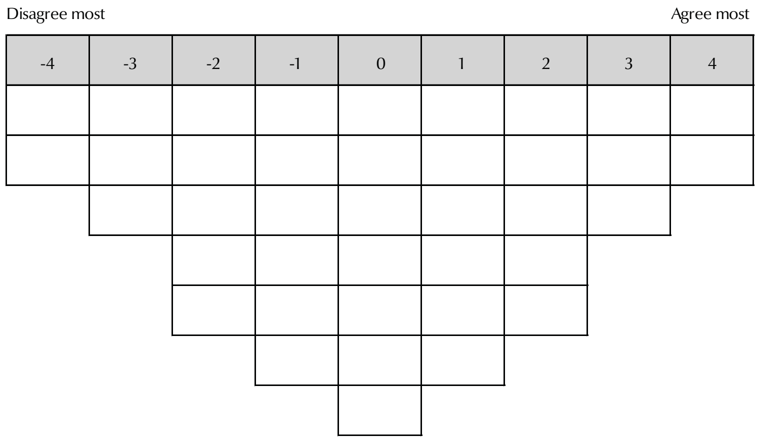

Figure 1 The Q-sort matrix

Procedure

The selected women were invited to participate in the study after obtaining their consent. The purpose of the study and instructions for completing the task were explained to each participant. The task of the participants was to sort the cards into 9 piles, from –4 (most disagree) to +4 (most agree), in relation to their view and experience of different aspects of childbirth and postnatal care services.

Data analysis

The Q-sorts were entered into the *PQMethod*, version 2.11 program and were analysed using by-person factor analysis technique (*24*). Centroid factor extraction and varimax rotation were used to obtain latent factors. Different factor solutions were examined and the solution where all the factors had at least 2 defining sorts and had eigenvalues more than 1.00 was selected (*23*). Interpretation of each factor was done subjectively through examining the characterizing statements (those with a rank value of +4, +3, –3, –4) and the distinguishing statements (a statement whose score on that factor is significantly different from its score on any other factor) (*7,17*).

Results

The mean age of the 37 participating women was 27.1 [standard deviation (SD) 6.3] years. Table 1 shows the details of the participants' sociodemographic characteristics.

Table 1 Sociodemographic characteristics of the participants

Characteristic	No.	%
Age (years)		
18–20	5	13.5
21–25	15	40.5
26–30	6	16.2
31–35	8	21.6
36–40	3	8.1
Employment status		
Government employees	10	27.0
Housewife	21	56.8
Student	6	16.2
Education level		
Primary school	5	13.5
Intermediate school	11	29.7
Secondary school	10	27.0
Institute	9	24.3
College	2	5.4
No. of children		
1	11	29.7
2	12	32.4
3	8	21.6
4	4	10.8
5	2	5.4

Analysis of the participants' Q-sorts resulted in having 3 distinct viewpoints and experiences of childbirth and postnatal care services. This accounted for 61% of the variance. The 3 factors were defined by 21 women (56.8%). Three women did not load significantly on any of the factors and 13 women loaded significantly on more than 1 factor. Table 2 shows the Q-set statements and factor arrays with scores against each statement by factor.

Factor 1: Poor interpersonal care and support

Nine participants loaded significantly onto factor 1. They included 8 housewives, 7 residing in poor quarters in

Table 2 **Q-set statements and factor arrays: scores against each statement by factor**

#	Statement	Factor		
		1	2	3
1	Skin-to-skin contact occurred either immediately or soon after birth	0*	3**	1*
2	While I was in hospital for childbirth, I was given enough advice and help about feeding and looking after the baby	–3	2**	–3
3	The local primary health care centre has been an important support to me after having a baby	–2	2**	–2
4	If I were to have another baby, I would return to the same hospital	–1	–2	–3
5	My husband was the best possible help to me after the baby was born	–2**	3	1
6	In the labour room, the care providers respected patients and were compassionate	0	–2	–1
7	There was only one doctor in the labour ward who was in rush and was moving from a patient to another	–2**	–4**	0**
8	Having a baby boy is very important to have a better social position (respect) within the family	0	–4**	4
9	I never met any of the doctors or midwives who looked after me during childbirth before I went to have the baby	4	2	2
10	The staff were usually too busy at the hospital to take care of me properly	3	–3**	1
11	**While I was in hospital I was given enough advice and help about my own health and recovery after birth**	**–2**	**–2**	**–2**
12	**Overall, I was very satisfied with the care my baby and I received in hospital after the birth**	**0**	**0**	**0**
13	There was good monitoring of patient's recovery after childbirth	–4**	–2	–2
14	**More care providers are needed in the labour ward**	**2**	**1**	**2**
15	Childbirth has been one of the worst experiences of my life	4*	1**	2
16	It would have been so much better if I had had a longer hospital stay after the birth	–3**	–1	–1
17	There were adequate rooms and space in the labour ward	–1	0	2*
18	I prefer giving birth at hospital rather than at home or with a traditional birth attendant	–2	4**	–4
19	**During childbirth I was not given the information and explanation I needed and I felt unable to ask questions**	**1**	**0**	**0**
20	Presence of the father after birth is very important	2	2	–3
21	It is important to follow cultural traditions like protecting the baby from the evil eye and eating special food	–1	0	4**
22	My companion and I were frequently left alone by the staff at a stage when it worried me to be alone (during and after giving birth)	2	–1**	2
23	There was no a choice about who or how many people kept my company during childbirth (i.e. my partner or other relative or friend)	1	1	3
24	There is a need to stay at home for the traditional 40 days after having a baby	1	–1	3
25	**My care provider explored adequately with me my contraceptive needs**	**–3**	**–3**	**–2**
26	Care providers gave adequate attention to women's pain and its relief during childbirth	–4**	–1	0
27	Health expenditure related to childbirth causes financial burden on my family	1	1	–2**
28	I was very satisfied with the hygiene aspect and the available facilities at the hospital	–1	–1	–1
29	The possibility of having a male doctor in labour room makes me dislike having my baby in the hospital	3	–2*	3
30	I had all my babies at the hospital	2**	4**	1*
31	Care providers need to be more tolerant with us	2	3*	1
32	**Care providers in the labour room got angry with patients and did not deal with them politely**	**–1**	**0**	**–1**
33	**I sometimes had problems understanding what my care providers were saying to me**	**–1**	**1**	**–1**
34	No one explained what was happening or what the options were in hospital	1	1	–1

Table 2 **Q-set statements and factor arrays: scores against each statement by factor (*concluded*)**

#	Statement	Factor		
		1	2	3
35	The labour room was very crowded	1**	–3**	0**
36	**It was very difficult to complain during and after childbirth**	**0**	**0**	**0**
37	For postnatal care, it is important to see the same midwife that I had in the antenatal period	3	2	1*
38	I was given enough advice and help about my own health and recovery after birth during postnatal care visits	0	–1	–4**
39	**The materials and tools used by care providers during labour were clean**	**0**	**0**	**0**

**Distinguishing statement significant at $P < 0.05$; **Distinguishing statement significant at $P < 0.01$.*
Bold type indicates consensus statements.

Erbil and 7 with intermediate to secondary-school education. Factor 1 reflected a general perception of poor childbirth and postnatal care with lack of appropriate interpersonal care and support. The respondents emphasized poor childbirth and postnatal care as they considered childbirth the worst experience of their lives and indicated that the labour room was very crowded. They complained about poor interpersonal care and poor attention received from care providers, as they thought that the care providers at the hospital were too busy to take proper care of them and did not give adequate attention to women's pain and its relief during labour. These women had concerns about the lack of provision of adequate advice and help about feeding and looking after the baby while they were in the hospital for childbirth, and about the lack of good monitoring of woman's recovery after childbirth. They did not think that it would have been better if they had had a longer hospital stay after childbirth.

The responses indicated a lack of interpersonal support from staff, as respondents had concerns about never having met beforehand any of the doctors or midwives who looked after them during labour and they emphasized the importance of seeing the same midwife for postnatal care that they had in the antenatal period.

Women loading on this factor also showed a general concern about lack of adequate emotional support during childbirth and postnatal care. They disagreed with the statements that their husband was of the best possible help after the baby was born and least agreed with the statement that they had made skin-to-skin contact with the baby either immediately or soon after birth.

Factor 2: Confident and well-supported

Three participants loaded significantly onto factor 2. All the women resided in affluent quarters in Erbil and included 2 women who were employed and 2 with college-level education. Factor 2 reflected the experiences of confident and well-supported women who had high satisfaction with the childbirth and postnatal care services. Compared with other factors, the women loading on this factor had a high satisfaction with the childbirth and postnatal care services. They least agreed with the statements that childbirth was one of the worst experiences of their lives, that the labour room was very crowded and that the care providers were usually too busy at the hospital to take care of them properly. They did not agree that there was only 1 doctor at the labour ward who was in rush and was moving from one patient to another. They were also satisfied with the immediate postnatal care services, as they indicated that they were given enough advice and help about feeding and looking after the baby while they were in the hospital for labour. All these women had their babies at hospital and preferred giving birth at hospital rather than at home or with a traditional birth attendant.

These women seemed to be confident and well-supported as they indicated that their husbands were the best possible help to them after the baby was born and that skin-to-skin contact with the baby had occurred either immediately or soon after birth. They did not seem to be concerned at all about the importance of having a baby boy to having a better position within the family or about having a male doctor in labour room. These women did not agree with the statement that they were frequently left alone by the care providers at a stage when it worried them to be alone while they described the local primary health-care centre as an important support to them after having a baby.

Factor 3: Cultural traditions

Nine participants loaded significantly onto factor 3. They included 6 housewives, 4 residing in poor quarters in Erbil and 6 with primary- to intermediate-school education. Factor 3 reflected some poor satisfaction with the childbirth and postnatal care services and a noticeable influence of traditional cultural practices on the women's views. These women seemed to be greatly influenced by traditional cultural practices, as they were concerned about the importance of following cultural traditions such as protecting the baby from the evil eye and eating special food and about the need to stay at home for the traditional 40 days after giving birth. They indicated that there was no a choice about who or how many people kept them company during childbirth. These women least agreed with the statement that they had had their babies at the hospital. They indicated that they would not return to the same hospital if they had another baby and that they preferred giving birth at home or with a traditional birth attendant rather than at hospital. The possibility of having a male doctor in the labour room made them dislike having their babies in the hospital.

Consensus statements

There were 10 consensus statements, i.e. their scores did not differ statistically across the different factors. Four of these statements showed agreement on: the need for more care providers (particularly nurses and midwives) in the labour ward; care providers' inadequate exploration of women's contraceptive needs; the lack of provision of adequate advice and help about woman's health and recovery after birth while at hospital; and dissatisfaction with hygiene and the facilities available at the hospital.

Discussion

This explorative study revealed 1 positive and 2 generally negative perspectives of women and their experiences of the childbirth and postnatal care services in Erbil. Factor 1 represented the women with poor satisfaction with childbirth and postnatal care services, whose their main concern was related to poor interpersonal care and support. Most of the respondents loading in this factor had low socioeconomic and educational status, which might explain their greater need for information and support. Poor satisfaction with the quality of care at facilities is an important barrier to maternity care. Care providers play an important role in determining the level of women's satisfaction with the quality of care. Poor usage of care might be related to lack of provision of socioculturally appropriate and respectful care by care providers, with women identifying these services as unsuitable or inadequate (*25*). Women's perceived quality of care and satisfaction with maternity care is largely associated with the availability of skilled and experienced staff, polite behaviour by staff and greater provider empathy (*25,26*). A family-supportive environment during pregnancy and childbirth is essential to maximize favourable outcomes (*27*). Women's experience with childbirth and postnatal care is also influenced by the presence or lack of social, emotional and family support. For example, increased mother's satisfaction with the birth process and decreased need for pain medication have been found to be associated with childbirth supported by fathers (*27*).

Factor 2 represented the women with high satisfaction with the childbirth and postnatal care services which could be attributed to their being confident and well-supported. The generally high socioeconomic and educational status of these participants might also be responsible for their having such confidence and support. Feelings of confidence and autonomy are important features of responsibility, which is the main reason why women seek proper maternity services (*28*). Confident women are more likely to have the freedom to adhere or nor to adhere to traditions, whereas women who lack family support are more likely to feel pressure to adhere to these traditions (*21*). Family and professional support can have a positive effect on the maternity care experience of the mothers. When women feel unsupported by health-care professionals, they feel isolated and dissatisfied with maternity services (*21,29*). Having the support of the husband and the wider family might help women to feel valued and to increase their self-esteem, which in turn will encourage their expectation of reasonable care (*21*).

Factor 3 represented the women who were noticeably influenced by traditional cultural practices. While traditions and culture affect all levels of society, they usually have greater influence on the less affluent and educated people. That is possibly why the respondents loading on this factor were mainly poorly educated and had poor socioeconomic status. Maternity health behaviour is usually embedded within specific social relations and cultural contexts. Culture plays a major role in the way a woman perceives and prepares for her birthing experience. An emphasis on culture as a barrier is evident in the literature on maternal health. Perpetuation of "false beliefs" are cited as major obstacles to improved maternal health (*30*). Cultural practices can affect woman in different ways (*21*). In most societies, including Iraq, there are cultural practices that can have negative effects on pregnancy outcomes (*31*). The importance of understanding cultural practices should be emphasized while remembering that each tradition might not be significant to every family. Therefore, it is important for care providers to be sufficiently aware of cultural aspects of maternity care. Such awareness can be provided by implementing cultural competency awareness training for care providers. We might also need to transform the educational curriculum, the training setting and the emphasis of education and training of care providers in order to achieve a more women-centred approach to maternity care. Moreover, sufficiently empowering women can have a positive impact on avoiding harmful cultural beliefs and practices.

The presence of differences in viewpoints of women about maternity services in Iraq, and in particular about childbirth and postnatal care, is well-recognized and is expected. This is particularly true when the respondents receive maternity services at different service delivery points with different quality of care and health professional with different skills. Q-methodology can help in uniquely identifying and highlighting such differences in a new and insightful way (*7,10*). There can be many possible reasons for differences between the respondents in their experience of care. For example, the sociodemographic characteristics of the participating women such as education level, employment status and economic status might influence their perception of the quality of care. Women's previous experience with childbirth or lack of it and the specific circumstances of their experience are other possible explanations for these different viewpoints (*32*).

Interestingly, the women in the 3 different groups had a general consensus on a wide range of issues concerning childbirth and postnatal care. Such a consensus was largely related to poor provision of information, poor communication, inadequate staffing, negative attitude of the providers and poor hygiene aspects of the facilities and tools. Studies on women's satisfaction with childbirth and postnatal care frequently emphasize the importance of provision of information, difficulty in getting individualized information and breastfeeding support, lack of encouragement and response to personal questions and poor attention to the mothers (*33*).

Q-methodology is exploratory in nature and can provide a useful insight into the available viewpoints in society and a characterization of each viewpoint. Q-studies are generally not meant to be generalizable or to determine the proportion of respondents that hold particular viewpoints. Therefore, they usually include a small number of participants (*34*). However, they might provide an initial understanding of the sociodemographic characteristics associated with each viewpoint. As a hypothesis-generating tool, Q-methodology can be followed up with larger surveys to examine these uncovered viewpoints and their associated factors (*35*).

This study revealed different patterns of viewpoints and experiences of Iraqi women of the childbirth and postnatal care services and highlighted some specific issues related these patterns. A breadth of viewpoints and experiences was identified that might primarily be related to the degree of interpersonal care received, family support and traditional culture. While some women were satisfied with some aspects of the available services, satisfaction with many important aspects of care remained poor among different groups of the women. This study suggests that the childbirth and postnatal care of these women needs substantial improvement particularly in term of providers' skills and attitude and the wider sociocultural environment. However, our findings merely represent the perspectives of the respondents and further research around assessing women's needs in this area is deemed necessary. Such needs assessment should particularly focus around providers' skills and interactions with patients and empowering and supporting women throughout the childbirth and postnatal period.

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Physicians' knowledge and practice towards medical error reporting: a cross-sectional hospital-based study in Saudi Arabia

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معرفة الأطباء بالأخطاء الطبية وممارستهم إزاء الإبلاغ عنها: دراسة مقطعية بإحدى مستشفيات المملكة العربية السعودية

ايمان الصافي، سالم باهارون، احمد انور، حمدان الجحدلي، سعيد الزهراني، عبد الله السياري

الخلاصة: إن تحديد أسباب نقص الإبلاغ أمر بالغ الأهمية في الحد من وقوع الأخطاء الطبية. لقد درسنا معرفة الأطباء بحدوث وتواتر وأسباب الأخطاء الطبية وممارستهم الفعلية إزاء الإبلاغ عنها. فأجاب 107 أطباء في مستشفى للرعاية الثالثية في المملكة العربية السعودية على استبيان مقطعي يعبئ ذاتياً. وكان في الاستبيان ستة أقسام تغطي البيانات السكانية والمعارف والاتجاهات والممارسات إزاء الإبلاغ عن الأخطاء الطبية والأسباب المتصورة لها وتواتر حدوث الأخطاء الطبية في مستشفاهم وتجاربهم الشخصية في الإبلاغ عن الأخطاء الطبية. فمال الأطباء إلى عدم الإبلاغ عن الأخطاء الطبية عند عدم حدوث ضرر للمرضى. وخشي ثلث المستطلَعين من اتخاذ إجراءات عقابية إذا ما أبلغوا عن الأخطاء، ورأى 56.4٪ منهم فقط أن الإبلاغ عن الأخطاء قد أدى إلى تغييرات إيجابية في مجال الرعاية إجمالاً. وكانت غالبية الأخطاء مرتبطة بتأخير التدخلات وبالخطأ في التشخيص. لقد كان نقص الإبلاغ عن الأخطاء الطبية شائعاً في هذا المستشفى. ولم يقدِّر الأطباء قيمة المحاولات الرامية إلى تحسين نظام الإبلاغ عن الأخطاء، كما أن ثقافة اللوم لا تزال سائدة.

ABSTRACT Identifying reasons for under-reporting is crucial in reducing the incidence of medical errors. We studied physicians' knowledge of the occurrence, frequency and causes of medical errors and their actual practice toward reporting them. A cross-sectional, self-administered questionnaire was answered by 107 physicians at a tertiary-care hospital in Saudi Arabia. The questionnaire had 6 sections covering demographic data, knowledge, attitudes and practice towards reporting medical errors, perceived causes of and frequency of medical errors in their hospital and personal experiences of medical error reporting. Physicians tended not to report medical errors when no harm had occurred to patients. One-third of respondents feared punitive actions if they reported errors and only 56.4% felt that error reporting had led to positive changes in overall care. A majority of errors were related to late interventions and misdiagnosis. Under-reporting of medical errors was common in this hospital. Physicians did not appreciate attempts to improve the system of error reporting and a culture of blame still prevailed.

Connaissances et pratiques des médecins concernant la notification des erreurs médicales : étude transversale en milieu hospitalier en Arabie saoudite

RÉSUMÉ L'identification des raisons de la sous-notification est cruciale pour réduire l'incidence des erreurs médicales. Nous avons étudié les connaissances des médecins sur la survenue, la fréquence et les causes des erreurs médicales ainsi que leur pratique réelle en termes de notification. Un autoquestionnaire transversal a été rempli par 107 médecins dans un hôpital de soins tertiaires en Arabie saoudite. Le questionnaire présentait six sections couvrant les données démographiques, les connaissances, les attitudes et les pratiques vis-à-vis de la notification des erreurs médicales, les causes perçues et la fréquence des erreurs médicales dans leur hôpital ainsi que les expériences personnelles en matière de notification. Les médecins avaient tendance à ne pas notifier les erreurs médicales lorsque les patients n'avaient souffert d'aucun dommage. Un tiers des répondants craignaient les actions punitives s'ils notifiaient des erreurs et seuls 56,4 % pensaient que la notification des erreurs entraînait des modifications positives pour l'ensemble des soins. Une majorité d'erreurs était liée à des interventions tardives et des erreurs de diagnostic. La sous-notification des erreurs médicales était fréquente dans cet hôpital. Les médecins ne percevaient pas positivement les tentatives d'amélioration du système de notification des erreurs et la culture du blâme restait prévalente.

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Introduction

Health-care providers' knowledge, attitude and practice towards medical errors and error reporting are essential factors to understand in order to reach a more transparent, better quality and safer health environment. Achieving a safer health-care environment will lead to reductions in the incidence of medical errors and adverse events. Encouraging medical error reporting with the aim of using the error as an educational exercise and quality improvement tool is an essential component in providing safety of care to patients (*1*). It is important that health-care providers appreciate that error reporting is truly an opportunity to improve care and a tool to ensure a safer environment. Although it is frequently emphasized that medical errors should not be seen as solely the result of an individual's mistake but rather of underlying defects in the health-care system, health-care providers may not see this being practised in reality (*2*).

There has been a recent increase in the frequency of medical error claims in Saudi Arabia (*3*). Nearly 40 000 medical error complaints are filed annually, a third of medical practitioners are banned from travel due to those complaints and 80% of those complaints end without a conviction (*4,5*). The frequency of such claims varies between provinces, but surgery and obstetric practice claims are the most frequent (*6,7*). Despite the increase in claims, there is a belief that medical errors are still largely under-reported by physicians (*8,9*). While a need for more transparency in revealing these errors is evident, efforts to understand the reasons behind this increase are not well studied and tend to emphasize the frequency of occurrence of errors without getting health-care workers' perspectives (*6,7,10,11*).

Saudi Arabian health-care providers have positive knowledge and attitudes toward patient safety (*12,13*). Saudi physicians consider reporting medical errors as an ethical issue (*9*). Reinforcement of error reporting, implementing strict guidelines, training personnel efficiently and using the experience of professionals in appropriate fields will all enhance reporting and ultimately lead to improved care (*9*).

We have previously reported on the attitude of physicians toward reporting medical errors in a sample of health-care providers in Saudi Arabia and determined that physicians are likely to disclose errors made by a colleague only if the error resulted in severe damage to the patient; thus, many medical errors go under-reported (*14*). It was believed that the assurance of confidentiality and protection from repercussions would increase medical error disclosure (*14*). In the current article, we present the results of physicians' knowledge about the occurrence, frequency and causes of medical errors and their personal practice of medical error reporting.

Methods

Study design and setting

This cross-sectional study from 15–30 June 2011 used a self-administered survey questionnaire to doctors in a tertiary care Ministry of Health hospital in Riyadh, the capital city of Saudi Arabia. Al-Iman General Hospital is a 400-bed hospital located in the south of the city. It offers all subspecialties and accepts medical, surgical, trauma and obstetrics and gynaecology patients.

Sampling

The target population was all physicians working at Al-Iman General Hospital. The study coordinator distributed the study questionnaires to physicians in all clinical departments when they were attending their morning rounds and also during individual departments' academic activities and hospital-wide activities. We included all licensed physicians who were working full-time in the hospital for at least 1 year prior to enrolment in the study.

The purpose of the study was explained to participants and return of a filled questionnaire was considered consent to participate in the study. Completion of the questionnaire was not obligatory at the time of distribution and the participants were requested to return the completed and sealed questionnaires to departmental secretaries to be collected later by the study coordinators. The participants were assured that they would have both anonymity and confidentiality. The approval of the local institutional review board was obtained prior to commencing the study.

Data collection

The questionnaire used in this study was developed and previously validated by the study group (*14*). It was divided into 6 sections. Section 1 collected information about respondents' demographic and practice characteristics. Section 2 (attitude questions) asked the respondent about their incentives and barriers to medical error reporting. Section 3 (practice questions) examined the impact on medical error reporting of organizational culture, leadership and approaches to and procedures for handling medical error reporting and its consequences. Sections 4 (knowledge questions) collected information about the occurrence of medical errors in the hospital. Section 5 asked about the frequency with which medical errors were reported in the hospital. Section 6 enquired about specific and personal experiences of the respondents concerning medical error reporting. Sections 2, 3 and 4 of the survey asked the respondent to state his or her level of agreement with statements using a 3-point Likert scale from 1 (disagree) to 3 (agree).

Statistical analyses

The data were entered into the *SPSS* program, version 19, which was also used for data management and analyses. Due to the descriptive nature of this study, the results were reported as both a number and percentage for categorical variables and the mean and standard deviation (SD) for continuous variables. The data from the Likert scales were presented as categorical variables (agreement or disagreement with the statement made).

Results

Demographic and practice characteristics

Of the 161 physicians invited to participate in this study, 107 (66.5%) responded. Respondents were between 25–59 years old with a mean age of 39.8 (SD 9.0) years. Table 1 displays the demographic and practice data of the doctors who agreed to participate. The mean duration of their training was 11.6 (SD 9.8) years, and 67.3% were males. Most were either residents or specialists (39.8% and 30.1% respectively) and from the departments of emergency medicine and surgery (19.6% and 17.7% respectively). Almost half of the respondents worked between 40–59 hours per week, while 17.1% worked 60–79 hours/week. Two-thirds of physicians (66.0%) had 1–5 years' experience in their current work and 20.0% had more than 15 years' experience (Table 1).

Table 1 **Demographic and practice characteristics of respondents (*n* = 107)**

Parameter	No.	%
Sex		
Male	72	67.3
Female	35	32.7
Current position		
General practitioner	13	12.6
Specialist	31	30.1
Resident	41	39.8
Consultant	18	17.5
Nationality		
Saudi Arabian	15	14.0
Expatriate	92	86.0
Location of specialty training		
Middle East	65	67.0
Asia	3	3.1
Europe	15	15.5
North America	5	5.2
Other	9	9.3
Department		
Dental	3	2.8
Emergency medicine	21	19.6
Clinical laboratory	4	3.7
Medicine	18	16.8
Obstetrics and gynaecology	16	15.0
Paediatrics	9	8.4
Surgery	18	17.7
Other	18	16.0
Working hours/week		
20–39	35	33.3
40–59	52	49.5
60–79	18	17.1
Work experience in specialty (years)		
< 1	6	10.0
≥ 16	9	15.0
1–5	33	66.0
11–15	12	20.0

Practice of medical error reporting

A total of 17 questions were asked about practices concerning medical error reporting in their hospital (Table 2). About 40% of physicians did not agree that there was fair treatment of staff physicians reporting medical errors. One-third of surveyed physicians (33.6%) could not confirm that their roles and responsibilities in responding to medical errors and other safety-related issues were clearly laid out in their job description. Physicians conditioned their response to medical errors according to the likely harm done to the patient; 49.0% would not report an error if no harm were inflicted, although 42.0% would report it anyway. Only 30.5% of physicians agreed that hospital management did not blame them after reporting errors and only 56.4% felt that reporting medical errors would lead to positive changes anyway (Table 2).

Two-thirds of surveyed physicians affirmed a positive role of the hospital chairman and directors in providing adequate support when problems arose and in encouraging the staff to find positive solutions for these problems, but only 50.0% said that they were given feedback about changes put into place based on event and errors reported (Table 2). Many of the physicians (42.4%) could not affirm having effective mechanisms for reporting medical errors and another 27.6% were unsure or disagreed that the hospital had policies and procedures that

Table 2 **Physicians' practice concerning medical error reporting in their hospital**

Statement	Agree	Don't know	Don't agree
The practice in this hospital allow for a fair treatment when reporting medical errors	60.8	13.7	25.5
I do not report the error if I think the patient is not harmed	49.0	8.8	42.2
I try to report a medical error because reporting might prevent further complications to the patient	84.6	2.8	12.6
I feel comfortable to ask for help or support from my colleagues or peers concerning medical errors	69.9	11.7	18.4
I have the opportunity to discuss and receive feedback about my work performance with other staff	77.0	14.0	9.0
The system in my hospital including policy and procedure is good at minimizing occurrence of medical errors	72.4	12.4	15.2
Expectations of medical staff in my workplace subject them to constant pressure that increases chances of errors	23.1	20.2	56.7
Medical staff feel like their mistakes are held against them when an event is reported	30.5	14.3	55.2
Reporting medical errors has led to positive changes	56.4	19.8	23.8
Chairman and directors provide adequate support when problems arise	67.9	15.1	17.0
Chairman and directors encourage staff to find positive solutions when problems arise	68.9	20.8	10.3
We are given feedback about changes put into place based on event and errors reported	50.0	25.0	25.0
We have effective mechanisms of reporting medical errors	57.6	21.7	20.7
When it comes to reporting medical errors, things are quite disorganized in my workplace	25.2	29.1	45.7
Staff roles and responsibilities in responding to medical errors and other safety related issues are clearly laid out in their job descriptions	66.4	15.8	17.8
This hospital promotes itself as an organization that responds to medical errors and other safety-related issues	53.8	25.0	21.2
This hospital is receptive to staff ideas and suggestions regarding medical errors	47.6	25.2	27.2

were effective for minimizing the occurrence of medical errors.

Only 53.8% of respondents agreed that their hospital promoted itself as an organization that responded to medical errors and other safety-related issues and less than half (47.6%) considered that the hospital was receptive to the staff's ideas and suggestions regarding medical errors and other safety-related issues.

Knowledge of medical error reporting

There were 15 statements in the category of knowledge about medical error reporting (Table 3). The majority of respondents thought that there was under-reporting of medical errors in the hospital and that staff shortages and overload, lack of experience and training and poor language and communication were all important causes of medical errors in the hospital. Respondents disagreed that the medical administration dealt with medical errors confidentially (58.1%), and 51.0% could not clearly say that the administration had a positive impact in promoting disclosure of errors. Around half of respondents (51.0%) disagreed that the reason for not disclosing errors was because the reporting process was unclear, although 64.8% did not concur that reporting errors was simple and not time-consuming.

The final statement referred to the respondents' opinion about the medical fields in which errors were most frequently encountered. In all areas (medication, diagnostic, surgical, transfusion, laboratory, late interventions), respondents felt that errors were most frequently related to late interventions followed by laboratory and diagnosis medical errors. Surgery-related medical errors were less mentioned, followed by medication-related errors. Transfusion-related errors were the lowest in occurrence according to respondents.

Physicians' characteristics and medical error reporting

Table 4 shows the mean scores of physicians on practice and knowledge of medical error reporting in relation to their demographic and practice characteristics. Physicians who worked long hours (60–79 hours) had poorer

Table 3 **Physicians' knowledge concerning medical error reporting in their hospital**

Statement	Agree	Don't know	Don't agree
I think there is under-reporting of medical errors in the hospital	50.0	28.8	21.2
I think shortage and overload is one cause of medical error occurrence in the hospital	74.0	12.5	13.5
I think lack of experience and training is one cause of medical errors	81.9	9.5	8.6
I think poor language and communication could be one significant cause of medical errors	70.8	10.7	18.5
The medical administration office has a positive contribution in promoting error reporting	49.0	39.2	11.8
The medical administration office deals confidentially with medical errors that are reported	19.0	22.9	58.1
To my knowledge the cause of not reporting medical errors is that the reporting process is not clear	49.0	21.2	29.8
To my knowledge the cause of not reporting medical errors is the reporting process is complex and time consuming	35.2	23.8	41.0
In my opinion, the most frequently encountered medical errors in this hospital are medication related	35.9	37.9	26.2
In my opinion, the most frequently encountered medical errors in this hospital are patient falls	38.1	34.3	27.6
In my opinion, the most common medical errors in this hospital are diagnostic related	45.7	41.9	12.4
In my opinion, the most frequently encountered medical errors in this hospital are related to late interventions	47.1	36.3	16.6
In my opinion, laboratory related medical errors are the most frequently encountered in my hospital	46.7	37.0	16.3
In my opinion, transfusion related medical errors are the most frequently encountered in my hospital	28.6	36.2	35.2
In my opinion, surgical related medical errors are the most frequently encountered in my hospital	40.9	34.3	24.8

practice scores for reporting errors compared with physicians who worked fewer hours ($P = 0.046$). Physicians in obstetrics departments had better self-reported practice (i.e. lower scores) for reporting medical errors than did other specialities, although the numbers were not statistical ly significant ($P = 0.063$) (Table 4).

There were no significant effects of sex, age, position, specialty, department or year of specialty on physicians' knowledge scores although non-Saudi physician had a better knowledge score ($P = 0.054$) (Table 4).

The practice questions in Section 3 examined the impact on medical error reporting of organizational culture, leadership and approaches to and procedures for handling medical error reporting and its consequences Three questions were asked about the conditions for reporting medical errors (Table 5): those discovered before they affect the patient, those that occur but do not harm the patient and those that occur and cause harm. Compared with male doctors, more female physicians felt that disclosure of errors was dependent on the potential harm caused ($P = 0.03$).

Frequency of reporting errors

When asked how frequently they had filed medical error reports in the past year, 61% of the physicians said they had not filed an error in the previous 12 months, 21% had filed 1 or 2 error reports, 8% had filed 3–5 reports, 7% had filed 6–10 error reports and one respondent had filed more than 20 medical errors reports. Physicians working between 20–39 hours were statistically more likely to report fewer errors compared with those who worked more hours (Figure 1). The overall self-reporting of errors across all residents, specialists, consultants and general practitioners were low. There were higher reporting trends among residents compared with other groups.

Errors were most likely to reported by obstetric physicians (38.9%) and the least likely by surgical physicians (18.2%) ($P = 0.019$) (Table 6).

Discussion

Transparency plays a major role in the overall success of most organizations and hospitals and the medical

Table 4 **Physicians' knowledge and practice towards medical error reporting by demographic and practice characteristics**

Characteristic	Practice scores			Knowledge scores		
	Mean	(SD)	*P*-value [a]	Mean	(SD)	*P*-value [a]
Sex						
Male	2.34	(0.27)	0.098	2.38	(0.36)	0.917
Female	2.25	(0.25)		2.38	(0.42)	
Age (years)						
< 35	2.30	(0.27)	0.956	2.40	(0.37)	0.820
35–45	2.32	(0.27)		2.36	(0.37)	
> 45	2.32	(0.25)		2.42	(0.44)	
Nationality						
Expatriate	2.30	(0.27)	0.311	2.36	(0.39)	0.054
Saudi Arabian	2.39	(0.22)		2.55	(0.23)	
Current position						
Consultant	2.34	(0.26)	0.895	2.42	(0.31)	0.788
Specialist	2.32	(0.28)		2.42	(0.39)	
Resident	2.29	(0.26)		2.33	(0.41)	
General practitioner	2.31	(0.27)		2.43	(0.33)	
Location of specialty training						
Middle East	2.32	(0.28)	0.431	2.38	(0.37)	0.212
Europe/North America	2.25	(0.24)		2.29	(0.40)	
Other	2.34	(0.24)		2.49	(0.37)	
Primary work area (field)						
Medicine	2.26	(0.27)	0.063	2.46	(0.38)	0.429
Surgery	2.25	(0.29)		2.33	(0.37)	
Emergency medicine	2.44	(0.23)		2.47	(0.32)	
Obstetrics	2.24	(0.22)		2.24	(0.54)	
Other	2.35	(0.25)		2.39	(0.22)	
Working hours/week						
20–39	2.26	(0.26)	0.046	2.40	(0.34)	0.347
40–59	2.38	(0.24)		2.40	(0.41)	
60–79	2.22	(0.30)		2.29	(0.38)	
Work experience in specialty (years)						
≤ 5	2.28	(0.28)	0.493	2.38	(0.42)	0.301
6–15	2.35	(0.22)		2.35	(0.36)	
> 15	2.27	(0.33)		2.51	(0.30)	
No. of adverse events reported						
0	2.30	(0.26)	0.121	2.33	(0.41)	0.064
1–2	2.40	(0.22)		2.53	(0.30)	
≥ 3	2.22	(0.30)		2.42	(0.27)	

[a] *Kruskal–Wallis/Mann–Whitney U-test.*
SD = standard deviation.

community is no exception. Therefore, the disclosure of medical errors is one major form of transparency that can dictate the overall efficiency of the existing health-care system. Physicians' knowledge that medical errors are under-reported in their hospital was evident in the present survey in Saudi Arabia. Under-reporting of medical errors by physicians has many causes. Reluctance to report violations may be a function of the widespread and well-documented resistance among doctors to adhere to clinical protocols, which are perceived by many in the medical community as a threat to their professional autonomy (*15,16*). This resistance to adherence was reported

Table 5 Physicians reported practice regarding disclosure of medical errors (n = 107)

Physicians who would disclose medical error if the error:	Sometimes			Always			Most of the time			Rarely		
	M	F	Total	M	F	Total	M	F	Total	M	F	Total
	%	%	%	%	%	%	%	%	%	%	%	%
Were corrected before it affected the patient	42	34	38.5	8	15	10.6	21	30	24.0	29	21	26.9
Did not harm the patient	31	36	32.7	4	19	8.7	33	13	26.9	31	33	31.7
Harmed the patient	15	28	19.4	29	49	35.0	30	10	21.8	18	15	8.7

M = males; F = females.

by another survey among health-care providers in Saudi Arabia (*17*). Physicians' willingness to report errors to the hospital, as well as to discuss errors with colleagues and patients, may be diminished by fear of litigation and concern of tarnishing their professional reputation among colleagues and patients (*15,18*). Although one may speculate that being

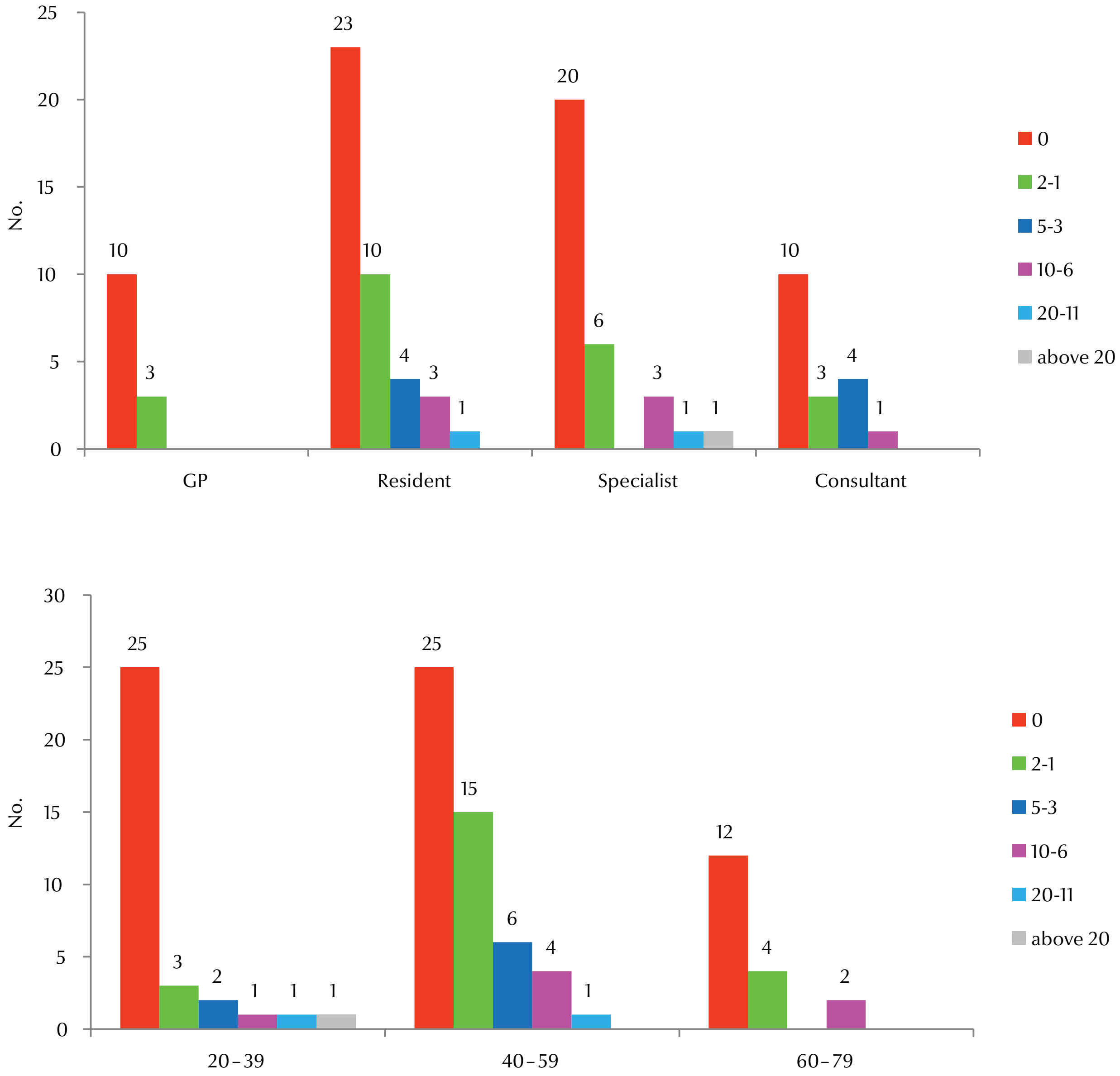

Figure 1 Cross-tabulation between physicians' reporting of medical errors and (a) work hours/week and (b) specialty training

Table 6 **Physicians' demographic and practice characteristics and self-reported practice of medical error reporting**

Characteristic	Errors reported				
	No		Yes		
	No.	%	No.	%	*P*-value[a]
Sex					
Male	46	63.9	26	36.1	0.696
Female	21	60.0	14	40.0	
Age (years)					
< 35	27	62.8	16	37.2	0.816
35–45	27	60.0	18	40.0	
> 45	13	68.4	6	31.6	
Nationality					
Expatriate	58	63.0	34	37.0	0.821
Saudi Arabian	9	60.0	6	40.0	
Position					
Consultant	10	55.6	8	44.4	0.451
Specialist	17	54.8	14	45.2	
Resident	30	66.7	15	33.3	
General practitioner	10	76.9	3	23.1	
Location of specialty training					
Middle East	42	60.0	28	40.0	0.544
Europe/North America	11	61.1	7	38.9	
Other	14	73.7	5	26.3	
Primary work area (field)					
Medicine	16	64.0	9	36.0	0.019
Surgery	18	81.8	4	18.2	
Emergency medicine	16	69.6	7	30.4	
Obstetrics	11	61.1	7	38.9	
Other	6	31.6	13	68.4	
Working hours/week					
20–39	27	75.0	9	25.0	0.098
40–59	28	52.8	25	47.2	
60–79	12	66.7	6	33.3	
Years of specialty training					
≤ 5	27	69.2	12	30.8	0.288
6–15	32	62.7	19	37.3	
> 15	8	47.1	9	52.9	

[a] *Chi-squared test.*

an expatriate working in Saudi Arabia may be another major contribution to low reporting, due to fear of losing one's reputation or job and/or fear of punishment, the results of our study did not confirm this. Both Saudi nationals and expatriates reported having similar medical error reporting practices, although expatriates tended to have a better knowledge score.

In our study physicians acknowledged that incompetence or lack of sufficient training and background led to medical errors. It is apparent that one has to be equipped with a certain level of expertise and a degree of professionalism to keep medical errors to a minimum. Furthermore, it is important for the medical profession to take measures at both an individual and organizational level to avoid medical errors (*15,18*).

One factor that was apparent from this survey was that most doctors did not think it was necessary to disclose an error if it did not severely harm the patient. It is commonly accepted among the majority of doctors that errors are an "inevitable" and potentially unmanageable feature of medical work and that incident reporting is therefore "pointless" (*19*). This belief, however, does not supersede the importance of disclosing errors, especially if the consequences are patient death.

Most of our respondents did not think that the hospital administration implemented protocols to promote confidentiality and fairness in the disclosure of errors. One way to address this issue is to openly share experiences in a confidential setting which effectively helps diffuse feelings of guilt and which challenges the culture of shame and isolation that often surrounds medical errors (*19*). Furthermore, as discussed by Hebert et al., disclosures should be made easier and not riskier for health-care practitioners so that clinicians can learn from mistakes and improve patient care (*20*).

Al-Iman General Hospital is first and foremost a government hospital and, as such, the hospital's protocols are established by the Saudi Ministry of Health, which does not have concrete protocols for error disclosure. Similarly, in Canada, error disclosure is not explicitly addressed in the new Canadian Medical Association's Code of Ethics. In addition, most professional bodies, such as the College of Physicians and Surgeons of Ontario, the Province's regulatory body for physicians, have no policies requiring physicians to disclose errors except in some circumstances of professional incompetence or incapacity (*20*). In the United States, however, the Joint Commission on Accreditation of Health Care Organizations requires hospitals to inform patients of care outcomes, including anticipated outcomes and disclosure (*21*). The Ministry of Health of Saudi Arabia should adopt a similar programme – one which is both patient- and physician-friendly with regards to transparency – and implement the programme throughout all the hospitals in the country. In the current study the lack of existing unified protocols was evident. For example, 49.0% of responders stated that the reporting process was not clear while only 41.0% thought that the process was simple and not time consuming.

System barriers are factors that are inherent in the system that may hinder addressing medical errors. In the emergency department, these have been shown to include high patient volumes, multiple transitions during care and lack of follow-up care. These cases usually inhibit the physician's ability to disclose errors because the transfer of information is often deficient in detail, imprecise, delayed and badly organized. The lack of follow-up care also hinders error disclosure in the sense that it does not provide an opportunity to determine, report or investigate an error (*21*). Surgeons and emergency physicians were the least likely to report medical errors in the current study.

In this study, those who were working the greatest number of hours tended to report fewer errors; this finding confirms that an increased workload diminishes the opportunity to report errors. Another form of system barrier is the lack of leadership in hospitals that promotes the value of error reporting or disclosure. Improvements in the system cannot happen if there is no leadership or support from the administration that addresses the importance of patient safety (*22*).

Physician barriers strongly affect error disclosure. The attitude and behaviour of physicians become barriers to reporting medical errors. When there is an incidence of medical error, physicians are more likely to feel a sense of failure. They may consequently develop feelings of shame, guilt and professional incompetence. Despite the fact that physicians recognize the importance of disclosing medical errors, they may be inhibited from doing so because they might not possess the training and proper communication skills to address this type of situation (*23*).

It has been demonstrated before that most physicians also fear the possibility of losing the trust of their patients. This fear causes further negative implications to the patients because the patients may tend to decrease cooperation to treatment plans, develop unwarranted worry about their treatment, and stop seeking professional health care in the future. While some believe that error disclosure wears away patients' trust, there are others who believe that it enhances trust because error disclosure promotes honesty and good communication between patients and physicians (*23*). In many hospitals, there is also a culture of blame when there is an error reported. The most common object of blame is the attending physician, although the underlying cause of error might be a system failure. This culture of blame must be transformed into a culture of patient safety to promote error reporting, regardless of whether the error causes an adverse event (*1*).

Physicians also encounter the risk of malpractice liability, and legal barriers may impede them from disclosing medical errors. When the error is not reported, patients will not be aware that an error was made. However, when an error is disclosed, the patient may take legal action to receive compensation for the harm they have suffered. Disclosure of errors by physicians, as well as their apology, could be used as evidence against them during a trial (*23*). Medical malpractice in Saudi Arabia is referred to the National Medico-Legal Committee where the cases are evaluated before being given a verdict (*20,21*). Because most physicians are expatriates, the fear of deportation and the loss of the right to practice medicine could definitely impede the disclosure of medical errors. One suggestion from the Institute of Medicine in the United States regarding legal barriers is to encourage legislative action for peer-reviewed protection as well as for the protection of the reported information. As a result, the reporters of medical errors will be given adequate protection (*24*). This suggestion needs to be thoroughly studied in Saudi Arabia before it can be implemented to ensure that it adheres to Islamic principles and does not violate Sharia law. Alternatively, the recent study from Asqhari et al. on Iranian doctors suggested that the most acceptable approach to dealing with a peer's medical error is to report it to the responsible doctor and encourage him/her to disclose it to the patient (22).

A weakness in our study was that the majority of our sample population (85.7%) were expatriate, non-Saudi doctors. It is conceivable that this group may be more reluctant to report their own errors or the errors of their colleagues; therefore, the results cannot be generalized to all Saudi physicians. Nevertheless, this is still a useful study in the context of Saudi Arabia, where more than 80.7% of doctors working in the Ministry of Health are expatriates. Another weakness of our study was that we sampled from only one hospital, and thus the results may not be extrapolated to other hospitals.

Conclusion

In conclusion, this study is the first in Saudi Arabia to evaluate physicians' knowledge about the occurrence, frequency and causes of medical errors and their personal practice of medical error reporting. Under-reporting of medical errors was common in this hospital. Physicians did not appreciate attempts to improve the system of error reporting and a culture of blame still prevailed. The burden of promoting medical error reporting is on the physicians, health-care institutions and administrators. Health-care institutions should adopt a programme that enhances and promotes error reporting. This should entail transparency, confidentiality and a no-blame culture.

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Determinants of hand hygiene compliance in Egypt: building blocks for a communication strategy

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محدِّدات الالتزام بنظافة اليدين في مصر: لَبِنات أساسية من أجل وضع استراتيجية للتواصل

انا–لينا لوهينيفا، هاديه باسيم، سعود حافظ، ايمان كامل، ايمان احمد، و تامر سعيد، مها طلعت

الخلاصة: إن نظافة أيدي القائمين على الرعاية الصحية هي إحدى أهم التدخلات للحد من انتقال عدوى أمراض المستشفيات المُعدية. ولقد هدفت هذه الدراسة الكيفية إلى فهم المحدِّدات السلوكية لنظافة اليدين بغية وضع تدخلات مستدامة لتعزيز نظافة اليدين في المستشفيات. فقد تم إجراء أربعة عشر حلقة نقاش بؤرية مع ممرضات في مستشفيين جامعيين في مصر. وكانت المقابلات مسجلة على شريط ومكتوبة. كما أجري تحليل موضوعي من قبل باحثَيْن مستقلَّيْن. فأبرزت النتائج أن الممرضات لا يدركن فوائد نظافة اليدين، وأنهن ربطنَ ضرورة غسل اليدين بالشعور بالقذارة. وكانت معارفهن المتعلقة بنظافة اليدين وبالمواد المستخدمة ذات الصلة محدودة، وكان تفضيلهن للماء والصابون واضحاً. ولقد خلصنا إلى أن المعوِّقات البيئية وعدم وجود قدوة وغياب الرقابة الاجتماعية تعتبر عقبات في طريق الالتزام بنظافة اليدين. وتم وضع استراتيجية متعددة الأوجه لنظافة اليدين تستند إلى مفاهيم ثقافية قائمة يقدِّرها موظفو المستشفيات.

ABSTRACT Hand hygiene of health-care staff is one of the most important interventions in reducing transmission of nosocomial infections. This qualitative study aimed to understand the behavioural determinants of hand hygiene in order to develop sustainable interventions to promote hand hygiene in hospitals. Fourteen focus group discussions were conducted with nurses in 2 university hospitals in Egypt. The interviews were tape recorded and transcribed. Thematic analysis was conducted by 2 independent investigators. The findings highlighted that nurses did not perceive the benefits of hand hygiene, and that they linked the need to wash hands to a sense of dirtiness. Knowledge of hand hygiene and related products was limited and preference for water and soap was obvious. Environmental constraints, lack of role models and social control were identified as barriers for compliance with hand hygiene. A multi-faceted hand hygiene strategy was developed based on existing cultural concepts valued by the hospital staff.

Déterminants du respect de l'hygiène des mains en Égypte : des résultats d'une étude à l'élaboration d'une stratégie de communication

RÉSUMÉ L'hygiène des mains du personnel de santé est l'une des interventions les plus importantes pour réduire la transmission des infections nosocomiales. Une étude qualitative visait à comprendre les déterminants comportementaux de l'hygiène des mains afin d'établir des interventions durables pour la promotion de ce type d'hygiène dans les hôpitaux. Quatorze discussions thématiques en groupes ont été organisées avec le personnel infirmier dans deux hôpitaux universitaires en Égypte. Les entretiens ont été enregistrés puis retranscrits. Une analyse thématique a été menée par deux chercheurs indépendants. Les résultats ont mis en évidence le fait que le personnel infirmier ne percevait pas les avantages de l'hygiène des mains, et qu'il reliait le besoin de se laver les mains à une sensation de saleté. Les connaissances en matière d'hygiène des mains et des produits à utiliser étaient limitées et la préférence pour l'eau et le savon était marquée. Les contraintes environnementales, l'absence de modèles à suivre et de contrôle social ont été identifiés comme des obstacles au respect de l'hygiène des mains. Une stratégie d'hygiène des mains multidimensionelle a été mise au point à partir des concepts culturels existants qui étaient importants pour le personnel hospitalier.

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Introduction

Adherence to proper hand hygiene practices is an effective measure to reduce the risk of health-care associated infections (HCAI) (*1–6*). HCAIs are a major concern for the safety and quality of health care quality worldwide including Egypt (*7–12*), as they may lead to prolonged hospital stays, long-term disability, increased resistance of microorganisms to antimicrobials and massive additional financial burden (*13*).

Several programmes have been developed to increase hand hygiene practices in health-care facilities, but only a few of them have demonstrated long-lasting changes in compliance. Adherence to hand hygiene guidelines remains suboptimal in many facilities. Although understanding of the determinants of hand hygiene behaviours is improving, there is still an urgent need to assess the longer and short-term success of strategies used in hand hygiene promotion (*14–24*). Recently, studies have looked at the social and behavioural contexts affecting hand hygiene practices. However, much still needs to be learned (*25–32*). There are no previous studies on hand hygiene determinants in the Egyptian health-care setting.

Ain Shams University hospital in Cairo and Alexandria University hospital in Alexandria were interested in increasing hand hygiene compliance among nurses and promoting the use of alcohol gel between patient contacts, in line with World Health Organization guidelines (*13*). The Infection Control Unit of the US Naval Medical Research Unit No. 3, in collaboration with the 2 university hospitals, designed and implemented a pilot hand hygiene campaign. In order to develop the campaign, there was a need to explore factors associated with non-compliance with hand hygiene guidelines specifically in the Egyptian context. Qualitative methods were considered suitable for studying hand hygiene adherence because they provide a better understanding of the broader environment where hand hygiene takes place and for explaining the reasons and meanings for the hand hygiene behaviours. The findings of this study were used to develop communication strategies to promote hand hygiene in Egyptian health-care facilities.

Methods

Design

The study and the campaign were conducted in adult intensive care units, neonatal intensive care units and surgical wards of Alexandria and Ain Shams University hospitals. Departments were selected by the infection control teams as the pilots for the campaign as health-care workers from these wards had been involved in previous hand hygiene campaigns and therefore had a basic knowledge of hand hygiene. Data were collected through focus group discussions (FGD) to elicit nurses' descriptions related to determinants of hand hygiene.

Recruitment and sample

The study included 14 FGD with a total of 96 nurses. The participants were either graduates from the High Institute of Nursing (4 years education) or school-based nurses (2 years vocational education at the nursing school). The work experience of the participants varied from 2 to 25 years and only 5 were males. Of the FGD 8 were conducted at Ain Shams University (3 with graduate nurses and 5 with vocationally trained nurses) and 6 at University of Alexandria (1 with graduate nurses and 5 with vocationally trained nurses).

The participants were chosen for the study based on their interest and availability to discuss hand hygiene with the members of the research team. Study investigators, together with the department heads and infection control teams, solicited volunteers by visiting each ward and explaining the study objectives to the nurses. If the individual was interested in joining the focus group, the study investigator invited her/him for the discussion the following day.

Focus group discussions

The FGD took 30–60 minutes each. All discussions were led by a moderator and supported by an assistant who took notes. In addition, all FGD were tape recorded. The moderator used a focus group guide consisting of open-ended questions to cover all the topics of interest. At the start of each discussion, it was emphasized that participation in the discussion was voluntary. The participants were also encouraged to discuss their opinions freely. All FGD started with verbal informed consent and all of them were conducted in a private room to maintain confidentiality. The discussion guide included several topics such as reasons for (non) compliance with hand hygiene measures, advantages and disadvantages of hand hygiene measures and indications and impact of hand washing with soap and water versus alcohol hand rub.

Analysis

As all the FGD were tape recorded, the analysis began by translating and transcribing the tapes from Arabic into English. For quality control, a bilingual member of the research team reviewed a random section of all transcripts and compared them with the original audio recordings to ensure accuracy (*33*). Data analysis of the transcribed text was conducted using thematic analysis that aimed to identify emerging themes for determinants of hand hygiene as described by Patton (*34*). The major goal in analysing the data was to identify common themes and variation of themes across the groups that captured determinants for hand hygiene behaviours. The analyst identified coded passages and key terms from the text that were collapsed into themes and sub-themes. The analysis also assessed any variation of themes across different groups.

Ethical considerations and approvals

The study was reviewed and approved by the institutional review board of the Naval Medical Research Unit No. 3 in compliance with all applicable federal regulations governing protection of human subjects. All participants provided verbal informed consent in Egyptian Arabic. Personal identifying information was not collected from study participants and if names or other identifying information were mentioned during the FGD they were deleted from the transcripts.

Results

The analysis produced 4 themes and 10 sub-themes reflecting factors that influence hand hygiene behaviour. In general, the themes were consistent across various groups of respondents; differences, if present, between the university hospitals or types of nurses were noted.

All the FGDs concluded that a hand hygiene policy existed in their hospital, but health-care workers frequently did not comply with the policy.

Theme 1: Attitudes & beliefs related hand hygiene measures

Sub-theme: Importance of hand hygiene measures

The majority of respondents did not consider hand hygiene practices important. In most of the discussions, respondents did not believe that hand hygiene could prevent cross-infection. The only exception were nurses from the neonatal care units of both universities, who believed that hand hygiene practices helped save lives in the intensive care units and that the practices were especially important when dealing with 1-month-old infants. Most respondents did not believe that hand hygiene was effective in protecting health-care workers from infections either. In several FGD, respondents mentioned the importance of using gloves, masks and gowns as a measure to protect them and the patients. In addition, respondents in several discussions mentioned their concern about catching airborne infections or blood-borne pathogens due to needle-stick injuries, but believed that hand hygiene had little effect on protecting them against those infections. It was not possible to detect clear differences between the perceptions of graduate nurses and vocationally trained nurses or between the 2 universities.

Sub-theme: Sense of having clean hands

Respondents in all FGD reported washing hands whenever they had visible dirt or their hands were sticky. They also reported wanting to wash hands especially after touching blood, stool or urine. Furthermore, in several FGD, respondents explained that they were interested in washing hands whenever they got an uncomfortable feeling, e.g., after contact with unclean patients who either had open wounds or smelled bad. A couple of focus groups also mentioned that unfriendly, bad-mannered patients or those who exhibited abnormal behaviour led to a sense of uncleanliness and the need to wash hands. Several FGD also concluded that the uncomfortable feeling and the need to clean their hands was also related to perceptions of being in unclean, smelly, disorganized, crowded surroundings or outside of ordinary workplaces.

The great majority of respondents clearly preferred using soap and water instead of alcohol rub because the idea of running water and rubbing hands together provided them with a sense of cleanliness that could only be accomplished by using soap and water.

Sub-theme: Importance of gloving

Many respondents believed that hand hygiene between touching patients was not a necessity when they wore gloves because they did not get their hands dirty. However, they did acknowledge that hand hygiene with soap and water or with alcohol was important if their gloves were somehow penetrated.

Theme 2: Knowledge of hand hygiene

The majority of respondents seemed to be confused about the choice and effect of the different hand hygiene products. Many school-based nurses were also not sure about the effect of different hand hygiene products. For example, many did not think alcohol rub between touching patients was essential if hands had no visible dirt and insisted that washing hands using water and soap would be the best option. Some of the nurses believed that alcohol rub could only be used as an additional precaution if a patient was particularly infectious. Overall, there was much confusion related to the effects of soap and alcohol.

Theme 3: Environmental constraints

Sub-theme: Lack of supplies and facilities

A majority of the nurses in both hospitals referred to the lack of hand hygiene due to a shortage of products (soap or alcohol) and sinks as the main constraint to complying with hand hygiene guidelines. The problem varied from one department to another. Some departments had no sinks and health-care workers were expected to walk to the next department or to their locker to wash their hands. Other departments had several sinks and one ward had a sink beside each bed. In some departments there was a periodic lack of supplies and in other departments the problem was continuous.

In some FGD, respondents explained that supplies existed but accessing them was difficult. The reasons for difficult access included lack of organization as the person responsible for the storage was not always available and/or alcohol gel bottles were located at the far end of the ward.

Sub-theme: Lack of time

Many respondents mentioned that a heavy workload prevented them from following hand hygiene policies especially in the evening and night shifts. Others stated that the workload was always high and therefore it always impacted hand hygiene practices.

Sub-theme: Side-effects of hand hygiene products

Most of the respondents stated that the reason for not using alcohol rub or washing hands regularly was because it made their hands dry and occasionally caused an allergic reaction or even sores. A couple of nurses also noted that if hands had wounds, which often was the case, the use of alcohol rub was painful.

Theme 4: Social and cultural norms

Sub-theme: Lack of role models

In several discussions, respondents pointed out that physicians themselves often did not comply with hand hygiene policies and did not give nurses the opportunity to perform hand hygiene. Both institute-based and school-based nurses in Cairo and Alexandria mentioned that it would be difficult and embarrassing to ask for permission to wash their hands in the middle of work. As long as hand washing was not enforced by doctors and there was no visible dirt on their hands, nurses were unlikely to comply with hand hygiene guidelines. One group of school-based respondents explained that they sometimes continued their work with blood on their hands following the example of physicians.

Sub-theme: Lack of social control

In most of the FGDs, respondents explained that no one was monitoring the implementation of hand hygiene policy in the hospital. The only exception was from the neonatal care unit where doctors closely followed up on the hand hygiene compliance of nurses. They also reminded nurses constantly of hand hygiene, if necessary.

Sub-theme: Adapted social norm

In one of the hospitals, discussions demonstrated that the policy to undertake hand hygiene between touching patients had been adapted to better fit the realities of the hospitals. The new behaviour norm that had come to be accepted was to perform hand hygiene measures before the start of a procedure such as giving medication to all patients of the ward. The norm had become so well established that respondents believed that it was in accordance with the hospital policy that in fact required hand hygiene between touching patients.

Discussion

This study provided valuable in-depth information about determinants that influence hand hygiene behaviours in select university hospitals in Egypt. The information provided was used in developing a communication strategy to increase compliance with hand hygiene practices.

Respondents did not perceive the benefits of hand hygiene practices between touching patients. The finding is of crucial importance, staff are unlikely to change their hygiene behaviours if they do not perceive the benefits (*30*). The findings of this study differed slightly from studies conducted in the Netherlands and Canada, which showed that health-care workers believed hand hygiene practices protected against cross-infection and were a means of self-protection for health-care workers (*26,29*). The need to communicate the effectiveness of hand hygiene as an important aspect of standard infection prevention was considered in our communication strategy. Education about the chain of transmission of infectious diseases in the health-care setting, modes of infection and the scientific evidence on the effectiveness of hand hygiene in reducing hospital acquired infections was emphasized.

This study, consistent with several other recent studies, showed how nurses make their own assessments about the degree of dirtiness of patients or surroundings. Based on this assessment they determined whether to wash their hands, rather than followed the hospital's guidelines for hand hygiene (*26,30*). Also, the study provided an indication that the motivation for performing hand hygiene was influenced more by the desire to feel clean rather than to protect patients, as previously suggested by other studies (*30,35*). Knowing that cultural concepts and images can be used to modify current behaviours rather than trying to work against them, our strategic communication plan focused on promoting the existing key motivators for hand hygiene, namely cleanliness and the desire to be clean.

Misconceptions regarding the protective nature of gloves was evident and this has been identified in several studies as an obstacle to improved hand hygiene. Failure to change or remove contaminated gloves was a major component in poor compliance with hand hygiene and carried a high-risk of microbial transmission (*36,37*). Therefore, it was considered important that the messages of the hand hygiene campaign also emphasized indications for gloving and associated hand hygiene.

The findings of our study showed that providing information about hand hygiene products is required. Currently, understanding among respondents was inconsistent regarding the use of soap and water and/or alcohol gel. Both the indications and effect of hand hygiene practices and products was unclear to respondents. These findings are in line with previous studies that also highlighted the importance of knowledge to improve adherence to hand hygiene guidelines (*29*).

The study also identified important environmental constraints that required attention by the hospital management. Logistical problems, related to the availability and accessibility of critical supplies, varied between wards but remained an important obstacle for better compliance with hand hygiene practices. Lack of hand hygiene supplies and time is a common complaint of health-care workers around the world (*26*). Our communication strategy included the development of an enabling environment that included plans to ensure the availability of critical supplies.

Reported disadvantages of hand hygiene products such as dryness and allergic reactions require careful investigation and product testing to find the most suitable hygiene products. Hospital infrastructure and lack of sinks should be taken into consideration when developing ward-based hand hygiene policies.

Lack of time to wash hands would require adjusting workforce schedules; however, due to lack of medical staff and especially nursing staff in Egypt, it is not likely that hospital management is able to lessen the workload of the nurses in the near future. The communication strategy included messages to promote the use of alcohol rub by emphasizing a change of system and behaviour from time-consuming hand washing with soap and water.

The findings also showed that social and cultural dimensions impacted hand hygiene behaviours. The lack of role models and non-existent social norms were identified as important determinants of non-compliance with hand hygiene practices, which is not surprising in such an authoritarian culture where lower level employees are accustomed to follow orders from the higher level employees without much thought. Government employees are not requested to evaluate situations or options, therefore they may find it challenging to make decisions or modify behaviours without orders and follow up from their superiors. Based on these cultural considerations, the communication strategy included institutionalizing a performance feedback system that has been proven effective in changing and sustaining hygiene behaviours elsewhere (*22*). The performance feedback system included regular observations of nurses' hand hygiene practices and direct feedback provided by supervisors. The strategy also outlined an integrated approach for promoting hand hygiene by including all health-care staff, such as doctors and others in positions of authority who are respected role models for others. The strategy also promoted hand hygiene by linking it to quality of care that reflects respect and dignity as these values are appreciated in the Egyptian culture.

Increased tolerance towards working with dirty hands is a challenge, and modified policies that better fit the realities of the health-care facilities needs to be tackled. Developing new social norms is a long term process, and requires long term commitment from the policy-makers, as was concluded also in a study conducted in Indonesia (*27*).

Conclusions

The study demonstrated that social and behavioural analysis of hand hygiene can contribute to an accurate understanding of hand hygiene practices. The findings also moved away from the simplistic idea that improving knowledge about germs and diseases will change behaviour. Integrating the findings of the studies into a targeted communication plan will likely have a direct impact on changing behaviours to promote improved hand hygiene in Egypt.

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Invited commentary

Health priorities and the social determinants of health

Michael Marmot[1] *and Jessica Allen*[2]

Here's a paradox. Ministers of health are the government ministers most concerned with health. Yet their prime responsibility is for health services, not with key determinants of health that lie outside the health care system. The paradox extends to the World Health Organization (WHO). WHO is governed by ministers of health yet its remit is to improve health in the populations it serves. Such improvement requires universal health coverage, of course, but much more besides: improvement in the conditions in which people are born, grow, live, work and age – the social determinants of health (*1*).

Without such action, the great inequalities in health between and within countries of the WHO Eastern Mediterranean Region (EMR) cannot be addressed. Improvements in health across the Region have been uneven, dramatically so. Within EMR, male life expectancy varies among countries from 51 to 79 years; female life expectancy from 55 to 82 years (*2*). These inequalities in health are largely unnecessary and have their origins in unfair social arrangements, and are not the product of physiological or genetic differences. These 27 and 28 year gaps in life expectancy require action across society, not only in the health care sector, and reducing these inequities is a matter of social justice as well as good economics.

Within countries of EMR, inequalities are more difficult to document, particularly for adult mortality, as such data are less readily available; in many countries conflict and population movement and displacement means collecting such data is challenging. A major task therefore for the EMR is to document social inequalities in adult mortality, and monitor trends. We do have data, however, on infant and childhood mortality and the evidence is clear: a social gradient in mortality exists – the lower the household income the higher the mortality. In our European Review of Social Determinants and the Health Divide (*3*), and elsewhere (*4*), we have highlighted this issue of the gradient. However, inequalities in health between social groups are not confined to poor health for the poor, and reasonable health for the non-poor. The fact that these inequalities run from top to bottom of the social hierarchy implies clearly that remedial action must be across the whole of society, and action is required in all government arenas. Nonetheless, ministers of health are the stakeholders best placed to lead this cross society, across government action.

To tackle the issue of high risk for excluded groups *and* the social gradient in health, we are developing the principle of proportionate universalism. Experience from the Nordic countries shows how important universalist policies are to improving social conditions and health across the whole of society (*5*). Yet, high risk groups require special focus. Hence the principle of proportionate universalism: universalist policies with effort proportionate to need.

A second principle of action can be described as "the causes of the causes". Evidence shows clearly that the conditions of daily life, and access to health care, are important causes of ill-health. But why are they distributed unevenly in society? We need to address the causes of the causes – the social determinants of life style, access to clean water, shelter, and good nutrition. Inequities in power, money and resources must be part of the focus.

Such action requires knowledge and evidence both of the nature and magnitude of health inequalities, and the effects of actions. But it also requires political commitment from the top and the involvement of individuals and communities who are affected.

The WHO Regional Office for the Eastern Mediterranean (EMRO) has adopted five priorities for the Region: health systems strengthening; maternal, reproductive and child health and nutrition; communicable diseases; noncommunicable diseases; and emergency preparedness and response. To make progress, each of these areas requires action on the social determinants of health, and health equity to be made the centre of attention.

We plan to work with EMRO on these issues over the coming months to learn from Member States both about the nature of the problem and good examples of action, and to share learning and experiences from countries outside the Region.

EMR, in particular, as well as dealing with social and gender inequalities is also facing the serious issue of violent conflict. At the heart of action on social determinants of health is a commitment to creating fairer, more just, and socially inclusive societies. It is a reasonable

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presumption that such actions, morally informed, will be important steps towards resolving conflicts. The causes of good health and of security are likely to have much in common.

Emerging from our European Review was the exhortation: do something, do more, do better. This appeal is equally relevant to EMR countries. Whatever the state of development of a country, whatever the challenges thrown up by civil unrest and conflict, there is always the possibility of doing something, doing more, and doing it better.

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Regional Committee papers

The World Health Organization (WHO) Regional Committee for the Eastern Mediterranean is WHO's decision-making body in the Eastern Mediterranean Region. It meets annually with representation from all Member States of the Region. A main function of the Committee is to formulate policies and strategies that provide Member States with guidance on action that needs to be taken to promote and protect health in the Region. This section, Regional Committee papers, comprises extracts from selected papers (Annual Report of the Regional Director, Progress reports, Technical discussions, Technical papers) being presented at the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean, 5–8 October 2015 in Kuwait. It serves to inform readers of certain key issues related to the regional health priorities that are under consideration by the Committee at its Sixty-second session.

Achievements, challenges and ongoing work: highlights of the Annual Report

I am pleased to present my annual report of the work of WHO in the Eastern Mediterranean Region, which covers 2014 and the early part of 2015. As in the past two years, the report focuses on the strategic priorities endorsed by the WHO Regional Committee for the Eastern Mediterranean when I came into office in 2012[1]. These are: health systems strengthening towards universal health coverage; maternal and child health; prevention and control of noncommunicable diseases; health security and control of communicable diseases; and emergency preparedness and response. Together with these five strategic priorities, which represent the key challenges facing health development in the Region, strong emphasis has been given to managerial reform, improving administrative processes, strengthening compliance and transparency.

The work of WHO continued to be dominated in the past year by the escalating emergency and humanitarian situations in several countries. The magnitude of crises in the Region is unprecedented. An estimated 58 million people are now affected, including 16 million refugees or internally displaced persons. WHO supported acute humanitarian responses in Iraq, Jordan, Lebanon, Libya, Palestine, Syrian Arab Republic and Yemen, while maintaining its efforts, with partners, to strengthen the resilience of health systems in countries with prolonged complex emergencies. The destruction of health facilities, the lack of access to many areas to maintain adequate supplies for both acute and chronic medical conditions, and the fleeing of health personnel and their families have all taken a heavy toll in the past year on the ability of some countries to maintain services. While some donors have continued in their humanitarian commitment and generous support, a major challenge to our ability to maintain an adequate response, together with our health partners, is the lack of sustained funding. In 2015 this has resulted in the closure of health programmes and activities in Iraq and threatens the closure of health services and health programmes elsewhere too.

Nevertheless, we continued to step up our support as crises unfolded. WHO facilitated delivery of medicines and medical supplies to hospitals and health facilities in Gaza, both during and after the conflict in 2014, and led the health cluster in the joint health sector assessment with partners. In Iraq, the capacity of the country office was scaled up with deployment of additional international staff in all areas of expertise and WHO hubs and/or focal points are now established in 19 provinces. Ten mobile clinics were deployed in northern Iraq and, as of May 2015, 3.5 million people have been provided with direct access to essential medicines and medical equipment and more than 5 million children have been vaccinated against polio. In the Syrian Arab Republic, WHO took an innovative approach towards working with a range of partners to ensure access to areas that have been hard to reach. More than 13.8 million medical treatments were delivered, of which a third were to hard-to-reach areas, and we were able to mobilize more than 17 000 health care workers to conduct polio and measles immunization campaigns. In Yemen, following the escalation of conflict, WHO distributed 181 tonnes of medicines and medical supplies and more than 500 000 litres of fuel between March and end July 2015, as well as safe water and sanitation kits, to maintain operability

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[1] Five annexes relating to Regional Office structure, staffing, meetings, publications and collaborating centres can be found on the Regional Office web site at http://www.emro.who.int/about-who/annual-reports/.

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of health infrastructure and facilities for communities and internally displaced people.

The Regional Committee endorsed the need to strengthen emergency preparedness and response through an all-hazard and multisectoral approach. By the end of 2014, 19 countries had received our support in reviewing their existing national plans, with a view to adopting the comprehensive approach, and two countries have now finalized national plans. Working closely with the International Humanitarian City, Dubai, WHO has now finalized an agreement with the United Arab Emirates to establish a dedicated WHO humanitarian operations/logistics hub, which will support the rapid procurement and provision of critical medical supplies and equipment to countries experiencing emergencies, both inside and beyond the Region. The regional emergency solidarity fund was established. It will be funded at US$ 4.9 million for the biennium 2016–2017 which is 1% of the WHO country budget and will be open to other voluntary contributions. Capacity-building of emergency focal points was supported, and will continue each year as we continue to build up the regional roster of trained experts able to be deployed quickly in an emergency.

Following the discussions and resolutions in the World Health Assembly in May 2015 in the wake of the outbreak of Ebola virus disease in 2014, and in relation to reform and strengthening of WHO's emergency preparedness and response capacities, we have undertaken a close review of our capacities in these areas. As a result we have now undertaken further reform by restructuring and reinforcing technical and managerial capacity in this area in order to ensure appropriate readiness and response at both country and regional levels, as well as effective coordination. Thanks to support from the Government of Jordan, we have established a regional centre for emergencies and polio eradication in Amman. A unit focusing on organizational readiness is being established in the centre in Amman to build capacity and ensure that WHO is ready to respond to public health emergencies in the Region. A second entity based in Cairo and comprising two units, emergency response and coordination, will provide leadership and coordination and ensure an effective response mechanism and timely support to countries in crisis.

The Region has 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 fall short of meeting the targets of MDGs 4 and 5 by end 2015. At regional level, the under 5 mortality rate fell by 46% between 1990 and 2013 (below the global reduction of 49%), with an average annual reduction of 2.6%. However, this is below the 67% reduction required to achieve the MDG 4 target by 2015. The maternal mortality rate declined by 50% between 1990 and 2013 (above the global reduction of 45%), with an average annual reduction of 3%.This too is below the 75% reduction required to achieve the MDG 5 target by 2015. The nine countries with the highest burden of maternal and child mortality pushed ahead with implementation of their acceleration plans to reduce this burden further. Nevertheless, most of these countries are unlikely to reach the targets by end of 2015. Although weak health systems, emergencies and shortage of funding are major constraints which will need to be adequately addressed, greater attention and a higher level of political commitment and support needs to be given to reducing child and maternal mortality by these countries, and more effective support is needed from international and regional stakeholders. While WHO will continue to support the implementation of cost-effective, high-impact measures during the next biennium, more attention will be given to supporting Member States in addressing health system challenges and implementing community-based interventions.

The situation with regard to malnutrition in the Region has improved somewhat but the progress is insufficient and more work is needed to ensure that all mothers and children in all countries are adequately nourished to maintain health and development. On average, according to *World health statistics 2014*, the Region has seen a decrease in the prevalence of undernourishment from 22.6% in 1991 to 13.6% in 2012. Since 1990, 13 countries of the Region, more than half, have achieved the MDG 1 target of halving the proportion of people who suffer from hunger. However, only two of these countries (Kuwait and Oman) have also met the target set at the World Food Summit in 1996, although Tunisia is very close to meeting this also. Anaemia rates, especially among women of reproductive age and children, are still high in the Region as are the rates for stunting and for low birth weight. Equally crucial for children, and for long-term health, the proportion of women practising exclusive breastfeeding for at least 6 months continues to be very low. WHO, in coordination with United Nations partners, is supporting Member States on how best to implement the WHO global targets in nutrition and the recommendations of the Second International Conference on Nutrition (ICN-2) held in 2014. A regional framework for action is in the process of development and will comprise a set of policy options and cost-effective interventions to scale up nutrition in the Region.

With regard to MDG 6, while there has been substantial progress in the Region in control and prevention of HIV, malaria and tuberculosis, this has not been enough to achieve the targets. The challenges to health system capacity that the Region faces in general, in particular in countries where the burden of communicable diseases is the highest, as well as the impact of the complex emergencies in the Region, are the main factors affecting further progress.

The overall prevalence of HIV remains low in comparison with other regions, but it is important to recognize that the number of new HIV infections continues to increase in key population groups who are at increased risk of HIV. Receiving antiretroviral therapy, which is crucial to maintaining quality of life and preventing new infections, remains far below global targets. We continued to support countries in 2014 to implement the regional initiative to end the HIV treatment crisis, and Member States should continue to place emphasis on this.

The regional burden of malaria has decreased substantially, with a halving of the number of deaths since 2000, along with the number of affected countries. Seven countries have achieved the malaria-related target of MDG 6, while in five countries, a reliable assessment of trends is not feasible owing to inconsistent reporting of malaria information. A regional action plan, to implement the global strategy for malaria 2016–2030 has been developed, with the aim of interrupting malaria transmission where feasible and reducing the burden by more than 90% where elimination is not immediately feasible.

While the Region has achieved the MDG targets of halting and reversing the tuberculosis incidence, it has not yet reached the STOP TB targets of halving the prevalence and the mortality. Five countries are contributing to 84.5% of the regional burden of tuberculosis. Crucially, it is estimated that 40% of cases are still missed or not reported and this has serious implications for overall control of the disease. In 2014, WHO developed guidance on control of tuberculosis in complex emergencies, as well as a package of services for cross-border patients. We hope that high-burden countries will move forward in implementing these important measures in 2015.

The situation with regard to polio eradication continued to be of concern in 2014, with the Region remaining endemic and accounting for 99% of all cases reported globally in the second half of the year. However, in 2014 the groundwork was laid for progress in polio eradication in the Region in 2015. By the end of 2014, Pakistan and Afghanistan had developed and were implementing accelerated plans for the low transmission season. The response of the Region to the outbreak in the Middle East in 2013 was swift and of high quality with 25 million children immunized, in multiple campaigns in eight countries. The outbreak was contained in 36 weeks, despite the complex emergency situation in the Region, with the last case reported in April 2014 and so more than one year has passed with no further confirmed cases. Meanwhile the response to the outbreak in the Horn of Africa had, by the end of 2014, reduced transmission to a small pocket.

The national programmes in Afghanistan and Pakistan maintained their commitment to eradication, and health workers and volunteers continued to demonstrate great courage in carrying out immunization activities in difficult situations. As of 19 August 2015, Pakistan and Afghanistan together have reported 36 cases due to wild poliovirus, versus 123 confirmed cases as at the same date in 2014, an overall reduction of nearly 70%. With wild poliovirus now restricted to just Pakistan and Afghanistan, progress will remain fragile until all children in these last foci of endemic circulation are reached and immunized. Full implementation of the acceleration plans remains critical to making progress with eradication in 2015. The countries of the Region are committed to the global plan for the polio-endgame, with all those currently using only oral poliomyelitis vaccine (OPV) on track for introduction of IPV in 2015.

Health security continued to be high on the agenda throughout the past year, and its importance was brought home to governments and the public yet again as the outbreaks of Ebola virus disease spread in three countries in west Africa. The possibility of importation to the Region was a major concern to us. In response to a recommendation from the Regional Committee, WHO urgently undertook a comprehensive assessment of Member States' capacity to deal with a potential importation of Ebola. Between November 2014 and February 2015 rapid assessments of preparedness and readiness measures were conducted by WHO technical teams in 20 countries.

The assessments identified critical weaknesses in the areas of prevention, early detection and response, and a 90-day action plan was subsequently implemented in the Region, starting in May 2015, to assist countries to bridge the urgent gaps. Many of the gaps identified during the assessment concern the overall ability of countries to implement the core capacities required under the International Health Regulations (IHR 2005). The final deadline for ensuring that national core capacities are in place to implement the Regulations is June 2016. Major weaknesses remain. All countries should reinforce their efforts, in light of the assessments, to address the gaps. WHO's strategic focus for country support includes emphasis on multisectoral coordination which will be crucial to addressing these gaps. The fourth annual meeting of IHR stakeholders, which will take place in late 2015, will review the implementation of national and regional plans for strengthening IHR implementation in the context of Ebola.

While Ebola was a vivid and real health threat from outside the Region, there are other more immediate health threats within the Region. The Middle East respiratory syndrome coronavirus MERS-CoV and the avian influenza H5N1 virus represent emerging health threats for which countries need to be prepared as both viruses have pandemic potential. An increase of MERS-CoV cases in two countries in the Region in 2014 owing, primarily, to secondary and nosocomial transmissions in health care settings, highlighted the need to ensure the safety of patients and health workers, and to improve infection prevention and control in hospitals and other health facilities and the need to build capacity to care for patients with high-risk infections.

In view of these two emerging health threats, WHO conducted technical missions – in several countries – throughout 2014 and during the earlier part of 2015 to assess the risks and support containment of the outbreaks in hospital settings. A number of capacity-building activities was also conducted which resulted in finalization and rapid implementation of preparedness plans for enhancing surveillance for rapid detection and improving infection prevention and control practices for MERS-CoV and other novel respiratory diseases across all health care settings in the Region. Risk communication plans were developed and rapidly scaled up to raise public awareness among pilgrims, health care workers and the general public and prevent international spread, particularly during the hajj. We continue to seek to fill the gaps in knowledge about MERS-CoV so that public health understanding of the epidemiology and transmissibility of the virus and the effectiveness of the global health response can be improved. In May 2015, we held the fourth in a series of international scientific meetings on this subject since 2013. These have helped the international scientific community to pinpoint the gaps we face in knowledge and information about the mode and risk factors for transmission of this emerging viral infection in humans, as well as to identify the most essential public health measures to effectively halt the transmission and spread of the virus.

Antimicrobial resistance is a rapidly increasing risk for global health security which the Member States of the Region are only just beginning to recognize and acknowledge. The problem has serious implications in the Region and requires urgent action. In continuation of the work we began on antimicrobial resistance in 2013, a rapid country assessment of the situation in the Region was conducted in 2014 to which only 12 countries contributed. The results showed significant gaps in the systems and actions needed at country level to address the threat. The subsequent global report highlights the lack of information on the situation in countries of the RegionWhile the work on producing a detailed country situation analysis covering human and animal health continue, we also started work on an operational framework to support countries in developing action plans for discussion in a high-level multisectoral ministerial meeting that we plan to organize early in 2016.

Member States, through the Regional Committee, have acknowledged the serious magnitude of cardiovascular disease, cancers, diabetes and chronic lung disease and have approved a regional framework of action based on the United Nations Political Declaration of 2011. However, despite the urgent need to launch strong and comprehensive action, implementation of the key commitments in the regional framework for action remains generally inadequate and is not commensurate with the seriousness of the problem in the Region. WHO is working with Member States on several important initiatives to implement the key commitments included in the four areas of the framework: governance, surveillance, prevention, and health care.

WHO's work in 2014 resulted in the development of technical guidance for implementing the most cost-effective measures or "best buys" in prevention and technical support was provided to many countries. Policy statements and guidelines on reducing salt and fat intake have been developed and are now guiding countries in taking appropriate action based on best practice. A monitoring scheme has been launched to track the progress countries of the Region are making. International experience in integrating common conditions into primary health care was reviewed in an intercountry meeting. This work will continue in 2015 with special emphasis placed on developing technical guidance based on evidence and best practice in the area of health care. We are also working with international experts, including Georgetown University, to support updating of fiscal and legal interventions to help control risk factors and promote better care.

Following endorsement in 2012 and 2013 by the Regional Committee of strategies and actions for health systems strengthening, countries were urged in 2014 to implement the framework for action for progressing towards universal health coverage. Several countries have taken important steps in this regard and all countries now have a clearer picture of what is needed to address the challenges. This knowledge was boosted following the development of pharmaceutical sector country profiles, which highlighted gaps in key areas related to regulations for medicines, access to medicines, selection, procurement, dispensing and rational use.

An in depth survey of medical education is providing valuable insight also on the way forward for countries to improve planning for future needs in the health sector. One area that poses a specific challenge is the acute shortage of, and the need to scale up production of, family physicians in most countries of the Region. Efforts are currently under way to identify evidence-based short- and long-term interventions to overcome the shortage of this group of health care providers. WHO has conducted a comprehensive review of the status of nursing and midwifery in the Region in 2015, to provide clear strategic directions for strengthening this area of work. A framework comprising a list of priority actions will be recommended, taking into account the range of challenges encountered by the different groups of countries. Reinforcing nursing and midwifery will continue to be a priority for WHO in 2015 and over the coming biennium.

Two key achievements were made in the area of health information, which is so critical to health planning and policy development and implementation. The Regional Committee took an important step forward in 2014 with the endorsement of the framework for health information systems and the core indicators. This product was the result of intensive work over the past 2 years with different sectors in Member States and international experts. All countries need to strengthen their health information systems and the challenge for all of them is to implement the framework and to address the gaps in generating and using data for the 68 core indicators. Assisting countries in this task will be the main task for WHO during the next biennium.

The second achievement was the work done so far in strengthening civil registration and vital statistics systems, with special focus on improving the reporting of cause-specific mortality. Rapid assessments were completed in 21 countries and comprehensive assessments in 17 countries. Our region currently has the most comprehensive information on the status of CRVS in Member States. Countries have been informed of the existing gaps and urged to address them based on the regional strategy, endorsed by the 60th session of the Regional Committee. While we expand the regional capacity in collaboration with other UN agencies, further focus is required within the health systems on the generation of valid mortality and cause of death data.

2014 has also been an important period for WHO management reform as we continued to implement our commitment to greater effectiveness, accountability and transparency. The timely preparation of the programme budget for 2016–2017, and the early involvement of partners through the bottom-up approach, resulted in improved joint planning, a more focused number of identified priorities and a budget allocation in line with countries' priorities. An improvement in priority-setting and planning skills has been evident.

We continued to support the strengthening of Member State's participation in the governance of WHO, providing high-level briefings for representatives of Member States and permanent missions in Geneva prior to each major meeting of WHO's global governing bodies – the World Health Assembly and the WHO Executive Board. These briefings have proved their value in the contribution of Member States of the Region in the global discussions on health and the work of the governing bodies.

Efforts to strengthen WHO country presence also continued, with emphasis on improving technical expertise and overall management. Country office capacities were assessed in relation to the six categories of work to ensure the presence of strategic and technical leadership capabilities. 2014 saw a significant expansion in technical capacity in several country offices, while in 2015 we have focused on enhancing general management and administrative capacity in the field. A specific strategy was developed to increase compliance in a number of areas of our work, across all our offices, including performance management and adherence to staff rules and regulations. Improving compliance will remain a top priority over the coming years.

The complexity of the operational and security issues in the Region continues to create challenges and constraints for WHO operations, both technically and managerially. The situation in the Region generally has also had an adverse impact on our ability to attract new experienced staff to handle the growing workload and response needs in all areas of our work with Member States. While we are taking steps to address this, we also took steps to support the future needs of countries in several key areas.

Strengthening public health capacity in Member States continued to receive priority. Following the launch in 2013 of a regional initiative to assess public health capacity in countries, two country assessments were successfully conducted, with the support of WHO and a team of international public health experts. The assessment tool was reviewed in early 2015 and will be further refined prior to expanding the initiative further. An increasing number of Member States are asking WHO to conduct the assessment and assist them in implementing its recommendations.

A leadership for health programme was also launched, in early 2015, with the aim of developing future public health leaders who can address, in a proactive way, national and local health problems that have direct impact on population health, and play active roles in the global public health sphere. The first four-week course, conducted in two parts in two locations (Geneva and Muscat), was a great success and highly rated by the participants. The second course will commence towards the end of 2015.

We have also continued to host the annual regional seminar on health diplomacy. This has proved highly successful in bringing together representatives of health and foreign affairs, parliamentarians and academia in discussions around the intersection between health and other sectors. Successive seminars have shown the continuing importance of this kind of dialogue for raising awareness and understanding of the key health issues facing our world, and the role that all sectors have in health diplomacy, globally, regionally and nationally. We will continue to support countries in their efforts to build this capacity and in their efforts to improve the health of the people in the Region.

Scaling up mental health care mental health care

Executive summary

1. At any given time about one person in every ten is suffering from a mental disorder, and about one in four families has a member with a mental disorder. Rates of mental disorder are even higher where there are complex emergencies. Despite the personal and economic costs and availability of cost-effective interventions, treatment rates for people with mental and substance use disorders are low, with treatment gaps of more than 35–50% of individuals with serious disorders in developed countries and 76–85% of individuals with serious disorders in less developed countries. Such gaps are mainly due to scarcity of human and financial resources, inequities in their distribution and inefficiencies in their use, as well as to the stigma associated with mental disorders

2. The Sixty-sixth World Health Assembly adopted a comprehensive mental health action plan 2013–2020 to address the challenge of bridging the treatment gap. The plan sets out a vision and roadmap for mental health for countries of the world to achieve by 2020. It identifies specific actions for Member States and for international and national partners with agreed targets and indicators.

3. In order to operationalize the vision and roadmap set out in the plan, a regional framework for scaling up action on mental health is proposed which identifies high impact, cost-effective, affordable, feasible strategic interventions across the domains of governance, health services, promotion and prevention, and surveillance, monitoring and research. It also provides a set of indicators to monitor progress in implementing these interventions. These domains correspond to the four objectives of the mental health action plan 2013–2020 and are guided by its underpinning principles.

4. Most countries in the Region report that they have a mental health policy (77%) Most countries report that they have mental health legislation (73%), but only one third are fully compliant with international human rights instruments and no country is fully implementing its existing policy while about 45% of countries are partially implementing the relevant legislation. The average mental health workforce in the Region is 14.6 personnel per 100 000 population. This is less than half the comparable global rate of 33.8 per 100 000 population. Furthermore, in about one third of countries, more than 85% of the mental health workforce is deployed in mental hospitals. With regard to availability of mental health services, a median of 6.1 beds per 100 000 population is available across the Region; 64.3% of psychiatric beds are located in mental hospitals and 35.7% are located in community settings – general hospitals 18.3% and community residences 17.4%. In order to bridge the treatment gap and achieve the overall goal of the mental health action plan – "to promote mental well-being, prevent mental disorders, provide care, enhance recovery, promote human rights and reduce the mortality, morbidity and disability for persons with mental disorders" – the need is to focus on key strategic interventions to scale up holistic mental health care as outlined in the regional framework. The Regional Committee is invited to endorse the regional framework for scaling up action on mental health in countries of the WHO Eastern Mediterranean Region.

Introduction

5. Mental, neurological, and substance use disorders are a leading cause of the disease burden worldwide. *(1)*. According to the World Health Report 2001, at any given time about one person in every 10 is suffering from a mental disorder, and about one in four families has a member with a mental disorder, 20% of children and adolescents worldwide suffer from disabling mental illness, and approximately 50% of mental disorders in adults begin before the age of 14 years *(2)*. A recent systematic review estimated life-time prevalence rates of common mental disorders at 29.2% (25.9–32.6%) and a 12 month period prevalence rate of 17.6% (16.3–18.9%). A consistent gender effect was also observed with women having higher rates of anxiety (8.7:4.3%) and mood disorders (7.3:4.0%) *(3)*. Rates of mental disorder are even higher where there are complex emergencies. Meta-analysis of the most robust epidemiological surveys in conflict-affected populations showed average prevalence of 15.4% for post-traumatic stress disorder (PTSD) and of 17.3 % for depression. These rates are substantially higher than the average 7.6% (any anxiety disorder, including PTSD) and 5.3% (any mood disorder, including major depressive disorder) reported from 17 countries which have participated in the world mental health survey *(4)*.

6. Globally, mental and substance-use disorders account for 22.9% of non-fatal disease burden (measured as years lived with disability, YLD), and 7.4% of the global burden of disease (measured by disability adjusted life years (DALYs), a

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Table 1 Leading causes of global burden of disease 2010

Causes	Proportion of total DALYs (%)	Years lived with disability (%)	Years of life lost due to premature death (%)
Cardiovascular and circulatory disorders	11.9	2.8	15.9
Diarrhoea, lower respiratory tract infections, meningitis and other infectious diseases	11.4	2.6	15.4
Neonatal disorders	8.1	1.2	11.2
Cancer	7.6	0.6	10.7
Mental and substance use disorders	7.4	22.9	0.5
Musculoskeletal disorders	6.8	21.3	0.2
HIV/AIDS/tuberculosis	5.3	1.4	7.0
Other noncommunicable diseases	5.1	11.1	2.4
Diabetes, blood, endocrine and urogenital disorders	4.9	7.3	3.8
Unintentional injuries	4.8	3.4	5.5

Source: reference (5).

metric which encompasses years lived with disability as well as early death) (Table 1) *(5)*.

7. In addition to disabilities, mental disorders are associated with excess mortality, either because of being an independent risk factor for other health outcomes, such as suicide, or because of association with other risk factors for physical illnesses, particularly cardiovascular disease, including stroke, and cancer. Furthermore people with mental disorders are less likely to receive a timely and appropriate management of physical illness because of diagnostic overshadowing, even in countries with well established health care systems *(6,7)*.

8. Mental disorders are not only of public health concern but of economic development and societal welfare concern as well. A study undertaken for the World Economic Forum estimated that the cumulative global effect of mental disorders in terms of lost economic output could amount to US$ 16 trillion by 2030. In high-income countries, expenditures incurred and loss of productivity from mental disorders, equate to about 4% of gross national product (GNP) and it is predicted that the cost of mental disorders will more than double by 2030 across all countries *(8)*. An integrated package of cost-effective mental health care and prevention interventions can be delivered in community-based settings for US$ 1–2 per capita per year in low- and lower-middle income countries, and US$ 3–5 in upper-middle income countries *(9)*. The median government mental health spending per capita for low, lower-middle and upper-middle income country groups globally is very low (less than US$ 2), and much of the reported expenditure is allocated to inpatient care, particularly to mental hospitals *(10)*.

9. Despite the personal and economic costs and availability of cost-effective interventions, treatment rates for people with mental and substance use disorders are low with treatment gaps of 35–50% of individuals with serious disorders in developed countries and 76–85% of individuals with serious disorders in less developed countries *(11)*. Even in developed countries, treatment is typically provided many years after the disorder begins. The main reasons for this are scarcity of human and financial resources, inequities in their distribution and inefficiencies in their use *(12)*, as well as the stigma associated with mental and substance use disorders.

Situation analysis

Magnitude of the problem in the Region

10. Epidemiological data on the prevalence of mental disorders in the Region is limited. Where data are available, the range of instruments used and the methodological differences across the surveys are wide *(12)*. The global burden of disease study has shown that the prevalence of mental disorders, specifically depressive illness and anxiety disorders, is the highest in countries of the Region and is almost wholly accounted for by the complex emergency situations prevailing across most of the countries *(13)*.

11. Community screening surveys report rates of psychological distress between 15.6% (United Arab Emirates) and as high as 51.8% (Palestine). The screening surveys conducted with children and adolescents in Oman, Gaza Strip (Palestine) and Mosul (Iraq) show much higher rates of psychological disorders in Palestine and Iraq than in Oman, but since the assessment methods were different they cannot be directly compared. It is nevertheless interesting that these studies show the least difference in rates between males and females *(14)*.

12. As mentioned above, the prevalence of mental disorders as determined by diagnostic interviews in the Region vary

widely because of the different methodologies and instruments used. The diagnostic breakdown suggests a picture similar to the global picture, with depression and anxiety the most common mental disorders. However, in addition there are high rates of post-traumatic stress disorder in Afghanistan, specific phobias in Egypt and Oman, and obsessive compulsive disorder in Islamic Republic of Iran. All the surveys of adult populations consistently report rates of mental disorder much higher in females than males, with an average female to male ratio of 2.3 among the surveys of adults *(14)*.

13. The annual regional age-standardized suicide rate for the Region is 6.4 per 100 000 population (7.5 for males and 5.2 for females) compared with an annual global age-standardized suicide rate of 11.4 per 100 000 population (15.0 for males and 8.0 for females). Regional suicides account for only 3.7% of global suicides while the regional population accounts for 8% of the total global population (15).

14. Countries in the Region typically spend about 2% of their health budget on mental health, which compares with the 5–10% required to match the spending on mental health in the United Kingdom, Canada and European Union countries. The median per capita expenditure of US$ 0.15 on mental health per person is well short of the US$ 1–2 needed for a selective package of cost-effective mental health interventions in low-income countries and up to US$ 3–5 in high-income and middle-income countries. Furthermore, centralized and institutionalized care consumes a disproportionate amount of mental health expenditure (9,16).

Findings of the mental health atlas questionnaire 2014

15. The high prevalence, disability and growing costs of mental disorders, taken together with the huge treatment gap despite availability wof cost-effective treatments, form a compelling case to reassess provision for mental health care. WHO took up this challenge with the comprehensive mental health action plan 2013–2020, which was adopted by the World Health Assembly in 2013. The plan sets out a new vision and goal for mental health to be articulated through four objectives and six measurable global targets to be achieved by 2020 *(17)*.

16. In order to monitor progress in achieving these targets and to monitor other critical aspects of mental health systems development, a set of core mental health indicators was developed. All countries in the Region completed the mental health atlas 2014 questionnaire which is based on these indicators and which will serve as the baseline for monitoring progress towards meeting the targets of the global action plan.

17. Most countries report that they have a mental health policy (77%) and the proportion of group 1 and 3 countries having mental health policies is higher compared to group 2 countries (83% each of group 1 and 3 compared to 70% of group 2 countries). However, in relation to compliance with international standards, the rates are comparable across the three groups of countries (57%, 58% and 53% respectively)[1]. Most countries report that they have mental health legislation (73%), but only one third are fully compliant with international human rights instruments. However, the mental health laws in group 3 countries are more likely to be compliant with international human right standards (87% compared to 40% of group 1 countries). No country is fully implementing its existing policy while about 45% of countries are partially implementing the relevant legislation.

18. With regard to service user empowerment and participation, the Region has the lowest level of involvement of association of service users and their families. Group 2 countries have greater involvement of stakeholders, with an average of 40% of the domains (information, policy, early involvement, participation and resources) at least partially implemented, twice that for group 1 and group 3 countries.

19. With regard to investment in mental health, the government is the main provider of funds for care and treatment of severe mental disorders in 77% of countries. Four countries provided data on total government mental health expenditure, including at least one from each of the health system groups. The one group 1 country had an annual per capita government mental health spending of US$ 7.24, while the average spending for the two group 2 countries was US$ 1.35 and for the one Group 3 country less than US$ 0.01. A tentative estimate of median government spending on mental health in the Region is US$ 6.32 per person, which is very low in comparison with the global median of US$ 72.57.

20. The average mental health workforce in the Region is 14.6 personnel per 100 000 population. This is less than half the comparable global rate of 33.8 per 100 000 population. Furthermore, in about one third of countries, more than 85% of the mental health workforce is deployed in mental hospitals. There was a substantial increase in the mental health nursing workforce between 2011 and 2014 in group 1 and group 2 countries. The fall in numbers of psychiatrists per 100 000 in group 2 countries, with an increase in group 1 countries, suggests that sociopolitical

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[1] Countries in the Region are grouped into three groups based on population health outcomes, health system performance and health expenditure. Group 1: Bahrain, Saudi Arabia, Kuwait, Oman, Qatar, United Arab Emirates; Group 2: Egypt, Islamic Republic of Iran, Iraq, Jordan, Lebanon, Libya, Morocco, Palestine, Syrian Arab Republic, Tunisia; Group 3: Afghanistan, Djibouti, Pakistan, Somalia, Sudan, Yemen.

and economic factors may be influencing the availability and mobility of mental health resources. Group 3 countries have the highest percentage of doctors, and nurses and midwives who have received training in mental health for at least 2 days in the last 2 years. The Region is slightly above the global median for training of primary care physicians (2.1%) and slightly below median for training of nurses and midwives (1.7%).

21. With regard to availability of mental health services, a median of 6.1 beds per 100 000 population is available across the Region; 64.3% of psychiatric beds are located in mental hospitals and 35.7% are located in community settings – general hospitals 18.3% and community residences 17.4%. There is a clear gradient across group 1 to group 2 and group 3 countries. This distribution is almost unchanged from that found in 2011. The median number of mental hospital beds per 100 000 in the Region is comparable with the global median of 6.5 per 100 000.

22. In the area of promotion of health and prevention of disease, globally 41% of countries have mental health promotion and prevention programmes, the same percentage as in the Region. Within the Region, 60% of group 2 countries have more than one functioning national mental health prevention or promotion programme, which is twice the rate in group 1 and group 3 countries. The three countries that have developed a national suicide prevention strategy are all in group 2.

23. In the area of information systems, although 19 countries have produced reports on mental health data, almost half of the countries have not published a specific mental health information report in the past 2 years. Group 2 countries have the most advanced profile for publication of mental health information. All but one (or 90%) of group 2 countries have published a specific report focusing on mental health in the past 2 years whereas, only half of group 1 countries and no group 3 country have published a specific mental health report in the same time period. Although the Region compares favourably with other regions, the current information systems may not be in line with the target indicators of the mental health action plan.

A framework for scaling up action on mental health in the Eastern Mediterranean Region

24. The Sixty-sixth World Health Assembly adopted a comprehensive mental health action plan 2013–2020. The plan sets out a vision and roadmap for mental health for countries of the world to achieve by 2020. It identifies specific actions for Member States and for international and national partners with agreed targets and indicators. In order to operationalize the vision and roadmap set out in the plan, a regional framework for scaling up action on mental health is proposed which identifies key strategic interventions across the domains of governance, health care, promotion and prevention, and surveillance, monitoring and research. It also provides a set of indicators to monitor progress in implementing these interventions. The domains correspond to the four objectives of the mental health action plan 2013–2020 and are guided by its underpinning principles. However, given that a disproportionately high number of countries of the Region are experiencing complex emergencies, the regional framework also suggests strategic interventions across its first three domains, which can help countries prepare for, and minimize, the damaging effects of complex emergencies on mental health.

A. Governance

25. The key governance responsibilities are in the development and oversight of implementation of mental health policies and plans, mental health legislation and finances. These form the supporting framework in which mental health services will be delivered. It is crucial that they complement and support each other. For example, mental health laws should codify the fundamental principles, values, aims and objectives of mental health policies and plans, and budgets need to be allocated to achieve the national mental health plan targets.

Key strategic interventions

- Establish/update a multisectoral national policy/strategic action plan for mental health.
- Review legislation related to mental health in line with international human rights covenants/instruments and establish a mechanism to independently monitor the implementation of updated legislation.
- Integrate priority mental conditions in the basic health delivery package of the government and social/private insurance reimbursement schemes.
- Embed mental health and psychosocial support in national emergency preparedness and recovery plans.

B. Health care

26. WHO has proposed the service organization pyramid for an optimal mix of services for mental health *(17)*. At successively higher levels of the pyramid the mental health needs of the individual require more intensive professional assistance with commensurate higher costs of care. This balanced approach involves scaling up of community-based mental health services, including integration of mental health into primary care and other priority health care programmes, such as making pregnancy safer, the Expanded Programme on Immunization and integrated child care programmes on the one hand and scaling down of mental institutions on the other *(18–27)*.

Key strategic interventions

- Reorient the mental health services by:
- providing people with mental health conditions and their families access to self-help and community-based interventions;
- downsizing the existing long-stay mental hospitals and ensuring protection of the rights of people with mental health conditions;
- establishing mental health services in general hospitals for outpatient and short-stay inpatient care;
- integrating delivery of cost effective, feasible and affordable evidence-based interventions for mental conditions in primary health care and other priority health programmes.
- Implement best practices for mental health and psychosocial support in emergencies.

C. Promotion and prevention

27. Mental health promotion and prevention interventions can improve the mental health of the population by mitigating risk factors, enhancing protective factors for good mental and physical health, and contributing to lasting positive effects on a range of social and economic outcomes. Evidence suggests the following interventions as having the most potential for the Eastern Mediterranean Region *(15,28–36)*.

Key strategic interventions

- Integrate recognition and management of maternal depression and parenting skills training in maternal and child health programmes.
- Integrate life skills education in school curricula, using a whole school approach.
- Reduce access to means of suicide.
- Train emergency responders to provide psychological first aid.
- Employ evidence-based methods to improve mental health literacy and reduce stigma.

D. Surveillance, monitoring and research

28. The lifeblood of planning and development is evidence, including both evidence about the local needs and services, and research evidence about new innovations. The mental health action plan requires relevant high quality mental health and service indicators to be collected and reported. Some of these indicators can be incorporated into routine national data collection, and others may need to be supplemented by periodic surveys. Similarly, mental health research is critical, to guide rational policy development, strategic programme planning and the reorganization of mental health services. Prioritizing mental health research, particularly implementation research, can generate enormous returns in terms of reducing disability and preventing premature death *(37)*.

Key strategic interventions for surveillance and information systems

- Integrate the core indicators within the national health information systems (see Annex 1).
- Enhance the national capacity to undertake and utilize prioritized implementation research.

Baseline comparison with the targets set out in the mental health action plan

29. This section provides the current baseline and the projections for achieving the targets set out in the mental health action plan.

30. Global target 1.1: 80% of countries will have developed or updated their policy/plan for mental health in line with international and regional human rights instruments (by the year 2020). Although 55% of countries of the Region have updated their mental health policies in the past 5 years, 32% (seven countries) are compliant with all the international standards identified and therefore meet the action plan target. If this target is to be achieved, policies need to be updated in line with human rights instruments in at least 11 more countries by 2020.

    Global target 1.2: 50% of countries will have developed or updated their law for mental health in line with international and regional human rights instruments (by the year 2020). While 73% of countries of the Region have mental health legislation (either stand-alone or integrated in other legislation), only 27% (six countries) are compliant with all five measured components of human rights standards and therefore meet the action plan target. If this target is to be achieved, mental health legislation needs to be updated and enacted in five more countries by 2020.

    Global target 2: Service coverage for severe mental disorders will have increased by 20% (by the year 2020). In order to monitor and assess this indicator a current baseline of service coverage needs to be established. Current information in the Region does not properly establish this baseline. First, the denominator for calculating coverage is the total population at risk, rather than the total population in need. Second, the reporting of numbers of people with severe mental disorders treated is available only for 13 countries at the level of the mental hospital, 9 at general hospital and 8 at mental health outpatient levels. If the treated prevalence in mental health outpatient facilities, currently at the level of 1158 per 100 000 population (based on 8 countries) is to increase by 20% by 2020, then the target is 1390 per 100 000 population.

Global target 3.1: 80% of countries will have at least two functioning national, multisectoral mental health promotion and prevention programmes (by the year 2020). According to the responses to atlas 2014, to meet the target by 2020, the nine countries with two or more programmes must continue to have eligible programmes, and a further nine countries must establish two or more national promotion or prevention programmes.

Global target 3.2: the rate of suicide in countries will be reduced by 10% (by the year 2020). The annual regional age-standardized suicide rate for the Region is 6.4 per 100 000 population (7.5 for males and 5.2 for females). A reduction by 10% suggests a target of 5.8 suicides per 100 000 per year. However, the currently reported rates may underestimate the true suicide rate due to possible social, religious and cultural factors. There is an urgent need to work towards establishing accurate suicide reporting in countries of the Region.

Global target 4: 80% of countries will be routinely collecting and reporting at least a core set of mental health indicators every two years through their national health and social information systems (by the year 2020). Although 19 countries have produced reports on mental health data (either dedicated reports or reports on mental health in general health statistics), it is clear from the responses to the 2014 atlas questionnaire that the extent of mental health information is limited in most countries and a current baseline against which to monitor and assess this indicator is difficult to establish on the basis of available data.

Conclusion

31. The key evidence informed strategic interventions identified which would be considered as “best buys” and “good buys” have been brought together in the proposed regional framework for scaling up action on mental health with the aim of facilitating implementation of the mental health action plan 2013–2020 (Annex 1). The framework is supported by a set of WHO tools and guidelines. Furthermore, a set of indicators is proposed to monitor progress towards implementation of the strategic interventions. These indicators are in line with the indicators of the action plan, in order to avoid duplication of efforts in monitoring progress towards the targets of the action plan. The information needed to report on the set of indicators in the regional framework can be gathered either routinely through incorporation of the indicators into the health management and other information systems of the countries, or can be collected by periodic surveys.
32. All the strategic interventions identified under the four main domains provide synergy to each other.
33. The Regional Committee is invited to endorse the regional framework for scaling up action on mental health.

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World Health Organization

Regional Office for the Eastern Mediterranean

Proposed regional framework to scale up action on mental health in the Eastern Mediterranean Region

Domains	Strategic interventions	Proposed indicators
Governance	• Establish/update a multisectoral national policy/strategic action plan for mental health	• Country has an operational multisectoral national mental health policy/plan in line with international/regional human rights instruments[a]
	• Embed mental health and psychosocial support in national emergency preparedness and recovery plans	• Mental health and psychosocial support provision is integrated in the national emergency preparedness plans
	• Review legislation related to mental health in line with international human rights covenants/ instruments	• Country has updated mental health legislation in line with international/regional human rights instruments
	• Integrate priority mental conditions in the basic health delivery package of the government and social/private insurance reimbursement schemes	• Inclusion of specified priority mental health conditions in basic packages of health care of public and private insurance/ reimbursement schemes • Enhanced budgetary allocations are in place for addressing the agreed upon national mental health service delivery targets
Health care	• Establish mental health services in general hospitals for outpatient and short-stay inpatient care	• Proportion of general hospitals which have mental health units, including inpatient and outpatient units
	• Integrate delivery of cost-effective, feasible and affordable evidence-based interventions for mental conditions in primary health care and other priority health programmes[b]	• Proportion of persons with mental health conditions utilizing health services (disaggregated by age, sex, diagnosis and setting) • Proportion of primary health care facilities with regular availability of essential psychotropic medicines • Proportion of primary health care facilities with at least one staff trained to deliver non-pharmacological interventions
	• Provide people with mental health conditions and their families with access to self-help and community-based interventions.	
	• Downsize the existing long-stay mental hospitals	• Proportion of mental health facilities monitored annually to ensure protection of human rights of persons with mental conditions using quality and rights standards
	• Implement best practices for mental health and psychosocial support in emergencies[c]	• Proportion of health care workers trained in recognition and management of priority mental conditions during emergencies
Promotion and prevention	• Provide cost-effective, feasible and affordable preventive interventions through community and population-based platforms[d]	• Proportion of schools implementing the whole-school approach to promote life skills • Proportion of mother and child health care personnel trained in providing early childhood care and development and parenting skills to mothers and families • Proportion of mother and child health care personnel trained in early recognition and management of maternal depression • Availability of operational national suicide prevention action plan • Regular national campaigns to improve mental health literacy and reduce stigma using multiple delivery channels
	• Train emergency responders to provide psychological first aid	• Psychological first aid (PFA) training is incorporated in all emergency responder trainings at national level
Surveillance, monitoring and research	• Integrate the core indicators within the national health information systems	• Routine data and reports at national level available on the core set of mental health indicators
	• Enhance the national capacity to undertake prioritized research	• Annual reporting of national data on numbers of deaths by suicide

[a] **Operational:** refers to a policy, strategy or action plan which is being used and implemented in the country, with resources and funding available to implement it with a unit /department which has a specifically delineated budget, human resource allocation and authority to monitor the implementation of the policy/strategy in the country.

[b] **Cost-effective, feasible and affordable evidence-based interventions ("best buys") for management of mental disorders include**: treatment of epilepsy (with older first-line antiepileptic drugs), depression (with generic antidepressant drugs and psychosocial treatment), bipolar disorder (with the mood-stabilizer drug lithium), and schizophrenia (with older antipsychotic drugs and psychosocial treatment). However, there are a number of interventions for management of mental disorders starting in childhood and adolescence, anxiety and stress-related disorders and suicidal behaviours which can be classified as "**good buys**" and which are also part of the mhGAP intervention guide (mhGAP-IG) http://www.who.int/mental_health/mhgap/en/.

[c] **Best and good practices for mental health and psychosocial support in emergencies include:** strengthen community self-help and social support; support early childhood development (ECD) activities; train and supervise staff in the management of mental health problems that are relevant to emergencies; provide evidence-based psychological interventions through lay workers; ensure regular supply of essential psychotropic medications; address the safety, basic needs and rights of people with severe or chronic mental illness in the community and institutions; encourage dissemination of information to the community at large.

[d] **Best practices (cost-effective, feasible and affordable evidence-based interventions) for prevention of mental disorders and promotion of mental health include**: early child development and parenting skills interventions and laws and regulations to restrict access to means of self-harm/suicide**.** Mass information and awareness campaigns for promoting mental health literacy and reducing stigma; early recognition and management of maternal depression; identification, case detection and management in schools of children with mental, neurological and substance use (MNS) disorders; integrating mental health promotion strategies, such as stress reduction, into occupational health and safety policies; regulations to improve obstetric and perinatal care, strengthening immunization; salt iodization programmes; folic acid food fortification; and selective protein supplementation programmes to promote healthy cognitive development are recommended as "**good practices**"

Medical education in the Eastern Mediterranean Region

Executive summary

1. Health system strengthening for universal health coverage is one of the five strategic priorities endorsed by the WHO Regional Committee for the Eastern Mediterranean for WHO's work with Member States in the Eastern Mediterranean Region 2012–2016. Human resource development is the backbone of any health system and imparting quality medical education is essential to enable physicians of the future to assume diverse roles as service providers, academics, researchers, managers, leaders and builders of the health system. The number and density of physicians in the population increased significantly in the Region between 1990 and 2013 in the majority of countries. There has been a rapid increase, especially since 1990, in the number of medical schools, while private medical schools have doubled in number since 2000. The major challenge has been to ensure the quality of medical education.
2. WHO undertook a comprehensive review of the situation of undergraduate medical education with a view to identifying the challenges facing medical education in the Region, determining priorities and developing a framework for action. A total of 157 of the 297 medical schools invited (53%) responded to a survey, including at least 20% of the medical schools of each country. Almost 75% of the respondents were deans or department chairs. The survey was complemented by an extensive literature review and interviews with key informants.
3. The results of the review showed that more than half of medical schools are registered with the Ministry of Higher Education, and the rest with the Ministry of Health or medical councils. More than 70% of schools are funded by the public sector, and 60% have some form of accreditation. Key governance challenges were identified in the areas of regulation, needs assessment, accreditation, social accountability, distribution of medical schools and migration of graduates. Many medical schools offer more than one track of curricula, with the majority of medical schools offering traditional, discipline-based curricula, or integrated, system-based curricula. Key challenges were identified in teaching methodology and curriculum design and relevance. In the area of student assessment and programme evaluation, most medical schools were unable to provide a written policy for student assessment and continue to rely on recall of facts rather than testing cognitive functions, such as integration and application of knowledge, problem-solving and critical thinking. The key challenges concern methods, training and quality. The principal criteria for faculty promotion are years of work experience and research and publications. More than 65% of medical schools reported having a weak or no development programme for teaching faculty. Key challenges in the area of faculty recruitment and development include availability, student:faculty ratios, recruitment criteria and development activities. Medical schools in most countries are inadequately equipped with regard to providing an enabling environment and learning resources, with particular challenges in availability of educational resources to support student-centred education and clinical skills training.
4. Medical education is a lifelong endeavour and comprises a continuum of undergraduate, postgraduate and continuing education. This paper focuses mainly on undergraduate medical education but also highlights the importance of postgraduate or continuing medical education, which is also the subject of ongoing review by WHO in the Region. A regional framework for action is proposed that identifies strategic priorities and outlines short- and long-term actions for countries and for WHO support towards the reform of medical education. Countries are encouraged to take urgent action by: establishing a multisectoral steering committee to guide the reform of medical education in the country; establishing or strengthening medical education departments in medical schools; developing and implementing leadership programmes for deans of medical schools; reviewing the current status of accreditation of medical schools and strengthening independent national accrediting bodies; and developing national action plans based on the regional framework for action. The Regional Committee is invited to consider the evidence for reform presented and to endorse the regional framework for action to strengthen undergraduate medical education in the Region.

This executive summary is extracted and reproduced from the Technical Paper "Review of medical education: challenges, priorities and a framework for action" presented at the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean in Kuwait 5–8 October 2015 (EM/RC62/3). The full paper is available on the Regional Office web site at: http://applications.emro.who.int/docs/RC_technical_papers_2015_3_16503_EN.pdf?ua=1

From the Millennium Development Goals to the Sustainable Development Goals

Executive summary

1. The Millennium Development Goals (MDGs) marked a significant and effective framework of global mobilization to achieve a set of important developmental priorities worldwide. They had several strengths that that will provide a good basis for establishing the new Sustainable Development Goals. The MDGs were packaged as an easily understandable set of eight goals, with measurable and time-bound objectives. This helped to promote global awareness, strengthen political commitment and accountability, improve metrics and increase community participation. However, they also had weaknesses, particularly in the dimensions of equity, human rights and social determinants of health which were not well articulated or monitored. In addition, important health priorities were excluded from the MDGs, including the increasing burden of noncommunicable diseases. Member States in the Eastern Mediterranean Region have made substantial progress towards achievement of the health-related Millennium Development Goals 1, 4, 5 and 6, although the progress is variable both across and within countries. There is agreement among the global health community and governments to continue improving health and reducing disparities in the post-2015 era, building on the unfinished agenda of the MDGs.
2. The United Nations General Assembly will convene a summit to adopt the post-2015 development agenda during the 70th session of the General Assembly from 25 to 27 September 2015. Seventeen Sustainable Development Goals have been proposed (Annex 1), with 169 associated targets and supported by the three pillars of sustainability: economic development, environmental protection and social equity. Goal 3 aims to "Ensure healthy lives and promote well-being for all at all ages", while health also cuts across the majority of the other SDGs. It has nine targets that address the unfinished agenda of the MDGs, the rising burden of noncommunicable diseases and cross-cutting systems-focused targets (including universal health coverage). It is vital that, for areas included under the health goal, global and regional targets and indicators that have already been set are harmonized with the list of SDG indicators which is expected to be finalized in March 2016.
3. In working to meet the targets of the SDGs, WHO will continue to support Member States of the Region in addressing the priority health areas identified, in line with existing WHO strategies and initiatives. Member States have a vital role to play in ensuring that the post-2015 agenda is driven by the principles of good governance, political leadership and accountability as these will do much to ensure the overall success of the SDGs. This paper provides a summary of the progress made in achieving the health-related MDGs in Member States of the WHO Eastern Mediterranean Region and the main challenges. It also provides a brief account of the current status of the SDGs, with focus on Goal 3, and a way forward that includes harmonizing the targets of Goal 3 with existing WHO strategies and roadmaps.

This summary is extracted and reproduced from the Technical Discussion Paper "From the Millennium Development Goals to the Sustainable Development Goals in the post-2015 development agenda" presented at the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean in Kuwait 5–8 October 2015 (EM/RC62/Tech.Disc.2). The full paper is available on the Regional Office web site at: http://applications.emro.who.int/docs/RC_technical_papers_2015_tech_disc_2_16500_EN.pdf?ua=1

Eradication of poliomyelitis

Background

The Eastern Mediterranean Region is currently the only region in the world reporting wild poliovirus. In 2015, only two countries, Pakistan and Afghanistan, have reported cases. In these two countries, lack of safe access to children in conflict-affected areas and inconsistent improvement in the quality and coverage of supplementary immunization activities have hampered eradication efforts. However, the governments and their partners have developed robust emergency plans for 2015, the implementation of which is achieving results.

Key achievements & progress in 2015

As of 26 August, 37 polio cases have been reported globally in 2015 from just 2 countries, Pakistan (29) and Afghanistan (8). This represents more than a 70% reduction in the number of polio cases reported globally compared to the same period of 2014, and a 65% reduction in cases overall in these two endemic countries, although Afghanistan case numbers are roughly similar to 2014.

Access in key areas of Pakistan has improved considerably in 2015, and the number of inaccessible children in the Federally Administered Tribal Areas has been greatly reduced. However, many challenges remain. In Afghanistan large numbers of children were unreached in the southern and eastern regions in the first half of 2015 due to security challenges and local bans on immunization, and circulation of wild poliovirus continues in the remaining pockets of inaccessible children in Pakistan. Quality improvement in the delivery of immunization to children even in accessible areas has been uneven, with significant numbers of children still being missed due to inadequate training of vaccinators, inadequate microplans, poor supervision and weak oversight. Emergency Action Plans in both countries have introduced innovative measures in 2015 to address the challenges in accessing children and improving quality, including the recruitment of female community workers, community protected campaigns, permanent polio vaccination teams, vaccination at the transit points, and introduction of IPV in difficult to access and high-risk areas. Political commitment in both countries is growing. The establishment of emergency operations centres (EOCs) has given governments the opportunity to demonstrate leadership and to coordinate more effectively with partners, which has provided new momentum and impetus to the programme.

The outbreaks of polio in the Middle East and Horn of Africa in 2013–2014 have been successfully controlled, and large multi-country epidemics have been prevented as a result. It is now more than 16 months since the date of onset of the most recent case from the Middle East (April 2014 in Iraq) and 12 months since the most recent from the Horn of Africa (August 2014 in Somalia).

AFP surveillance quality is largely being maintained across the Region, and certification documentation and containment reports submitted by countries were reviewed by the Regional Commission for the Certification of Poliovirus Eradication in April 2015. All national, reference and specialized poliovirus laboratories in the Region have been fully accredited.

Technical support to polio endemic, outbreak, and at-risk countries has been accelerated through the recruitment of national and international WHO staff supported by consultants, including short-term Stop Transmission of Polio (STOP) consultants seconded from the United States Centers for Disease Control and Prevention. In addition, teams of experts constituting technical advisory groups provide technical support to the national programmes on strategic directions.

The first meeting of the Islamic Advisory Group (IAG) was held in February 2014 in Jeddah, and the Jeddah Declaration reasserted the compatibility of polio vaccines with Islamic sharia and tenets, strongly condemned the killing of health workers, and approved a plan of action to support polio eradication activities in areas of conflict and vaccination bans. The second global IAG meeting in Cairo on 6 May 2015 endorsed a comprehensive action plan for 2015 and 2016, focusing on the priority areas in the endemic countries and countries at risk of polio importation.

The polio eradication endgame strategic and legacy plan is progressing. A major objective of the plan is the withdrawal of oral polio vaccine (OPV) in a phased manner, starting with type 2-containing OPV. Progress is being made with the introduction of at least one dose of inactivated poliovirus vaccine (IPV) into routine immunization schedules in the Region, and the target for the switch from trivalent to bivalent oral poliovirus vaccine for all OPV use is currently April 2016, although the final date will be proposed by the Scientific Advisory Group of Experts (SAGE) following their meeting in October 2015.

In priority countries (Afghanistan, Pakistan and Somalia), plans are being implemented to achieve the optimal use of Global Polio Eradication Initiative assets to improve and sustain routine immunization. A legacy planning process is

This article is an abridgement of the progress report "Progress report on eradication of poliomyelitis" presented at the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean in Kuwait 5–8 October 2015 (EM/RC62/INF.DOC.1). The full report is available on the Regional Office web site at: http://applications.emro.who.int/docs/RC_technical_papers_2015_Inf_Doc_1_16467_EN.pdf?ua=1 being undertaken to derive lessons from the global polio eradication initiative that are of relevance for other critical health initiatives, and where possible to harness the polio eradication infrastructure to support delivery of other programmes.

The way forward

Stopping transmission of poliovirus in the few remaining endemic foci in Afghanistan and Pakistan is the challenge that must be overcome in order to achieve global polio eradication. Achieving access to all children, and ensuring high quality immunization campaigns, is vital to success, and this requires tight monitoring and stronger partnerships, coordinated through emergency operations centres at national and subnational levels. Due to the long border and extensive population movement between Pakistan and Afghanistan, there is a clear need for well-coordinated activities to stop poliovirus transmission in the residual endemic foci in both countries.

The status of the outbreaks in the Middle East and Horn of Africa is assessed at regular intervals through formal reviews. With both outbreaks in the final stages of control, the next phase plans will have a strong focus on re-building routine immunization services. The strong working relationship among polio partners has been a critical factor in responding effectively to outbreaks, and this relationship must continue to be fostered.

In the polio-free countries of the Region, the priority is to maintain high population immunity, certification-standard AFP surveillance, and to develop robust polio importation preparedness plans. Preventive vaccination campaigns will continue to be conducted in selected high-risk countries, and all countries should ensure that high-risk population pockets (including refugees, migrants and internally displaced persons) are identified and immunized. POL EMRO will continue conducting regular risk assessments to share with Member States and encourage them to conduct subnational risk assessments and take corrective measures. Member States should also prepare carefully for the introduction of at least one dose of inactivated polio vaccine into routine immunization schedules, and the switch from trivalent to bivalent Oral Poliovirus Vaccine.

Emergency preparedness and response

Background

The Eastern Mediterranean Region is facing an unprecedented scale of humanitarian crises and needs. More than half of the countries in the Region are experiencing emergencies, with a total of more than 60 million people in need of humanitarian aid. More than half of the world's refugees come from the Eastern Mediterranean Region, and the Region also hosts the largest number of internally displaced persons as a result of conflict.

The Syrian Arab Republic, Iraq and Yemen are experiencing Level 3 emergencies, the highest level of emergency designated by the United Nations. Since the beginning of the conflict in Yemen in March 2015, more than 21 million people across the country were in need of humanitarian assistance and 15.2 million people in need of basic health care as of July. More than 1.4 million people were internally displaced. Serious shortages of medicines and medical supplies, as well as acute fuel shortages, resulted in a gradual collapse of the health system.

In Iraq, almost 7 million people were in need of health services as of July 2015. Across the five unstable governorates of Anbar, Ninewa, Kirkuk, Salad Aldin and Diyala, more than 25% of health care facilities were nonfunctional, leaving millions of people without life-saving treatment.

In the Syrian Arab Republic, ongoing conflict resulted in the displacement of more than 11 million Syrians (45% of the total population): 7.6 million people internally displaced and more than 4 million refugees in neighbouring countries. As of July 2015, 56% of public hospitals were partially functioning or out of service, and local production of medicines was reduced by 70%, with many life-saving treatments not available, including antibiotics and intravenous fluids.

Key achievements & progress in 2015

In the first half of 2015, WHO delivered lifesaving medicines and medical supplies for more than 13.5 million people in the Syrian Arab Republic, Iraq and Yemen. Despite ongoing violence, WHO staff and vaccinators in the Syrian Arab Republic and Iraq were able to vaccinate more than 9.5 million children against polio and measles. In Yemen, vaccinators were able to reach more than 5.5 million children in a national polio, measles and rubella campaign in August.

WHO expanded and strengthened its partnerships with 56 local nongovernmental organizations (NGOs) in the Syrian Arab Republic, many of them in hard-to-reach and opposition-controlled areas. In Iraq, WHO partnered a local NGO to manage WHO supported clinics in hard-to-reach Anbar Governorate. To ensure continued access to healthcare, WHO procured and operationalized 10 mobile clinics in North Iraq covering 300,000 internally displaced people and host communities, and established 2 mobile clinics in opposition-controlled areas in Anbar. In Yemen, WHO established mobile nutrition clinics to diagnose and treat children aged between 6 months and 5 years in Aden, Lahj and Hadramout governorates.

Even in acute emergencies, donor support cannot be relied on to arrive at an early enough stage. Despite increasing needs, consolidated United Nations strategic response plans for eight countries in the Region for 2015 were funded at 20.3% for health as of July, with US$ 83.5 million received out of a requested US$ 411.5 million. As a result of funding shortages, almost 83% of all WHO and partner health projects in Iraq were threatened with closure in June 2015.

To address this challenge, WHO is establishing a Regional Emergency Solidarity Fund to ensure a more predictable and reliable funding mechanism for emergency response in the Eastern Mediterranean Region. The fund, which will be activated in January 2016, will provide financial support at the onset of an emergency in countries in the Region for the first three months to meet immediate needs. To provide independent advice and assistance to the Regional Director on policy and strategic matters related to emergency preparedness and response in the Region, a Regional Emergency Advisory Group has been established.

To expand the regional surge roster, capacity-building of emergency focal points was supported, and additional pre-deployment trainings will be conducted for internal staff and external experts in all areas of public health, including disease outbreaks. To ensure the timely procurement and provision of critical medical supplies, WHO has finalized an agreement with the Government of the United Arab Emirates to establish a dedicated WHO humanitarian operations/logistics hub.

In 2015 followings were done supporting country capacity development for emergency management in light of attaining health security at country level. The Ebola readiness for countries were in the forefront to develop national capacity for all hazards. By July 2015, 19 countries received support in reviewing their existing national plans for emergency preparedness and response, with a view to adopting

This article is an abridgement of the progress report "Progress report on emergency preparedness and response" presented at the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean in Kuwait 5–8 October 2015 (EM/RC62/INF.DOC.2). The full report is available on the Regional Office web site at: http://applications.emro.who.int/docs/RC_technical_papers_2015_Inf_Doc_2_16479_EN.pdf the comprehensive approach of all hazard and to strengthen Incident Command and Control for emergency response. A functional simulation will take place in Sudan in the third week of October to test the emergency response plan for epidemic. To support the countries' planning for emergency response and the trainings, the all-hazard risk assessment protocol was developed. In September, an international consultation was held to discuss priority actions of Emergency Preparedness for Member States and WHO. The experts recommended 10 action points to scale up country emergency preparedness capacity. Simultaneously, a monitoring and measuring tool was developed to measure the progress of country capacity development for emergency preparedness. The tool will be field tested in Sudan, Iran and Oman in coming months to with the aim of developing an emergency preparedness index for countries. Further to this, a series of five trainings on Public Health Emergency Pre Deployment have been planned to develop a pool of regional professionals to respond to any emergencies in the region. The successful trainees will be included in a regional roster for easy deployment on the ground.

The way forward

Despite clear mandates and guidelines, WHO has not been systematic in responding to emergencies in the Region due to the enormous scale of health needs, and will be further challenged if new events emerge. Regional restructuring of the emergencies units included establishing an emergency response and coordination cluster to provide enhanced response and support mechanism to countries in crisis. A unit for emergency planning and monitoring was established to strengthen operational planning regular monitoring and ensure regular evaluation of WHO's work in emergencies. A new unit focusing on organizational readiness in Amman will build capacity and ensure organizational capacity to respond to public health emergencies in the Region.

Given the increasing scale and magnitude of emergencies in the Region, WHO will continue to conduct reviews of its work in this area. These reviews will take place within the context of global reforms in the area of emergencies, the Emergency Response Framework and resolutions endorsed by the Regional Committee.

Saving the lives of mothers and children

Background

The regional initiative on Saving the Lives of Mothers and Children was launched by WHO, UNFPA and UNICEF jointly with Member States in a high-level meeting held in Dubai, United Arab Emirates, in January 2013. The meeting concluded with the Dubai Declaration: Saving the lives of mothers and children: rising to the challenge. In the Declaration, Member States committed to: develop and implement maternal and child health acceleration plans; take measurable steps to strengthen their health systems related elements; establish sustainable financing mechanisms and mobilize domestic and international resources through traditional and innovative approaches; and improve coordination and accountability between all partners.

The Declaration was endorsed by the 60th session of the WHO Regional Committee for the Eastern Mediterranean in October 2013 in resolution EM/RC60/R.6. In the resolution, the Committee requested the Regional Director to support the efforts of Member States to implement their national acceleration plans and to report to the Regional Committee on progress in implementation of the national acceleration plans annually until 2015.

Key achievements & progress in 2015

All eligible countries implemented the priority activities of the maternal and child health acceleration plans 2013–2015 using the start-up funds allocated by WHO, with an overall implementation rate of 99%.

The Regional Office held an intercountry meeting in March 2015 to discuss a preconception care framework and health core interventions to be adopted by Member States for developing national health strategies and policies. The meeting concluded by outlining strategic directions for preconception care and highlighted key indicators to be adopted by countries to facilitate monitoring and evaluation. Technical support is currently focused on developing country plans of action for strengthening national preconception care programmes using the regional framework and prioritizing cost-effective and culturally sensitive health care interventions.

An intercountry meeting of national maternal, neonatal and child health programme managers was held in Amman, Jordan, jointly with UNFPA and UNICEF. The meeting aimed to address the main causes of maternal, neonatal and child mortality and to highlight the use of cost-effective and lifesaving interventions to avoid preventable deaths. Member States prioritized the key interventions for 2015 and discussed strategic directions for maternal and child health for the post-2015 agenda.

WHO allocated US$ 700 000 to support the implementation of the priority activities planned during the Amman meeting, focusing on key evidence-based and cost-effective interventions with a high impact on maternal, neonatal and child health.

WHO in collaboration with UNFPA and UNICEF developed a survey tool to assess maternal and child health risk behaviours and barriers to access health care services. The tool, which will be pilot-tested in two countries, aims to promote health literacy, community-based actions and lifesaving practices among mothers and their families.

The way forward

The 2015 Global strategy for women's, children's and adolescents' health will be launched at the United Nations General Assembly in September 2015 with a draft five-year implementation plan. It will be proposed for formal endorsement at the World Health Assembly in May 2016.

The 2015 strategy builds on the 2010 strategy, incorporating lessons learnt from the Millennium Development Goals and focusing on the evidence for effective investment and action. The global strategy was updated through a consultative process involving all partners in maternal, neonatal, child and adolescent health. The updated global strategy targets equity, human rights and social determinants of health.

Countries of the Region need to align their strategic directions and priority actions for maternal, child and adolescent health with the global strategy. In the Amman meeting in April 2015, countries agreed to develop their strategic plans addressing maternal, neonatal and child health with emphasis on the six health system building blocks, infection control, quality control, capacity-building and prioritization of cost-effective and lifesaving interventions.

The global strategy highlights new evidence including the need to focus on critical population groups such as newborns, adolescents and those living in fragile and conflict settings and indicators developed for the sustainable development goals framework and means for implementation, including innovative financing and the Global Financing Facility.

In line with the global strategy, Member States are expected to prioritize reproductive, maternal, neonatal, child and

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[1] *This article is an abridgement of the progress report "Progress report on saving the lives of mothers and children" presented at the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean in Kuwait 5–8 October 2015 (EM/RC62/INF.DOC.7). The full report is available on the Regional Office web site at: http://applications.emro.who.int/docs/RC_technical_papers_2015_Inf_Doc_7_16485_EN.pdf*

adolescent health programmes in the post-2015 era with the following requirements: strong country ownership; highest-level and broad-based political support; a human-rights based approach; and alignment with sustainable development goals and related processes and mechanisms.

During the development of their national maternal, child and adolescent health plans, Member States need to target actions that: realize and expand opportunities; sustain progress through country leadership and resources; strengthen health systems; partner across sectors; tackle inequities and vulnerabilities; accelerate progress with innovation and research; and amplify accountability with country data and multi-stakeholder initiatives.

WHO events addressing public health priorities

Health diplomacy: continuing the commitment

Global health has become an increasingly important topic during the past decade. Health has been recognized as one of the key goals of foreign policy and a leading contributor to development, peace, poverty reduction, social justice and human rights. The level of foreign policy involvement and interest in global health has also grown dramatically over the past 10–15 years. The inclusion of health diplomacy in WHO governing bodies' agendas, as well as those of the United Nations General Assembly, is testimony to this importance.

Health diplomacy expands health issues to areas beyond the health sector, to address challenges from a political, economic and social perspective. But for health diplomacy to succeed, stakeholders from different disciplines – government, non-State actors and parliament – need to come together, mindful of the global health agenda and its impact on national health.

At the national level, health diplomacy operates in a different way. Just as reaching consensus on the different aspects affecting health between different countries can be a complex matter, it can also be complex within the same country. Competing interests and positions often exist, between the health sector, foreign affairs, finance, industry, development cooperation and other sectors.

Member States of the Region have agreed on five priority areas for collaboration with WHO, that represent the main challenges to health development: health system strengthening towards universal health coverage, health security and the unfinished agenda of communicable diseases, the epidemic of noncommunicable diseases, maternal and child health, and preparedness and response to emergencies and crises. The Region cannot achieve a comprehensive strategy to address them without strengthening capacity in health diplomacy.

WHO's message of commitment to strengthening health diplomacy in the Eastern Mediterranean Region has been echoed by Member States, who have realized its imperative role in today's globalized world, and have requested the support of WHO in strengthening capacity at national level. Thus, the fourth annual seminar on health diplomacy took place in Cairo, Egypt from 2 to 5 May 2015 at the WHO Regional Office for the Eastern Mediterranean. High-level representatives of health and foreign affairs participated, including ministers, ambassadors, deans of diplomatic institutes and public health schools, heads and members of parliamentary health committees, and eminent experts in the field.

This fourth annual seminar continued to confirm the value and importance of raising awareness of the need for health diplomacy in the Region. The third seminar, held in 2014, had proposed the establishment of an advisory group to support WHO in moving the global health diplomacy agenda forward in the Region. This group was established and will advise on enhancing health diplomacy in the Region, taking into account the experiences in the Region and the conclusions of the four seminars.

Themes

The seminar focused on a number of themes which both illustrated how health diplomacy has helped to achieve positive outcomes for global health, and highlighted areas where it is vitally needed, globally and in the Region.

The interface between global health and foreign policy

The goal of health diplomacy is to pursue health, health equity and human rights as a collective goal for everyone. This is particularly relevant in areas where the cooperation of many countries is needed to address issues of common international concern. However, health diplomacy does not only benefit health. Health gains result in wider socioeconomic gains, and contribute in a major way to sustainable development and national and global security. Health diplomacy can also help to achieve broader foreign policy goals and, in crisis situations, to promote peace.

Leveraging the lessons of noncommunicable diseases

The World Health Assembly had long recognized and endorsed the need to tackle the global epidemic of noncommunicable diseases (NCDs), but it was only in 2011, when WHO and Member States were able to transfer NCDs on to the agenda of the United Nations, that the global political commitment necessary for collective action was attained. Raising this serious health issue to a higher level enabled governments to appreciate the socioeconomic consequences of NCDs, realizing it as a health security issue. The resulting UN political declaration on prevention and control of

[1] *This report is an abridged version of the report of the Fourth Seminar on Health Diplomacy held in Cairo, Egypt from 2 to 5 May 2015. The complete report is available on the Regional Office web site at: http://applications.emro.who.int/docs/IC_Meet_Rep_2015_EN_16400.pdf*

noncommunicable diseases showed the real power of working, and fostering collaboration, with the foreign policy sector.

Positioning health in the post-2015 development agenda.

As 2015 comes to an end, the world will look to a final assessment of its achievements in relation to the Millennium Development Goals (MDGs) set by the United Nations in 2000. However, the efforts to achieve sustainable development for everyone will not end. In September 2015, heads of state and government will convene at the United Nations again to endorse a new development agenda for the nations of the world. The post-2015 agenda will propose 17 broad sustainable development goals. While only one of the proposed goals is directly related to health, the comprehensive nature of the proposed goals provides an opportunity for the health community and health policy-makers to intersect health with and across the goals and targets of other development areas and to integrate health in all policies.

Framing health security in foreign policy.

Health security is centred around preventing the spread of infectious disease(s), within and beyond countries. It is in every country's interests to ensure that health security is framed as a foreign policy issue, and that foreign policy is scrutinized through a health lens. Through the World Health Assembly, Member States endorsed the International Health Regulations (IHR 2005), aimed at helping the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide.

The 2014 Ebola virus disease epidemic highlighted the lack of preparedness of countries around the world to fully implement IHR 2005. The global health diplomacy that resulted in the IHR 2005 needs to be stepped up to ensure that all States are able to implement the regulations. However, it also highlighted to the world the immediacy of health security as a global security issue and the forces that can be mobilized around the world when the political will is present.

The polio outbreaks of 2014, in the Middle East and the Horn of Africa, are another example of health diplomacy in action. Positive and rapid action as a result of diplomacy not only brought the outbreaks under control but also reinvigorated the final push to eradicate polio, alerting the global community to the threat to eradication, and bringing on board new actors and stakeholders, such as the Islamic Advisory Group.

Managing crisis and humanitarian response with health diplomacy.

Health diplomacy aimed at alleviating suffering in crisis situations can positively impact peace efforts. All countries in the Region, and many beyond, are currently affected, either directly or indirectly, by the acute and chronic emergencies taking place across the Region.

Health diplomacy supports the development of humanitarian space in which to intervene and alleviate suffering, and can provide opportunities to support peace efforts. WHO and other international organizations have shown this time and again in countries in the Region. Health diplomacy also has a crucial role to play in ensuring international treaties, such as the Geneva conventions, are upheld during conflict and crisis. Health workers and health facilities must be protected at all times, and must be allowed to do their work unimpeded.

Communicating for impact and change.

Creating positive momentum and critical mass to advance change requires innovative use of the different communication tools and forums available. Health diplomacy comes in many forms and shapes, and can be delivered through many different channels. Formal engagement with foreign policy and other sectors through national and international forums is one option. However, government, politicians, diplomats and organizations are increasingly using social media and mobile phones to convey information to wider audiences. Organizations need to focus on the comparative advantage they can bring to social media, rather than trying to engage in everything.

Conclusions: delivering action on health diplomacy in the Region

Health diplomacy is important for the Eastern Mediterranean Region. Not only is it disproportionately affected, compared with other WHO regions, by manmade and humanitarian crises but these crises are increasing and the scale of emergencies is expanding, not shrinking. Political solutions are therefore of direct relevance. Ministries of health need to exercise leadership in health diplomacy in order to enhance coordination and joint work between health and foreign policy.

The following are key action points raised by the participants. WHO will continue to work with Member States in promoting health diplomacy and addressing, whenever possible, these action points.

Leadership and advocacy

1. Enhance coordination and joint work between health and foreign policy by exercising leadership in health diplomacy issues.
2. Document the unique experiences of the Region in health diplomacy and develop guidance based on the lessons learnt, particularly in the context of emergency and humanitarian action.

3. Continue to host the annual seminar on health diplomacy, and to support health diplomacy strengthening in Member States.

Coordination and collaboration

4. Explore the identification (or establishment) of focal points or units for global health within ministries of foreign affairs as well as the offices of senior executives, such as prime ministers.
5. Continue to engage with partners in building capacity across the Region, as well as in the practice of health diplomacy.
6. Make greater efforts to engage with non-State actors and civil society to support health goals, including through more effective use of social media.

Health diplomacy at the national level

7. Raise awareness on the value and importance of health diplomacy at highest level of government through health and foreign affairs champions. National seminars on health diplomacy can greatly facilitate this, as well as the adoption of a strategic approach.
8. Promote interaction and coordination between health, foreign policy and other sectors at the domestic level.
9. Continue to advocate with and build capacity of parliamentarians, including through involvement in national seminars, to support health development and strengthen health diplomacy across sectors.

Capacity-building

10. Strengthen negotiation skills in the health sector and build capacity in understanding global health issues in the foreign policy sector.
11. Engage public health institutions to play a valuable role in support the development of health diplomacy capacity at national level, through training of diplomats, parliamentarians and key actors across sectors.
12. Advocate for inclusion of a health diplomacy module in the training of diplomats and Foreign Service employees.

Participants in the Fourth Seminar on Health Diplomacy, Cairo, 2–4 May 2015

Raising the profile of nursing and midwifery in the Eastern Mediterranean Region

The need to involve nurses and midwives

The crucial contribution of nurses and midwives to improving the health outcomes of individuals, families and communities is well recognized but they have not always been included as key stakeholders at the health policy level.

For the future and moving towards universal health coverage and into the post 2015 development agenda for health, the involvement of the nursing and midwifery professions is critical to sustaining and strengthening the health, academic and regulatory systems. In order to ensure and maximise their contribution, nurses and midwives in the Eastern Mediterranean Region (EMR) have to be prepared to lead and also to teach and mentor the future generations.

Steps taken

In that regard, the draft Regional strategy for nursing and midwifery 2012–2020 was developed in line with the WHO Global strategic directions for strengthening nursing and midwifery 2011–2015 in order to help nurses and midwives in the Region enhance their contribution to improving the health agenda. However, taking into account recent challenges and trends in the Region, the EMR strategic directions needed to be reviewed, updated and expanded to 2025.

In late 2014, the Regional Office undertook the Eastern Mediterranean Nursing and Midwifery Survey as well as a desk review of WHO reports on missions to countries of the Region in the previous four years and data from the nursing country profiles provided by key informants from Member States. The overall aim was to assess the current status of nursing and midwifery in the EMR and to identify the key challenges facing these services. The survey was delivered as an online questionnaire and 20 of the 22 EMR member countries responded.

To follow up on these activities, report on the current status of nursing and midwifery in the EMR and identify the key challenges facing nursing and midwifery and propose actions to move forward, the Regional Office, under the patronage of HRH Princess Muna Al Hussein, WHO Patron for Nursing and Midwifery in the Eastern Mediterranean Region, organized the Regional nursing forum: the future of nursing and midwifery in the Eastern Mediterranean Region in Amman, Jordan on 24 April 2015.

The specific objectives of the forum were to:

- share the current status of nursing and midwifery in the Eastern Mediterranean Region based on the findings of the Eastern Mediterranean nursing and midwifery survey;
- present successful experiences and good practices in strengthening nursing and midwifery governance, education, practice and services;
- identify and suggest solutions to constraints and bottlenecks impeding implementation of the nursing and midwifery strategic directions (2012–2020);
- develop consensus on and, where necessary, update, the regional strategic directions for nursing and midwifery to guide actions related to nursing and midwifery resources and services development from 2015–2025.

The participants of the forum included key chief nursing and midwifery officers from Member States and from other regions, health and nursing advisers to HRH Princess Muna, key international nongovernmental organizations (International Council of Nurses, International Confederation of Midwives), international experts, WHO collaborating centres, representatives of the regulatory councils and accrediting bodies, representatives from the Gulf Cooperation Council nursing technical committee, field nursing officers from the United Nations Relief and Works Agency for Palestine Refugees in the Near East, staff from WHO headquarters and the Regional Office.

Challenges identified

The results of the Eastern Mediterranean Nursing and Midwifery Survey and the desk review had been distributed to participants before the forum, and a summary presentation delivered at the beginning of the meeting. The major findings were categorized across the three groups of countries in the Region . In view of the results, consensus was reached on the key challenges, which were categorized around the themes of education, nursing and midwifery workforce, practice and service development, regulation, governance, and information systems. Solutions addressing the challenges were proposed.

Education: Access to education is adversely affected by inadequate investment and the low priority given to nursing education. The poor education infrastructure is a result of the lack of a clear vision and mission. Specific educational strategies are not linked to outcomes and there is inadequate preparation of deans/school directors in educational leadership. There are

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[1] This article is based on the report of the Fourth Seminar on Health Diplomacy held in Cairo, Egypt from 2 to 5 May 2015. The complete report is available on the Regional Office web site at: http://applications.emro.who.int/docs/IC_Meet_Rep_2015_EN_16400.pdf

few functioning accreditation/quality monitoring systems. Resources for recruitment are poor, leading to a teacher shortage: there is no preparation, curricula for preparing for the role of the educator are weak and there is no continuing professional development for faculty members.

Nursing and midwifery workforce: The nursing shortage is linked to the poor working conditions, the low levels of authority and the insufficient rewards/recognition/benefits. Additionally, an inadequate number of positions/staff are budgeted for. Distribution of nursing and midwifery services is inequitable, particularly urban/rural, public/private, general/ specialized, and for all levels of prevention. A further strain on the workforce is the migration of the best qualified nurses and midwives.

Nursing and midwifery practice and services development: Policies governing practice and service development are unclear. The profession suffers from the absence of a career structure, professional progression, clinical advancement and nursing and midwifery care models. Role definition and role recognition are unclear, particularly in regard to non-nursing responsibilities and duties. There is limited collaborative and multidisciplinary practice and limited training (statuary or mandatory). Working hours for the nursing and midwifery profession are generally inflexible and the benefits are not attractive enough to retain and motivate the workforce. A patient safety culture is absent or inadequate.

Regulation: Regulation and evaluation are important in safety and quality of health services; current processes are outdated and/or contradictory, however the situation is changing slowly. Legal requirements are limited in scope and implementation has been inadequately dealt with and not well organized. Legal terminology needs to avoid being prescriptive. Progress towards setting up a nursing and midwifery council has been slow.

Nursing governance: There have been problems with leadership and management capacity: nursing and midwifery leadership authority is limited and the position of nursing and midwifery leadership in the organizational structure is not clear. The management style has been traditional and non-supportive – involvement of nursing and midwifery staff in decision-making is restricted and the practice of shared governance is absent. Information systems were described as weak and fragmented, with little use of evidence in planning and policy analysis and development.

Information systems: Limitations were noted in the nursing information system and in national human resources policies/workforce planning processes. Available data are of limited accuracy and reliability and data integration are absent: there is no shared minimum data set. Pertinent research and monitoring and evaluation are also inadequate

Other: The diversity of the Region was taken into consideration in the survey analysis. There are some cross-cutting issues such as those related to the governance of nursing and midwifery and the availability of accurate and reliable information about nurses and midwives that are common to all the three groups of countries. There also are challenges that are specific to a particular group of countries such as dependence on expatriate nurses in Group 1 countries, dual practice and deployment issues in Group 2 countries and critical shortages and issues related to the use of the title of nurse or midwife in Group 3 countries. It was emphasized that actions should be targeted for each group of countries within the context of universal health coverage and the sustainable development goals.

Participants in the regional nursing forum: the future of nursing and midwifery in the Eastern Mediterranean Region, Amman, Jordan, 24 April 2015

The way forward

The meeting concluded with participants agreeing on the priority challenges facing nursing and midwifery and the identification of several feasible and appropriate solutions to tackle the obstacles that are impeding progress in these professions.

It was recommended that an expert group be convened to finalize the strategic directions for nursing and midwifery development in the EMR based on the outcomes of the forum.

This follow-up meeting was held on 29 May 2015 in Geneva, Switzerland. The primary aim was to define a clear action plan/roadmap to address the key challenges with short- and long-term actions and a time frame for implementation. Experts in the field of nursing and midwifery from within and outside the Region, as well as relevant WHO staff, participated in the meeting.

After this meeting, the proposed framework for action on strengthening nursing and midwifery in the Region for 2015–2025 was developed (shown at the end of this report) and will be presented at the pre-session to the Sixty-second session of the WHO Regional Committee for the Eastern Mediterranean being held in Kuwait on 5–8 October 2015.

Framework for action: Strengthening Nursing and Midwifery in the Eastern Mediterranean Region 2015-2025

Domain 1: Governance

Strategic Direction 1: Nurses and midwives will play a major role in the governance of nursing and midwifery services to meet the national health priorities.

- Priority 1: Establishment or strengthening of the Nursing and Midwifery Department/Directorate at the Ministry of Health.
- Priority 2: Establishment of reliable nursing information system (NIS) that is operational and is linked to the health workforce information system.

Strategic Direction 2: Nurses and midwives are regulated through legal bodies, such as a Council or Board, which are mandated to assume responsibility for professional regulation through implementing sustainable, and robust regulatory policies and practices.

- Priority 1: Establishment and or strengthening of National Nursing and Midwifery Council/Board, either on its own or with other health professions regulatory bodies.
- Priority 2: Effective implementation of key regulatory processes.
- Priority 3: Establishment of partnerships and collaborative relationships with national health workforce departments and with regulatory bodies in other countries.

Domain 2: Nursing and Midwifery Workforce

Strategic Direction 3: Human resources policy and nursing and midwifery workforce planning focus on maintaining adequate levels , distribution and an appropriate skill-mix to meet national health priorities.

- Priority 1: Countries have a national nursing and midwifery workforce plan as part of the national health workforce plan.
- Priority 2: Increase pool of potential recruits.
- Priority 3: Introduce flexibility in management and deployment of nurses and midwives.
- Priority 4: Apply retention strategies.

Domain 3: Nursing and Midwifery Practice and Services

Strategic Direction 4: Nurses and midwives practice to the full extent of their education and scopes and standards of practice to ensure safe and quality health and nursing services for all populations.

- Priority 1: Development of a model of nursing/midwifery care and practice standards that is adaptable and adoptable at country level, capable of responding to changing health priorities, incorporating primary health care ,non-communicable and infectious disease management and control, and emergency and disaster preparedness, response and recovery
- Priority 2: Introduce expanded or advanced practice nursing and midwifery roles.
- Priority 3: Introduce a quality improvement system for nursing and midwifery services.
- Priority 4: Expand capacity and capability of currently employed nurses and midwives.

Domain 4: Access to Quality Nursing and Midwifery Education

Strategic Direction 5: Increase resource allocation to improve access to quality nursing and midwifery education.

- Priority 1: Invest in nursing and midwifery education.
- Priority 2: Establishment of essential national curriculum requirements for nursing and midwifery.
- Priority 3: Greater use of flexible learning models including part-time and distance learning modes, use of bridging programmes and the incorporation of more Information Communication Technology (ICT) education methods as common modes of programme delivery.
- Priority 4: Develop the capacity of persons holding the educator role and those engaged in educational planning, management and leadership.
- Priority 5: Improved quality of programme delivery and clinical teachers and preceptors.
- Priority 6: Establishment of accreditation system for nursing and midwifery education.

Domain 5: Research responsive to health priorities

Strategic Direction 6: Nurses and Midwives are engaged in research that is responsive to health priorities and that informs health, nursing and midwifery policies.

- Priority 1: Enhancing the wellbeing of individuals, families and populations by translating nursing and midwifery research evidence into clinical practice, nursing governance, education and service development.
- Priority 2: Incorporating Nursing/midwifery health research into national health planning.

Research ethics in the Eastern Mediterranean Region

WHO and health research

The 2013 World Health Report, *Research for universal health coverage*[1], emphasized the role of the WHO in advancing research that addresses the dominant health needs of Member States, supporting national health research systems, setting norms and standards for the proper conduct of research, and accelerating translation of research findings into health policy and practice.

To help realize WHO's role in health research and target the Region's priorities, the WHO Regional Office for the Eastern Mediterranean supports three types of health research grants:

- Research in Priority Areas of Public Health grant, which address the five strategic health priorities of work in the Region (Health systems strengthening; Maternal, reproductive and child health and nutrition; Noncommunicable diseases; Communicable diseases; and Preparedness, surveillance and response);
- Improved Programme Implementation through Embedded Research (iPIER) grants, offered in collaboration with the Alliance for Health Policy and Systems Research; and
- Tropical Disease Research – Small Grants Scheme, offered in collaboration with the WHO/UNDP/World Bank Special Programme for Research and Training in Tropical Diseases.

Ethical oversight of research: WHO/EMRO Research Ethics Review Committee

A fundamental requirement of research is its compliance with the recognized ethical standards for the conduct of research so as to protect research participants. Therefore in order to ensure the scientific rigour and ethical conduct of health research recommended for funding under the three grants, the Eastern Mediterranean Ethics Review Committee was established in 2007. The Committee was reformulated in 2014 to include external (from Egypt, Islamic Republic of Iran, Lebanon, Morocco, Tunisia, UNESCO) as well as in-house (WHO) members; and was renamed the Eastern Mediterranean Research Ethics Review Committee. Its primary function is to "review the protocols of all health research projects involving human subjects submitted to WHO for funding in the Region" in order to safeguard the dignity, integrity, human rights, safety and well-being of all the human participants. The Review Committee also has the authority to verify that ongoing studies comply with WHO policies and regulations for the conduct of health research in the Region.

During the review process of the health research protocols, the Committee is expected to ensure compliance with the International ethical guidelines for biomedical research involving human subjects[2] as well as other international guidelines which govern ethical conduct of health research[3].

In view of the recent reformulation of the Committee, the WHO Regional Office for the Eastern Mediterranean convened a meeting of the Committee during the period 6–7 September 2015. The objectives were to: review the work of the Research Ethics Review Committee since October 2014, when its functions had been updated; ensure compatibility of the work with international guidelines for review of health research on human subjects; update the current review process for health research supported by WHO; and address new health research challenges in the Region, including health policy and systems research.

The meeting was inaugurated by Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean, who emphasized the importance of the work of the Research Ethics Review Committee in ensuring that health research funded by WHO in the Region is ethically sound.

Recommendations

Following presentations and active discussion of the key issues concerning the work of the Committee, recommendations were proposed for ensuring compatibility of the Committee's work with international guidelines for health research (including the Council for International Organizations of Medical Sciences, WHO and UNESCO guides), updating the ethical review process and providing specific advice for

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[1] World health report: research for universal health coverage. Geneva: World Health Organization, 2013.

[2] International ethical guidelines for biomedical research involving human subjects. Geneva: Council for International Organizations of Medical Sciences; 1992.

[3] International ethical guidelines for epidemiological studies. Geneva: Council for International Organizations of Medical Sciences; 2009.
Standards and operational guidance for ethical review of health-related research with human participants. Geneva: World Health Organization; 2011.
Universal declaration on bioethics and human rights. Paris: United Nations Educational, Scientific and Cultural Organization; 2005.
Bioethics committees at work: procedures and policies (Guide 2). Paris: United Nations Educational, Scientific and Cultural Organization; 2005.

current challenges in health policy and systems research. The meeting's recommendations for Member States and WHO are shown in Box 1.

The Committee also advised that proposals on health policy and systems research should be reviewed using only applicable questions in checklists, and recommended that some members of review committees (especially on a national/institutional level) should have training in health policy and systems research and that different stakeholders should be involved with the review process (as applicable).

In addition, the Research Ethics Review Committee carefully reviewed the checklists currently used for the review of submitted research proposals and recommended adding sections on "conflict of interest" and "informed consent process for vulnerable groups" (including: minors; pregnant women; emergencies; and mentally challenged persons), which are to be drafted in the near future.

Box 1 Recommendations of the Research Ethics Review Committee

To Member States

1. Develop/enforce national laws and regulations which govern bioethics and related research.
2. Urge vigilance by editors of scientific journals to avoid fraud and falsification of health research submitted for consideration for publication.
3. Develop / support/ accredit national bioethics committees which could oversee the work of institutional committees, including institutional review boards.
4. Establish ethical review committees according to need (e.g. for research on human subjects, on animals, etc.).
5. Support institutional clearance (in the absence of national clearance).
6. Establish national registries for clinical trials and research.
7. Regulate/monitor pharmaceutical companies' contributions to clinical studies.
8. Ensure a rigorous ethical review process on different levels (institutional, national, regional).

To WHO

9. Encourage/solicit research on public health priorities in the Region, especially on crises and emergencies.
10. Use the expertise of current global WHO collaborating centres for bioethics-related matters, including capacity building.
11. Establish a regional WHO collaborating centre on bioethics.
12. Support capacity-building activities in bioethics/ethical conduct of health research.

Obituaries

Dr Abdel Aziz Saleh

Dr Abdel Aziz Saleh, who died on 11 January 2015, was an important figure in public health in the Eastern Mediterranean Region and beyond. Dr Saleh made a positive impact wherever he went and his influence will be felt by future generations. Born in Alexandria, Egypt in 1942, he received a Bachelor's degree in pharmacy from the University of Alexandria. Having completed his doctorate in 1968, he joined the Faculty of Pharmacy, becoming professor of pharmacology in 1981.

Dr Saleh joined the WHO Regional Office for the Eastern Mediterranean in 1989 as regional adviser in the area of medicines. He was known for his interest in different aspects of public health and the role of economic, health and legislative policies in making medicines accessible to all people in all countries at affordable cost. In 1995, Dr Saleh was appointed director of health policy and management in the Regional Office. He was relentless in his efforts to make the best possible use of the policies adopted by the World Trade Organization and contributed to developing the document "Health for all in the 21st century".

During his tenure as Deputy Regional Director, 2001–2007, Dr Saleh dedicated himself to addressing the public health emergencies that threatened countries of the Region. This was in addition to his involvement in the regular regional areas of work of that time. He was also an active member of the editorial board of the Eastern Mediterranean Health Journal, from its launch in 1995 until 2012.

Dr Saleh was committed to the principles of WHO and advancing the health of the peoples of the Region. His compassion for all was apparent, and with those who worked with him he was warm-hearted and patient, making them feel they were members of his family.

We offer our deepest sympathy to his family.

Dr Awni Arif

Dr Awni Arif had a long and interesting career at WHO, serving the Organization at both the headquarters and regional levels. Dr Arif was born in Iraq in 1925. He obtained his Doctor of Medicine degree from Baghdad University Medical School, and then won a scholarship to the United States for postgraduate studies. He obtained a Master's degree and then a doctoral degree in the field of public health and preventive medicine from the School of Public Health, Columbia University. He went on to teach at the Columbia University School of Public Health while doing research work on drug abuse in New York. He believed that drug addiction should be treated as a medical problem and not as a criminal offence.

He joined WHO in February 1960. After six years, he returned to Iraq where he was appointed Director-General of Health Services at the Ministry of Health. After three years in Iraq, he again joined WHO as WHO representative in Libya and then WHO representative in Pakistan. In 1976, he was reassigned as a Senior Medical Officer in charge of the Drug Dependence Programme in WHO headquarters, a post he held until his retirement in 1986. He contributed considerably to the evolution of ideas in the field of addiction.

Dr Arif was a very fine man and an exemplary WHO senior staff member. He was highly respected by colleagues, Member States and partners, and was always ready to help a colleague and a friend.

He died on 22 January 2015, months short of his 90th birthday. He will be sadly missed by his friends and colleagues and will be remembered with affection and admiration by all who knew him. We offer our deepest sympathies to his family.

Dr Mohammad Abdur Rab

Dr Mohammad Abdur Rab died on 8 August, 2015 in Toronto, Canada after a long and prominent career in public health. He was born in 1949 in Mianwali, Pakistan and graduated in 1973 from Nishter Medical College, Multan, Pakistan with an MBBS degree. He went on to receive a Master's in Public Health & Tropical Medicine in 1984 from Tulane University, United States of America, and later a PhD in epidemiology in 1993 from the London School of Tropical Medicine & Hygiene, United Kingdom.

His professional career was diverse. He served as part of Pakistan army's commando force in Baluchistan, was a professor at the

Health Services Academy in Islamabad, and in 1999 was appointed Technical Adviser, Health Net International, Peshawar. During his research in northern areas of Pakistan he was once kidnapped and held hostage by militants for months where he saw death at close quarters. This experience left him with a more humble and deeper perspective on life. Dr Abdur Rab was influential in the eradication of Guinea worm disease in Pakistan through the National Guinea Worm Eradication Programme and this contribution was personally acknowledged by President Jimmy Carter.

In 2001 Dr Abdur Rab moved to Cairo, Egypt when he joined WHO/EMRO as Regional Adviser, Research Policy & Cooperation and in 2007 he was appointed WR Sudan in Khartoum. He returned to the Regional Office in 2010 as Regional Adviser, Research Policy & Cooperation, from where he retired in 2011.

Dr Abdur Rab's wide public health knowledge was coupled with a great compassion for the welfare of the people and commitment to improving health. We extend our sincere condolences to his family.

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