Research priorities in medical education in the Eastern Mediterranean Region

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أولويات البحوث في التعليم الطبي في إقليم شرق المتوسط

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الخلاصة: تمس الحاجة لتفعيل تحسين الجودة في بحوث التعليم الطبي في إقليم شرق المتوسط. وتهدف هذه الدراسة إلى التعرف على المواضيع الرئيسية، وإعداد قائمة الأولويات للبحوث في التعليم الطبي في إقليم شرق المتوسط. وقد استخدم الباحثون أسلوب المجموعة الاسمية التي تتألف من 30 خبيراً وضعوا قائمة بالمواضيع الرئيسية للبحوث في التعليم الطبي. وأجرى الباحثون جولتين من المسح بطريقة دلفي، فأرسلوا القائمة إلى 47 خبيراً في الإقليم، مع استبيان يتضمن أسئلة مفتوحة حول التغيير والإصلاح في التعليم الطبي. وفي القائمة النهائية التي تضمنت عشرين موضوعاً، كانت المواضيع الخمسة ذات الأولوية العُليا هي: تدريب الأطباء ليكونوا مدرسين فعالين، والنماذج الملبِّية لرغبات المجتمع لإعداد المناهج التعليمية، ونماذج التعليم السريري، والتعليم حول المهنية وحول الأخلاقيات، والتعليم حول الطب المسند بالبيِّنات. ويمكن للمواضيع التي تم التعرف عليها من خلال هذا المسح أن تساعد الباحثين في إقليم شرق المتوسط على التركيز على المجالات ذات الأولوية في بحوثهم.

ABSTRACT Ways are needed to effect quality improvement in medical education research in the Eastern Mediterranean Region (EMR). This study aimed to determine the principle themes and to draw up a list of priorities in medical education research in EMR. Using the nominal group technique with a group of 30 experts, a list of major themes in medical education research was prepared. In a 2-round Delphi survey the list was sent to another 47 experts in the Region with a questionnaire that included open questions about change and reform in medical education. In the final list of 20, the 5 highest priorities identified were: training physicians to be effective teachers; community-driven models for curriculum development; clinical teaching models; education about professionalism and ethics; and education for evidence-based medicine. Themes determined by this survey can help researchers in EMR to focus on priority areas in research.

Priorités de la recherche sur l'enseignement médical dans la Région de la Méditerranée orientale

RÉSUMÉ Il est nécessaire de déterminer comment améliorer la qualité de la recherche sur l'enseignement médical dans la Région de la Méditerranée orientale. Cette étude visait à dégager les principaux thèmes et à répertorier les priorités de la recherche sur l'enseignement médical dans cette Région. Selon la technique du groupe nominal, 30 experts ont dressé la liste des principaux thèmes de recherche en la matière. Au cours d'une enquête en deux phases selon la méthode Delphi, la liste a été envoyée à 47 autres experts de la Région avec un questionnaire comportant des questions ouvertes sur les réformes et les changements requis dans l'enseignement médical. Dans une liste finale de 20 éléments, cinq priorités essentielles ont été identifiées. Elles étaient les suivantes : formation des médecins pour devenir des enseignants efficaces ; création de modèles par la communauté pour l'élaboration des programmes ; établissement de modèles pour l'enseignement clinique ; enseignement du professionnalisme et de l'éthique ; et cours de médecine fondée sur les preuves. Les thèmes dégagés grâce à cette enquête permettront aux chercheurs de la Région de la Méditerranée orientale de se concentrer sur les domaines d'étude prioritaires.

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Introduction

Medical education research is a relatively young discipline, incorporating scientific principles from many domains, including the social sciences [1–4]. Some of the major challenges facing medical education research worldwide are methodological problems [5–11], financial concerns [12–14], lack of skilled educational researchers [15,16] and the lag between learning and measurable outcomes [17,18].

In addition to the general challenges in medical education research, the problems associated with performing such research in developing countries are profound. These include lack of financial resources, inadequate library and information resources, low socioeconomic indicators, cultural barriers, low numbers of expert researchers in the field, lack of relevance of medical education to community needs and a crisis of educational leadership in medical schools [19,20]. In addition there may be language barriers to publishing research [19]. The problems are reflected in the geographical distribution of publications in the field of medical education. One study showed that the journal *Academic Medicine* published articles from 25 countries between 1995 and 2000. However, authors from the United States of America (USA) and Canada generated 95% of all articles in the journal (an American journal). Authors from the United Kingdom (UK), Australia, USA, Canada and the Netherlands were responsible for 74% of all articles published in *Medical Education* (a UK journal) in the same period [21].

Today the medical education community worldwide is trying to find ways to effect quality improvement in medical education research. In view of the financial constraints in many Eastern Mediterranean Region (EMR) countries, setting research priorities seems to be a logical first step to carrying out research in medical education in a more cost-effective way [22]. This survey aimed to identify a list of priorities for medical education research in EMR countries.

Methods

Ethical approval for this project was obtained from the education ethics committee at the Shiraz Education Development and Research Centre. The study was carried out in 2 phases.

The first phase was a review of the literature on medical education research from EMR countries. A manual count was made of the number of articles published in journals in which the first author or corresponding author or their university affiliation were from EMR countries The 3 international peer-reviewed journals specializing in medical education that had the highest impact factors were searched—*Academic Medicine*, *Medical Education* and *Medical Teacher*. Papers from the abstract books of the Association for Medical Education in Europe (AMEE) conferences from 2001 to 2009 were included because AMEE organizes a well-known annual conference in the field of medical education.

The second phase used a 1-round nominal group technique session and a 2-round Delphi consensus survey to determine expert opinions about priorities for research in medical education in the EMR. The nominal group technique session [23] was used to identify a preliminary list of educational research needs. For this stage, 30 experts in medical education research from Iranian universities were invited to a workshop at the Education Development Centre at Shiraz University of Medical Sciences in Shiraz, Islamic Republic of Iran. The group leader clarified members' roles and group objectives with a statement of the importance of the task and of each member's contribution and an indication about how the group's output would be used. Participants were asked to think about "What are the priorities of medical education research?" and write down their responses in private. Then each participant was asked to express one idea at a time and his/her idea was written on the board without appraisal. In the next step each idea was fully discussed. Participants were encouraged to share their thoughts, and express their views about the pros and cons of each item. There was further explanation about each item so that everyone in the group had a full understanding of the concept. Duplications were identified and deleted. Then each member was asked to rank the top-10 items on a card by giving score 10 to the most important and score 1 to the least important. The average score was calculated for each item. At this stage all items that had received a rank were listed so that all participants could view them. The items were then ranked according to the average score. Further discussion and clarification of the ranked items was held by the facilitator to ensure that all participants had understood the meaning of each research priority. The 30 experts reviewed the rankings and a consensus was reached on the final list of 20 priorities and this was presented in a summary table.

For the Delphi survey a questionnaire was designed which incorporated the list of 20 proposed research priorities. In the first Delphi round the questionnaires were sent to 15 experts in the field of medical education field from EMR countries, contacted through 5 World Health Organization Collaborative Centres in EMR, and also to 32 managers of the education development and research centres at Iranian medical universities. The experts were asked: "What should be the main priorities in medical education research in our countries of the region?" They were asked to rank the list of research priorities from 0 (no priority), 1 (the lowest priority) to 10 (the highest priority). In the second Delphi round the returned questionnaires were analysed and mean

scores were calculated. Respondents whose scores were significantly different from the mean score of the whole group were asked to review their responses and reconsider their answers. Respondents could keep their initial ratings or change them, but they were asked to explain their decision in this regard. Respondents were allowed to mention other research priorities which they believed were important but which were not listed. The data were analysed using *SPSS*, version 14 software. Finally we prepared the final list of 20 areas of research ranked by perceived importance according to these experts.

Results

The literature review showed that from 2001 to 2009 only 22 papers from EMR countries were published in the 3 medical education journals analysed out of a total of 1580 articles published in *Medical Teacher*, 2494 articles in *Academic Medicine* journal and 2407 articles in *Medical Education* journal. A total of 375 abstracts were published in AMEE conference abstract books from EMR countries in the same period. The number of published abstracts from researchers in the 6 EMR countries with the most abstracts is shown in Figure 1. The highest number of published abstracts was from researchers from the Islamic Republic of Iran, peaking in 2005, but declining thereafter. There was a rising trend in abstracts from Pakistan and Saudi Arabia. The next most common contributing countries were United Arab Emirates, Lebanon and Egypt.

The final ranking of each research priority based on mean scores from the expert panels are shown on Table 1. The top 5 priorities identified (mean score ≥ 8.0) were: training physicians to be effective teachers; community-driven models for curriculum development; clinical teaching models; education about professionalism and ethics; and education for evidence-based medicine. In their responses to the open questions the experts were asked to suggest other priorities that were not listed. The most frequently mentioned priorities were: problem-based learning; peer-assisted learning; self-directed learning; and setting minimum standards to develop guidelines for accreditation.

Discussion

The aim of improving medical education is to train physicians to deliver better health care and therefore ultimately to achieve better health and quality of life for the population. Like every other science, improving the quality and vitality of medical education is dependent on applying the best evidence from good quality research in priority areas. Our survey showed that over the 9-year period studied only 22 papers from researchers in EMR countries were published in the 3 leading journals of medical education studied out of the total of 6481 published. The greatest number of published abstracts from AMEE conferences was from the Islamic Republic of Iran, followed by Pakistan and Saudi Arabia. Publishing a dedicated medical education journal in the EMR may act as a stimulus to publication in the region. Another problem the authors observe is that there is little or no collaboration between EMR countries and more developed countries outside the region in joint programmes of medical education research. Crew in 1988 and Bland in 2005

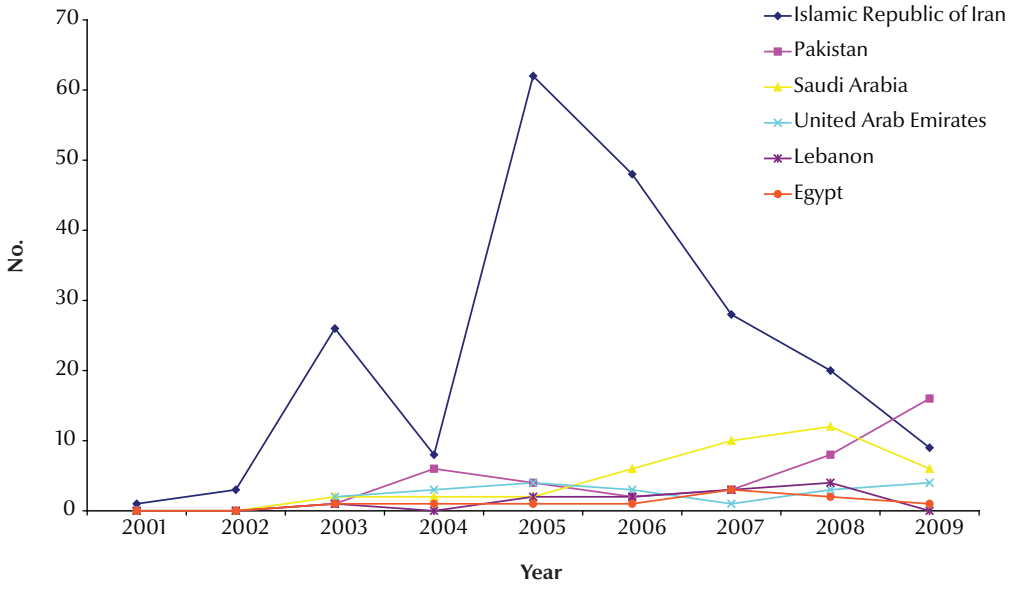

Figure 1 Abstracts published in the abstract books of the Association for Medical Education in Europe conferences from 6 Eastern Mediterranean Region countries (2001–2009)

Table 1 Medical education research priorities as identified by respondents to the questionnaire in the Delphi stage of the survey (*n* = 47)

Rank	Research priorities	Mean score[a] (SD)
1	Training physicians to be effective teachers	8.75 (1.50)
2	Community-driven models for curriculum development	8.50 (1.00)
3	Clinical teaching models	8.17 (1.65)
4	Education about professionalism and ethics	8.12 (2.03)
5	Education for evidence-based medicine	8.00 (1.57)
6	Effective methods of performance assessment	7.94 (1.98)
7	Educational evaluation, audit and accreditation	7.94 (1.68)
8	Education to decrease medical errors	7.89 (1.95)
9	Effective communication skills in teaching	7.80 (1.88)
10	E-learning in medical education	7.67 (1.77)
11	Medical education reform and innovations: facilitators and barriers to innovation and reform	7.63 (1.99)
12	Knowledge management in medical education	7.50 (1.50)
13	Integration of basic and clinical sciences in undergraduate medical training	7.49 (2.29)
14	Use of interdisciplinary approach to learning	7.46 (1.80)
15	Differences in medical education between Eastern Mediterranean countries	7.46 (1.82)
16	Educational management policies	7.37 (1.66)
17	Internet-based education	7.14 (1.91)
18	Resource allocation to medical education research	6.85 (2.06)
19	Economy and productivity in medical education	6.43 (2.25)
20	Cross-cultural education	5.23 (2.82)

[a] *Range 0–10.*
SD = standard deviation.

showed that collaborative activities are one of the most important factors in research productivity [24,25].

The results of the present priority-setting showed that the most important research priority in the region was considered to be "training physicians to be effective teachers". In most of the institutions in the EMR region the faculty members of medical schools and especially those responsible for clinical training of undergraduates are primarily employed in patient care. Having graduated from a well-known institution with a degree in a prestigious discipline, however, does not necessarily indicate a good ability for teaching. In the 1970s the theme "good teacher" referred to a faculty member who could communicate effectively and use various teaching aids [26]. In the 1980s, with a shift to student-centred strategies and self-directed learning, the role of the teacher shifted to a facilitator of student learning [27]. With the advent of outcome-based education and definition of competencies for medical students, 12 roles of the medical teacher, from clinical expert to role model and mentor were defined [28]. In 2001 a 3-circle model defined the criteria for an excellent clinical teacher: performance of task (doing the right thing), approach to task (doing the thing right) and professionalism (the right person doing it) [29]. Research involving the outcome of this process and student learning was included in this priority. By doing research in this field and providing suggestions on planning and implementation of effective faculty development programmes, we hope to provide insights into how effective faculty development activities solve some of the future challenges of medical education in EMR.

The second priority identified was "community-driven models for curriculum development". The gap between curricula designed by professional bodies and the needs of the community leads medical schools to find solutions that are based on the health needs of the community and prepare graduates for working in the community [30,31]. Besides community-oriented medical education, strategies such as socially accountable medical education are important [32]. The mission of every medical school is to educate doctors to meet the population's needs. Therefore, determining the community's needs and integrating these needs into the curriculum and comparing different community-driven models is necessary for each country.

The third priority identified was "clinical teaching models". Teaching in the

clinical environment is a complex and often difficult task. New models of teaching and learning in the clinical environment have been developed, such as general teaching models, the Stanford model, one-minute preceptor and the Dundee model [33]. Understanding these models and determining the best model for clinical teaching in the EMR is an important priority.

The fourth priority was "education about professionalism and ethics", an aspect of medical education that receives increasing emphasis [34]. Both teaching and assessment of ethics and professionalism are important.

The fifth priority was "education for evidence-based medicine". Teaching and learning using evidence-based medicine are hot topics in medical education today [35]. Teaching evidence-based medicine to undergraduate and postgraduate students and determining whether this approach actually changes learners' behaviour and leads to improved patient care is an essential priority in EMR countries.

The sixth priority was "effective methods of performance assessment". In recent years many countries have engaged in the process of performance assessment with the aim of protecting patients and enhancing the clinical performance of physicians [36]. Although a uniform approach to performance assessment in EMR is neither feasible nor desirable, a comparison of current practice in different countries in the region could lead to a better performance assessment process.

In the area of medical education, there are inevitably some similarities and differences in research priorities between countries. In the part of the study concerning open questions we obtained experts' opinion on other priorities that were not mentioned on the original list (drawn up by the consensus panel) but were important from their viewpoint. We found that many of the priorities were the same across countries. The most frequent topics mentioned were problem-based learning; peer-assisted learning; self-directed learning; and setting minimum standards for physicians working in EMR countries for accreditation programmes. We believe that the last topic can be merged with priority number 7 ("educational evaluation, audit and accreditation") and the first 3 priorities can be put under the topic "clinical teaching models" (priority number 3).

In another open question the experts were asked to give their opinions about changes, reform and innovation programmes in medical education research in EMR. They emphasized preparing a critical mass of specialists in medical education research and also stressed the importance of medical education research in universities. One of the experts recommended priority-setting, policy-making, human resource development, governance and knowledge transfer and suggested that research in medical education needs to use the "mission-aligned management and allocation" model. This term refers to a financial management model to assure resource allocation supports core mission-related activities. These include decisions about the sources and amount of funds to be used in the budgeting process and how to use the budget to support strategic priorities and new initiatives [37].

There were some limitations to this research. The study was based on experts' opinion and we could not use a needs assessment method. There were no comprehensive database of financial information, human resources and medical education programmes and research in EMR. The final list and analysis was based on the responses received and does not necessarily represent the opinion of all the experts in this field. It should also be kept in mind that the priorities in any field can change over time but the list of 20 items presented here might help extend the lifespan of this list of priority despite probable changes in the ranking of the items.

Summary & suggestions for future research

Between 2001 and 2009 a relatively small number of research articles about medical education were published in the leading international specialist journals of medical education by researchers in the EMR. It suggests that research in medical education, or at least its dissemination, is not well developed in the countries of EMR. Future research could look at factors that might hamper this important branch of medical research, such as lack of interest, poor knowledge of the areas of concern and the methodology, lack of awareness of its necessity, financial constraints and lack of support by the institutions themselves. Establishing a body to coordinate joint programmes in medical education research in the EMR may facilitate such research.

Although the list of research priorities in the field of medical education research presented here is not claimed to be a complete list, it does provide a useful starting point. Potential researchers need to be made aware of the most important problems in this field, the questions that should be answered and the priorities to be considered. This would help to guide them in choosing appropriate and relevant themes for research with practical and useful outcomes.

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