

# Building Capacity of Evidence-Based Public Health Practice at King Saud University: Perceived Challenges and Opportunities

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## ABSTRACT

**Background:** Implementation of evidence-based public health (EBPH) is lagging behind in Saudi Arabia and the region. Graduate-level public health curriculum at King Saud University, College of Medicine, Riyadh, is designed to equip students to integrate best available evidence in public health decision making.

**Objectives:** The objectives of this study were to explore the viewpoint of the students on the perceived challenges they faced during training and the possible opportunities to improve their learning experience of EBPH.

**Methods:** Eighteen graduate students participated in 3 focus groups that were audio-recorded, transcribed, and de-identified before analysis. Social construction and constructivism lens using thematic analysis were adopted. Saturation was reached when similar responses were recorded.

**Results:** Two themes (challenges and opportunities) and 9 subthemes emerged. The lack of a national health information system, scarcity of research pertinent to the Saudi community, and deficient communication between the postgraduate programs and the Ministry of Health were the main barriers perceived by participants to affect their EBPH training. However, participants perceived opportunities for change through establishment of partnership and communication channels with the Ministry of Health and the Saudi community. In addition, participants considered building community of practice and using social media as a platform for communication between public health professionals and the community at large as a valid opportunity for professional growth and community service.

**Conclusion:** Although systematic training in EBPH through postgraduate programs is effective in providing the future manpower with the needed skill and knowledge to practice EBPH, organizational and cultural barriers remain toward practicing EBPH. Reaching out to those in leadership positions and communicating with other public health professionals may facilitate spreading the culture of EBPH.

**KEY WORDS:** barriers, evidence-based public health, facilitators, implementation

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Evidence-based public health (EBPH) has evolved during the last 2 decades to a model of decision making in public health programs and policies that is based on scientific evidence, available resources, and context.<sup>1</sup> EBPH was defined by Brownson et al as follows: "Implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning including systematic use of data and information systems and appropriate use of program planning models."<sup>2(p87)</sup>

Implementation of EBPH has great potential in strengthening the national health system as it supports effective interventions and programs through access to high-quality information and evidence, leading to efficient use of workforce and resources.<sup>3,4</sup>

Many barriers to the implementation of EBPH have been recognized.<sup>5,6</sup> Personal barriers such as lack of training in EBPH were recognized as obstacles to practice EBPH. However, organizational barriers including insufficient funding for programs, a culture unsupportive of new ideas, and lack of incentives were perceived to be even greater obstacles to the implementation of EBPH.<sup>5,6</sup>

Many countries in the Eastern Mediterranean Region are lagging behind in translation of research evidence into health policy and programs.<sup>7,8</sup> However, a few countries in the region have begun the transition to EBPH in the form of graduate programs in public health that emphasize building skills and knowledge to practice EBPH. An example of such a program is one offered at the Department of Family and Community Medicine at King Saud University (KSU), Riyadh, Saudi Arabia.<sup>9</sup> The details of the program curriculum were recently published.<sup>9</sup>

Most of the students of the graduate programs of public health at KSU joined the programs after being part of the public health workforce at the Saudi Ministry of Health (MOH).<sup>9</sup> When they finish the program, they are expected to rejoin the public health department, or similar departments, in the MOH.<sup>9</sup> Because of this arrangement, they constitute a unique cohort of public health practitioners who have practiced public health in the traditional way and then received systematic training in EBPH.

The objectives of this study were to explore the students' perspective of the educational experience of EBPH with respect to the challenges they faced during training and their opinion for future opportunities to improve their learning experience.

## Methods

### *Ethical consideration*

This research was conducted with the ethical approval from KSU Institutional Review Board. Participants consented to record their interviews, and they had the right to leave the focus group if and when they wished to do that. All views were reported anonymously.

### *Focus groups*

Three focus groups, each of 1-hour duration, were conducted between October and December 2015 at KSU, based on the protocol shown in Supplemental Digital Content Appendix 1 (available at <http://links.lww.com/JPHMP/A651>). The focus groups were conducted in English, as all of the graduate students are required to use the English language during their graduate education at KSU. Participants were recruited

from the master of public health (MPH) program and the Saudi Board of Community Medicine graduate students using the convenience sampling technique. Focus group discussion included (a) participants' views about challenges they faced during their training as EBPH professionals, (b) their views about facilitators, and (c) opportunities for learning and practicing EBPH.

Two researchers (H.W. and N.Z.) facilitated the focus group interviews. The whole sessions were tape-recorded and then transcribed with permission from the participants.

## Analysis

Thematic analysis was conducted using ATLAS.ti (version 7). Social construction and the theoretical lens of constructivism were used to explore how students view and construct the reality of learning EBPH in the university.<sup>10</sup>

The focus group transcriptions were reviewed, and codes were assigned to statements that showed clear concepts. Researchers discussed quotations and agreed on the codes that were created in ATLAS.ti. Data saturation was achieved when the same kind of data were repeated by the participants. The codes were collapsed together to build subthemes. Researchers found relationships among subthemes to group them into 2 themes. A table of frequency of codes (codebook) was used to describe the existence of different codes in the thematic analysis process.

## Results

Six students, 4 females and 2 males, from Saudi Board of Community Medicine participated in the first focus group; 6 MPH program students, 2 females and 4 males, participated in the second focus group; and 6 MPH program students, 3 females and 3 males, participated in the third focus group. The characteristics of the participants are shown in Table 1.

Two themes and 9 subthemes emerged from the focus group data analysis (Table 2): (1) perceived challenges in the education of EBPH; and (2) perceived opportunities for learning and implementing EBPH.

Supplemental Digital Content Appendix 2 (available at <http://links.lww.com/JPHMP/A651>) describes the detailed information about how qualitative data reporting was conducted in this study.<sup>11</sup>

### *Perceived challenges in learning EBPH practice*

1. *Scarcity of public health research pertinent to Saudi society and culture.* Some participants highlighted that the lack of research and data

**TABLE 1**  
**Characteristics of Participants in the Focus Group**

Characteristics	n (%)	Mean ± SD	Range
Age, y		30 ± 3.8	24-36
Gender (male)	9 (50)		
University degree			
Medical doctor	10 (55)		
Nurse	2 (11)		
Clinical dietitian	1 (6)		
Health information manager	2 (11)		
Radiologist	1 (6)		
Dental hygienist	2 (11)		
Sponsoring body for the MPH/SBCM			
Ministry of Health	12 (66)		
University	3 (16)		
Others	3 (16)		
Years since graduation from university		4 ± 2.3	1.5-10
Years of working before joining MPH/SBCM programs		2.6 ± 1.7	0-7
Type of job before joining MPH/SBCM programs			
Clinical staff	5 (27)		
Health informatics specialist	2 (11)		
Ministry staff	8 (45)		
Not worked before	3 (17)		
Expected future position			
Faculty	7 (39)		
Administrative	5 (27)		
Policy maker	3 (17)		
Don't know	3 (17)		

Abbreviations: MPH, master of public health; SBCM, Saudi Board of Community Medicine.

from Saudi Arabia is an impediment to the practice of EBPH.

What is implemented in other countries may not be the right fit to implement in Saudi. We

have to adapt the evidence to our culture and society; how can we do that if we don't have local studies?

2. *Deficient teaching strategy for prioritization of research topic.* Some students believe the program neglects to prioritize research topics toward community health issues, which results in time and resources wasted addressing irrelevant or minor health problems.

In research methodology, we were taught how to conduct literature review, and to identify research gaps in the literature in order to build the research question. However, no one talked about how to assess the problem in our community first. It is ineffective to create an initiative to fill in a research gap without assessing the local need for such an initiative.

3. *Field training is not coordinated with teaching of EBPH.* Participants believe that their practical training (which is conducted as routine daily work in the different departments of the MOH) is irrelevant to the health problems of the community; hence, the community will not benefit from their work while they are in training.

We have a problem with our field training, unlike the clinical training programs; we don't do any work which the community can benefit from. For example, if we concentrate our research on a health problem suggested by the MOH in the community and apply that knowledge during the field training, that would have been beneficial to the community.

4. *Lack of communication between the university and the MOH.* The participants expressed their concerns about the lack of communication between the training programs and the MOH in

**TABLE 2**  
**Theme and Subthemes From the Focus Group Data Analysis**

Themes	Subthemes
Perceived gaps in the education of EBPH	<ul style="list-style-type: none"> <li>• Scarcity of public health research pertinent to the Saudi society and culture</li> <li>• Field training in public health is not coordinated with teaching of EBPH</li> <li>• Lack of communication between the university and the MOH</li> <li>• Lack of practical examples from successful implementation of EBPH</li> </ul>
Perceived facilitators for the implementation of EBPH	<ul style="list-style-type: none"> <li>• Learning experience during training program</li> <li>• Awareness of the importance of EBPH for implementation of effective programs</li> </ul>
Perceived opportunities for learning and applying EBPH	<ul style="list-style-type: none"> <li>• Involve the MOH in the design of the MPH curriculum as a stakeholder to strengthen theoretical and field training of EBPH</li> <li>• Build community of practice for graduates and public health graduate students</li> <li>• Promote research pertinent to local health problems</li> </ul>

Abbreviations: EBPH, evidence-based public health; MOH, Ministry of Health; MPH, master of public health.

relation to the contents and format of the field training.

I think communication is important for overcoming barriers to implementation of evidence-based public health in the field. Most of the work of the MOH depends on experience and not on evidence. The professors in charge of the program should communicate to the MOH how we should be trained.

5. *Lack of practical examples from the successful implementation of EBPH programs.* There were concerns about the lack of practical examples from the implementation of EBPH in real life and when they go for field training.

We said repeatedly that we need to have practical training in an organization which practices evidence-based public health even outside Saudi Arabia. This is important because we have to see how it's done practically so we can make the change when we graduate.

### **Perceived opportunities for learning and implementing EBPH practice**

1. *Awareness of the importance of EBPH for implementation of effective programs.* All students exhibited a positive attitude toward EBPH. They were optimistic about their ability to change the practice of decision making to be evidence-based despite their awareness of the challenges.

I think implementing EBPH is feasible and it will improve the practice of public health but maybe we need to start in small settings.

2. *Promote research pertinent to local health problems.* To promote local research in public health, some participants suggested the establishment of a journal focusing specifically on Saudi public health research that would serve as a platform for the advancement of local research.

If we have a journal for Saudi society of public health, that will encourage people to become involved in research. The point of conducting research is to solve community health problems.... I'm not interested in gaining international acclaim when I have problems here at home that still need to be addressed....

3. *Involve the MOH in the design of the MPH curriculum as a stakeholder to strengthen theoretical and field training of EBPH.* Participants suggested that the Saudi MOH should be considered as a main stakeholder in the graduate programs

of community medicine and public health. The university should stress the importance of practicing EBPH in field and practical training since most of the students' field training is with the MOH.

During the course of health systems and policy we invited one person who's responsible for diabetes control programs at the level of the MOH to show her what we learned during the course. She was very impressed about our search for evidence and our preventive program design and evaluation plan. Unfortunately, that was the only time and the only person who knew how we should do things.

Participants stated that the university should strengthen its relationship with the MOH and provide students with the ability to do research relevant to their training requirements and the need of the MOH through their thesis and graduation.

Our research should address the needs of the MOH, and they should benefit from it and should be able to apply it; otherwise what's the benefit of doing research which is not beneficial to the community.

4. *Building community of practice for graduates and public health graduate students.* The students stated that there is a lack of communication between them at present, which might hinder them from working on a common cause in the future.

Communication between all Saudi Board and MPH students is lacking.

They believe creating such a community will enhance teamwork and facilitate the change toward evidence-based practice similar to their teamwork as students.

Even during our practical work when all groups communicate, we could produce excellent work starting from needs assessment and ending in program evaluation.

Participants explained that having a community of practice would make them be recognized as an instrumental group in decision making.

Having a community of practice will sort out a big problem, because if we, as public health professionals, are recognized, we can make interventions and voice our opinions. We can use the evidence-based knowledge and show it to make change.

In addition, they explained that without a community of practice, other health professionals, and the Saudi community at large may not be able to communicate and reach out to them.

Public health is not just based on individual opinion. It should be like what we're doing now, a team decision to reach a consensus acceptable by all stakeholders. We should have a forum to communicate with senior public health professionals, each other, and the Saudi community. Only then we can make the change toward EBPH.

When asked about how the community of practice will introduce the change, the participants suggested many avenues for their plan of change.

Yeah, it will work, we can have public health conferences and form groups in social media, showing how the evidence-based practice can work, discussing the recent, relevant research and share evidence with others.

## Discussion

Participants in this study stated that they were motivated and qualified to practice EBPH. However, they identified challenges in learning and practicing EBPH mainly due to lack of communication between the graduate program and the MOH, which resulted in deficient field training. In addition, students pointed out that scarcity of research addressing the Saudi community health and lack of data hindered their ability to prioritize health problems and find evidence for effective interventions.

Although these challenges in training constitute a genuine personal barrier to practice and learn EBPH, they also reflect organizational and cultural deficiencies. Lack of national information systems, such as surveillance systems, and the absence of national needs-oriented health research are the main reasons that students face challenges in prioritizing health problems and finding relevant data to support possible interventions. Similar challenges were reported previously from a cohort in Australia, where access to pertinent evidence was recognized as a barrier to the practice of EBPH.<sup>12</sup>

The absence of organizational culture in the MOH that implements EBPH is the main factor behind the participants considering the field training different from what they learned during the program. Similar findings were reported following a training program on EBPH in the United States<sup>12</sup> and Europe.<sup>13</sup> It is evident from previous studies that practicing EBPH is

dependent on social, organizational, and political environments in addition to leadership support.<sup>13</sup>

The participants identified many opportunities for the practice of EBPH including promotion of relevant research, strengthening the relationship between the program and the MOH, and forming a community of practice for public health professionals.

The participants identified an important role for the programs to assume, which is to take the lead in research relevant to the Saudi community health problems. They suggested that the postgraduate programs in public health should adopt a clear strategy of encouraging that student research, including theses, focus on topics related to the public health problems of the Saudi community. Such strategy, especially if the MOH is part of the process, will contribute to providing evidence to address local health problems and highlight the importance of surveillance and registries as important systems for data and evidence provision. In addition, improving communication between university scholars and policy makers is a viable strategy to address many barriers facing EBPH practice such as facilitating personal communication and mutual skill-building.<sup>14</sup>

The participants identified opportunities related to their unique position as the first generation of public health practitioners who have gained systematic training in EBPH in the country. They suggested that building a community of practice may support EBPH through strategies such as collaborative learning<sup>15</sup> and community-based participatory research.<sup>16</sup> Both strategies were effective in improving health workers' performance, health promotion, and chronic disease prevention<sup>17-20</sup> and can be used to endorse EBPH practice.

Social media has been used effectively in facilitating communication, education, and training between clinical health care providers as well as between public health professionals.<sup>21,22</sup> The proper use of such platforms, as suggested by the participants, can overcome isolation and enhance exchange of knowledge including promotion of EBPH practice.

## Strength and Limitations

This study is the first report of perceived challenges and opportunities for the practice of EBPH from the students' perspective in the Middle East. The participants in this study constitute a unique group because they had working experience, followed by systematic education. Therefore, their views about barriers and facilitators are based on both knowledge and experience.

We are aware of the limitations of this study including small sample size and lack of data

## Implications for Policy & Practice

- Postgraduate programs in EBPH are effective in increasing the knowledge and skills of evidence-based decision making in Saudi Arabia.
- Graduates of the EBPH programs should communicate with each other and with other public health professionals and the community to propagate the practice of EBPH using contemporary strategies including social network platforms.
- The structure of the health and information systems is the main obstacle for successful implementation of EBPH as perceived by public health graduate students.

triangulation by using another qualitative method that might include interviews of key personnel such as the professors who teach the graduate courses and representatives from the MOH.

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