

Breast cancer health promotion in Qatar: a survey of community pharmacists' interests and needs

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Received: 15 May 2010 / Accepted: 18 October 2010 / Published online: 4 February 2011
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Abstract *Objectives* Breast cancer is the most common cancer in women in Qatar. Despite the sustained efforts to increase breast cancer public awareness via campaigns and public screening programmes, breast cancer screening rate remains low. The involvement of community pharmacists in the communication and distribution of breast cancer screening information should have a significant positive impact. The objectives of this study were to determine the degree of community pharmacists' involvement in breast cancer health promotion activities in Qatar, to explore their attitudes towards the involvement in breast cancer health promotion, to assess their breast cancer knowledge, to gauge their interest in receiving breast cancer continuous education and to list their perceived barriers for including breast cancer health promotion activities into their daily practice. *Setting* Community pharmacies in Qatar. *Method* The study objectives were addressed in a cross-sectional survey of all community pharmacists in Qatar. *Main outcome measures* The extent of community pharmacists' involvement in breast cancer health promotion activities, the community pharmacists' interest and comfort in providing breast cancer health promotion, their breast cancer knowledge, their interest in receiving breast cancer continuous education, their attitudes and beliefs towards breast cancer health promotion and their perceived barriers for integrating breast cancer health promotion activities into their daily practice. *Results* Over a 12-week period, we collected 195 surveys (60% response rate). Eighty-eight percent indicated that they never invited healthcare professionals to provide breast cancer education in the pharmacy, 78% said that they never distributed breast cancer educational materials, and 58% reported that they

never counseled patients about breast cancer. Nevertheless, more than 60% were highly interested in being engaged in breast cancer health promotion activities. In addition, 87% believed that discussing breast cancer awareness with female patients in the pharmacy was beneficial to patients. Yet pharmacists perceived many barriers for integrating breast cancer health promotion into their daily practice including lack of educational materials (79%) and lack of public recognition (61%). Moreover, their breast cancer knowledge mean score was 63% with 77% expressing a high interest in receiving breast cancer continuous education. *Conclusion* Despite their low involvement in breast cancer health promotion, the majority of pharmacists were interested in educating patients about breast cancer. However, low breast cancer knowledge and other barriers can prevent actualizing this role. Further work should focus on providing these pharmacists with breast cancer continuous education and overcoming all stated barriers.

Keywords Breast cancer · Community pharmacist · Health promotion · Qatar

Impact of findings on practice

- The majority of community pharmacists in Qatar are interested in educating their patients about breast cancer
- Most community pharmacists in Qatar believe that discussing breast cancer awareness with the female patients in the pharmacy is important
- The majority of community pharmacists in Qatar would like to receive breast cancer continuous education
- Most community pharmacists in Qatar do not consider factors such as lack of pharmacy management support,

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lack of interest in breast cancer health promotion, lack of remuneration and risk of offending patients as barriers for providing breast cancer health promotion

Introduction

Globally, breast cancer is by far the most frequent cancer in women (23% of all cancers) and is the leading cause of cancer mortality in that population (14% of deaths caused by cancer in females) [1]. Early screening for breast cancer saves patients' breasts and improves their chances of full recovery [2–6]. Consequently, cancer organizations worldwide have published breast cancer screening guidelines [2]. Despite these guidelines, many patients with breast cancer may still present for the first time at advanced stages of the disease [7]. This indicates the need for increasing the public awareness about breast cancer and the importance of screening and early breast cancer detection.

With advances in education and training, pharmacists have become increasingly interested in broadening their role beyond product-oriented functions of dispensing. They have also started gaining more significant patient care responsibilities. Moreover, the traditional characteristics of community pharmacists such as the presence of their pharmacies in communities of different sizes and locations, their extended working hours, and the free consultations they provide, have made them the most accessible health care providers. Consequently, community pharmacists are placed in an ideal position to provide direct patient care and to improve public health [8]. Many pharmacy organizations support the pharmacists' role in public health. For example, the American Society of Health-System Pharmacists (ASHP) proposes that all pharmacists participate in global, national, regional, and institutional efforts to promote public health [9]. The World Health Organization (WHO) also promotes the involvement of pharmacists in health promotion campaigns to raise awareness on health issues and disease prevention [10].

Health promotion activities cover cardiovascular diseases, diabetes mellitus, cancer and other health conditions [11]. The pharmacists' role in cancer care is emerging. Community pharmacists have the opportunity to advocate, facilitate and provide cancer-related health promotion activities [8]. More specifically, they can play a significant role in increasing breast cancer awareness among women [12–14]. Community pharmacists can advocate the early screening and detection of breast cancer by dropping flyers into prescription bags, giving educational pamphlets at the pharmacy counter, displaying posters and showing videos. They can also review with the patients the content of the

pamphlets and answer any breast cancer question, given that they are well prepared to share accurate information with patients. Pharmacists are placed in an excellent position to facilitate breast cancer promotional activities by inviting other health care professionals to provide these activities in the pharmacy or by referring patients to special breast cancer screening programmes [11]. In addition, pharmacists, themselves, can provide breast cancer individualized counseling or they can organize community-based educational programs.

Qatar is an Arabian Gulf country of approximately 1.4 million residents (2009 estimate) and an area of 11,000 km² [15]. In Qatar, breast cancer is the most common cancer in women (30% of all cancers in women) and its incidence is on the rise with an increase from 170 reported cases in (1991–1996) to 360 reported cases in (2002–2006) [16]. Despite the sustained efforts to increase breast cancer public awareness via campaigns and public screening programmes [17–19], breast cancer screening rate remains low. This suggests a lack of adequate knowledge about the importance of breast cancer early detection among women in this country [20, 21]. Around 320 community pharmacists practice in more than 140 pharmacies in Qatar. The involvement of these pharmacists in the communication and distribution of breast cancer screening information should have a significant positive impact. To our knowledge, there are no published reports examining the practices of community pharmacists in breast cancer health promotion in Qatar. Moreover, information regarding their breast cancer knowledge and their attitudes towards breast cancer health promotion is lacking.

Aim of the study

The specific aims of this study were to determine the degree of community pharmacists' involvement in breast cancer health promotion activities in Qatar, to explore their attitudes towards the involvement in breast cancer health promotion, to assess their breast cancer knowledge, to gauge their interest in receiving breast cancer continuous education and to list their perceived barriers for including breast cancer health promotion activities into their daily practice.

Method

Study design and participants

The study objectives were addressed in a descriptive cross sectional survey of community pharmacists in Qatar. The

eligible participants were all pharmacists practicing in community pharmacies in Qatar.

Assessment tool

The study investigators reviewed the literature and could not identify any existing published and validated surveys that can specifically determine the degree of community pharmacists' involvement in breast cancer health promotion activities or that can explore their attitudes towards the involvement in breast cancer health promotion. As a result, the study survey was designed by the study investigators. The breast cancer's knowledge questions were formulated in reference to the American Cancer Society breast cancer early detection guidelines [22]. The other questions were developed based, in part, upon previous surveys that addressed community pharmacists' role in general cancer awareness, and in skin and prostate cancer health promotion [23–25].

The draft survey was distributed to four faculty members at Qatar University (QU) College of Pharmacy to assess its readability and face validity. It was also pretested among a group of Qatar's community pharmacists for clarity, relevance, acceptability and time to completion. Refinements were made as required before distributing the final survey to the study population.

The final structured survey consisted of 28 closed and open-ended questions that could be completed within 15 minutes. The survey contained items that addressed the community pharmacists' sociodemographic and pharmacy practice characteristics, their current involvement in breast cancer health promotion activities, their interest in providing breast cancer health promotion activities, their breast cancer knowledge, their attitudes and beliefs towards breast cancer health promotion, and their perceived barriers for integrating breast cancer health promotion activities. Sociodemographic and pharmacy practice characteristics included age, gender, basic qualifications, years of experience and other information of relevance (Table 1). Current involvement in breast cancer health promotion activities was assessed by listing 5 breast cancer health promotion-related items (Table 2) and asking respondents to indicate on a 5-point Likert scale (daily, weekly, monthly, every 2 or more months, never) how often they performed each activity. A 5-point Likert scale (very high, high, medium, low and very low) was used to measure respondents' comfort and interest in providing breast cancer health promotion and to gauge their interest in receiving breast cancer continuous education (Figs. 1, 2, 3). Respondents' breast cancer knowledge was evaluated using twelve true or false questions (Table 3). A 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) was used to measure the extent to which

Table 1 Sociodemographic and practice characteristics of participants

Characteristic	Frequency (Percent)
Age (years) (<i>N</i> = 193)	
<30	56 (29)
30–39	99 (51)
40–50	33 (17)
>50	5 (3)
Gender (<i>N</i> = 190)	
Male	123 (65)
Female	67 (35)
Nationality (<i>N</i> = 190)	
Egypt	77 (40)
India	47 (25)
Philippines	27 (14)
Jordan	17 (9)
Other middle Eastern countries	11 (6)
Sudan	9 (5)
Other South Eastern countries	2 (1)
Number of years since pharmacy graduation (<i>N</i> = 191)	
<5	36 (19)
6–10	82 (43)
11–15	33 (17)
16–20	24 (13)
>20	16 (8)
Highest pharmacy degree (<i>N</i> = 188)	
Bachelor of pharmacy	181 (95)
Pharm D	1 (1)
MSc or MPharm	3 (2)
Other	3 (2)
Average number of working hours per week (<i>N</i> = 192)	
<20	1 (1)
20–39	17 (9)
40–59	129 (67)
60–79	40 (21)
>80	5 (2)
Average daily prescription volume in the pharmacy (<i>N</i> = 187)	
<50	64 (34)
50–99	54 (29)
100–199	30 (16)
>200	39 (21)
Average number of adult patients seen in the pharmacy per day (<i>N</i> = 189)	
<20	8 (4)
20–49	46 (24)
50–100	81 (43)
>100	54 (29)
Percentage of female patients seen in the pharmacy per day (<i>N</i> = 188)	
<25%	61 (33)
25–50	77 (41)

Table 1 continued

Characteristic	Frequency (Percent)
51–75	38 (20)
76–100	12 (6)
Average number of pharmacists working in the pharmacy at any one shift (<i>N</i> = 188)	
1	145 (77)
2	35 (19)
>2	8 (4)
Average number of pharmacy technicians working in the pharmacy at any one shift (<i>N</i> = 190)	
None	49 (26)
1	109 (57)
>1	32 (17)

pharmacists agreed with positive statements regarding their role in breast cancer health promotion. The barriers that could prevent community pharmacists from providing breast cancer health promotion were identified by listing 13 possible barriers and asking pharmacists to indicate on a 5-point Likert scale (very high, high, medium, low, and very low) the extent that the listed barriers would impede the integration of breast cancer health promotion into daily practice (Table 4).

Survey implementation

QU College of Pharmacy has developed a database containing the contact information of all Qatar’s practicing pharmacists. This database was derived from several sources including the Supreme Council of Health’s database of pharmacists in Qatar. An initial phone call explaining the study objectives and requesting participation

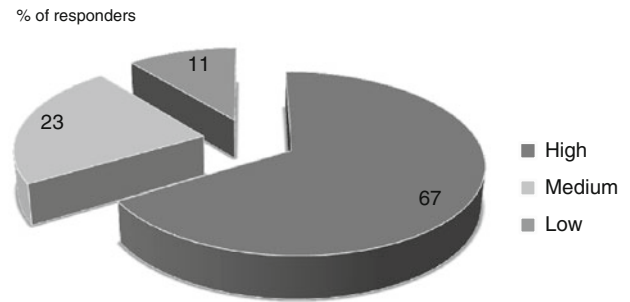


Fig. 1 Interest in providing breast cancer health promotion. *N* = 191 respondents. Responses have been collapsed into a 3-point scale; high, medium and low

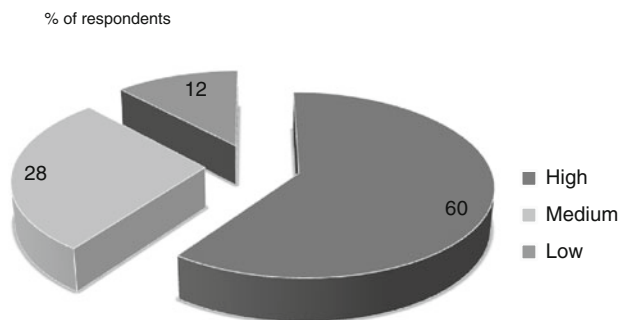


Fig. 2 Comfort in providing breast cancer health promotion. *N* = 189 respondents. Responses have been collapsed into a 3-point scale; high, medium and low

was made to all pharmacists in the database. Consenting pharmacists were given the option to complete the survey

Table 2 Participants’ current involvement in breast cancer health promotion activities

Statement	Frequency (Percent)				
	Daily	Weekly	Monthly	Every 2 or more months	Never
Respond to patient inquiries related to breast cancer warning signs and symptoms and breast cancer early detection and screening tests	1 (1)	10 (5)	15 (8)	54 (29)	107 (57)
Provide patients with advice or counseling on breast cancer screening and early detection	3 (2)	6 (3)	17 (9)	51 (28)	105 (58)
Provide patients with breast cancer educational materials or self assessment quizzes	2 (1)	5 (3)	12 (6)	21 (12)	141 (78)
Invite healthcare professionals to provide breast cancer education to patients in the pharmacy	1 (1)	1 (1)	7 (4)	11 (6)	165 (88)
Refer patients to special breast cancer screening programs organized by hospitals or cancer organizations in Qatar	1 (1)	6 (3)	12 (6)	28 (16)	137 (74)

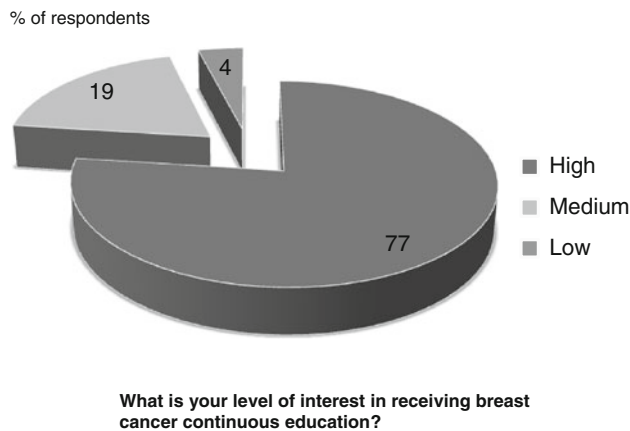


Fig. 3 Interest in receiving breast cancer continuous education. $N = 182$ respondents. Responses have been collapsed into a 3-point scale; high, medium and low

either online, using a user-friendly internet based commercial survey software, or as paper-based in Arabic or in English: Electronic mails (Emails), containing an internet link to the survey, were sent to the participants who wished to complete the survey online. The participants submitted the survey online without recording their identification information. The paper-based survey was faxed to the other participants. After completing the survey, the participants

were asked to fax the survey back to the principal investigator. No identification information regarding the pharmacist or the pharmacy fax number was collected by the investigator.

Two reminders were sent to all community pharmacists via email/fax/telephone to complete the survey.

After 3 months of data collection, the survey was closed and the data was entered into the online survey software.

Data analysis and confidentiality

Online survey data was downloaded to an Excel spreadsheet, and then imported into Statistical Package of Social Sciences (SPSS®) Version 17 for descriptive analysis. Five-point Likert scale responses were collapsed into three general categories (agree, neutral, disagree) and (high, medium and low) to simplify data interpretation. Incomplete surveys were included in the analysis if they contained basic demographic information and partial responses to some of the questions. Accordingly, the number of respondents for each question may vary.

To minimize any potential for bias and to protect the participant's confidentiality, the survey was anonymously completed; no participant or pharmacy identification information was recorded by the investigators.

Table 3 Participants' performance on breast cancer knowledge items

Breast cancer knowledge items	Frequency (Percent)			
	Correct answer	Correct	Incorrect	Did not know
Breast cancer is the most common form of cancer among women	True	172 (93)	5 (3)	8 (4)
Breast cancer should not be of concern for patients younger than 40 years of age	False	115 (64)	61 (34)	4 (25)
Use of hormone replacement therapy is one of the risk factors for developing breast cancer	True	150 (82)	21 (11)	13 (7)
Late onset menstrual period is one of the risk factors for developing breast cancer	False	54 (30)	67 (38)	58 (32)
Nipple discharge can be a warning sign of breast cancer	True	116 (65)	24 (13)	40 (22)
Appropriate early screening for breast cancer reduces breast cancer mortality	True	180 (97)	4 (2)	1 (1)
Breast self-exam is one of the methods that are used to detect the presence of breast cancer	True	175 (96)	3 (2)	4 (2)
To detect the presence of breast cancer, women over the age of 20 and under the age of 40 should do a breast self exam at least once per year	False	55 (30)	118 (64)	11 (6)
To detect the presence of breast cancer, women aged 40 years and above should do a monthly breast self-exam, an annual clinical breast exam and a biannual mammogram	False	35 (19)	132 (72)	16 (9)
Total mastectomy is the surgical option of choice for patients diagnosed with early stage breast cancer	False	73 (40)	77 (43)	31 (17)
Patients with invasive breast cancer that is estrogen receptor positive should receive adjuvant endocrine therapy	True	109 (61)	10 (5)	61 (34)
Tamoxifen is the adjuvant endocrine therapy of choice for premenopausal patients with invasive breast cancer	True	142 (78)	9 (5)	31 (17)

Table 4 Participants' attitudes and beliefs towards breast cancer health promotion

What is your extent of agreement with the following statements about providing breast cancer health promotion in community pharmacies in Qatar?

Statement	Frequency (Percent)		
	Agree	Neutral	Disagree
I should be involved in breast cancer health promotion activities in the pharmacy	143 (76)	33 (17)	12 (7)
Integrating breast cancer health promotion into my daily practice as a community pharmacist is important	131 (73)	43 (24)	6 (3)
I feel confident and prepared to provide breast cancer health promotion	118 (65)	43 (24)	20 (11)
Discussing breast cancer awareness with my female patients in the pharmacy is beneficial and can save their lives	154 (87)	17 (10)	6 (3)
Providing breast cancer counseling to my female patients in the pharmacy is my responsibility as a pharmacist	136 (77)	31 (17)	11 (6)
Distributing breast cancer educational materials is important in the pharmacy	150 (85)	21 (12)	6 (3)
It is important to discuss breast cancer with my female patients to encourage breast cancer early screening and detection	148 (82)	25 (14)	8 (4)
There is enough evidence to suggest that the pharmacist can influence patients to adopt breast cancer screening practices	141 (78)	30 (17)	9 (5)
Inviting healthcare professionals to provide breast cancer education to the female patients in the pharmacy is important	119 (67)	38 (21)	22 (12)
Providing breast cancer counseling to my patients can improve my professional state and increase my professional satisfaction	146 (82)	25 (14)	8 (4)
Providing breast cancer counseling is an effective use of my time	120 (69)	45 (25)	10 (6)
If I have access to patient education materials related to breast cancer I am more likely to provide breast cancer health promotion to my female patients	139 (79)	31 (18)	5 (3)
Patients would like me as a pharmacist to counsel them on breast cancer screening and early detection	81 (46)	67 (37)	30 (17)
Patients appreciate my effort as a pharmacist to counsel them on breast cancer	112 (63)	50 (28)	16 (9)

Responses have been collapsed into a 3-point scale; Neutral implies "neither disagree nor disagree"

Ethical considerations

Participation in the study did not pose any risk to participants and was voluntary. Pharmacists who completed the survey were considered to have given the consent for participation in the study.

Results

Over a 3 month period (from March 15th 2009 to May 15th 2009), we collected 195 surveys. This represented approximately 60% of the population of community pharmacists in Qatar.

Respondent sociodemographic and practice characteristics

The sociodemographic and practice characteristics of participants are summarized in Table 1. Most respondents were male (65%) and were less than 40 years old (80%). The majority of respondents (88%) were from four

countries: Egypt, India, Philippines and Jordan. The average number of working hours in the pharmacy was more than 40 hours weekly for 90% of respondents. Other assessed sociodemographic and practice characteristics that are not shown in Table 1 were: 112 respondents (59%) practiced in chain pharmacies, 39 respondents (21%) worked in independent pharmacies, 164 respondents (85%) worked in community pharmacies located in Doha, the capital of Qatar, and 148 respondents (75%) reported having practiced for at least 2 years in Qatar.

Current involvement in breast cancer health promotion activities

Community pharmacists' current involvement in breast cancer health promotion is summarized in Table 2. More than 70% of respondents reported that they never provided patients with breast cancer educational materials or self assessment quizzes, that they never invited healthcare professionals to provide breast cancer education in the pharmacy and that they never referred patients to breast cancer screening programs.

Table 5 Participants' perceived barriers for integrating breast cancer health promotion

Barrier	Prohibits		
	Frequency (Percent)		
	High extent	Medium extent	Low extent
There are not enough personnel	103 (59)	35 (19)	38 (22)
I do not have enough time	92 (51)	50 (28)	37 (21)
I do not have enough space	69 (40)	51 (30)	52 (30)
I do not have breast cancer educational materials	141 (79)	18 (10)	20 (11)
Providing breast cancer health promotion does not interest me	11 (6)	33 (19)	133 (75)
As a pharmacist, I am not supposed to provide breast cancer health promotion	14 (8)	38 (22)	123 (70)
The pharmacy manager does not support my role as a breast cancer health promoter	41 (23)	50 (29)	85 (48)
I do not have adequate knowledge or skills in this area	64 (36)	66 (37)	49 (27)
Patients do not ask for breast cancer health promotion	109 (61)	38 (21)	32 (18)
Patients do not appreciate the pharmacist 's role as a breast cancer health promoter	49 (28)	66 (37)	62 (35)
Patients will be offended if I offer them breast cancer counseling	51 (29)	66 (37)	60 (34)
I am not reimbursed for providing breast cancer health promotion	33 (19)	53 (31)	84 (50)
My cultural and/or religious beliefs prevent me from providing breast cancer health promotion	14 (8)	28 (16)	134 (76)

Responses have been collapsed into a 3-point scale; high, medium and low

Interest and comfort in providing breast cancer health promotion

Figures 1 and 2 show community pharmacists' interest and comfort in providing breast cancer health promotion. One hundred twenty nine respondents (67%) reported that they were highly interested in being engaged in breast cancer health promotion activities and 114 respondents (60%) indicated that they were highly comfortable in playing this role.

Breast cancer knowledge level and interest in receiving breast cancer continuous education

Breast cancer knowledge was evaluated using twelve true or false breast cancer related questions. Participants' performance on each of the questions is presented in Table 3. Eighty-eight respondents (48%) scored less than 60% and only 21 respondents (11%) scored more than 80%. The mean percent score was $63 \pm 15\%$. Scores were particularly low for the questions related to breast cancer risk factors and screening recommendations. Figure 3 shows community pharmacists' interest in receiving breast cancer continuous education. One hundred and forty respondents (77%) expressed high interest in receiving breast cancer continuous education.

Attitudes and beliefs towards breast cancer health promotion

Table 4 shows the extent of agreement with positive statements regarding the pharmacist's role in breast cancer

health promotion. The community pharmacists' views were overwhelmingly in favor of breast cancer education. Most respondents believed that discussing breast cancer awareness with female patients was important and beneficial to patients. They further felt that it was the pharmacist's responsibility to embark in breast cancer education and awareness activities.

Perceived barriers for integrating breast cancer health promotion activities

Table 5 shows community pharmacists' perceived barriers for providing breast cancer health promotion. Highly perceived barriers included lack of breast cancer educational materials (79% of respondents), lack of personnel (59%), lack of public recognition of this pharmacist's role (61%) and lack of time (51%).

Discussion

This is the first study, to our knowledge, to be conducted in Qatar, and probably in the Middle East, to describe the community pharmacists' practices and attitudes regarding breast cancer health promotion.

The study results showed poor involvement of Qatar's community pharmacists in breast cancer health promotion. This may indicate a lack of patient's awareness of the type of information and services that pharmacists are capable of providing, inadequate pharmacists' knowledge and abilities, in addition to the possibility that the patient may access such health information from sources other than

pharmacists, and may be reluctant to discuss it with a pharmacist. These findings should be viewed in light of current pharmacy practice in Qatar. The pace of improvement in community pharmacy practice in Qatar, as other Middle Eastern countries, is slow. Except for very few cognitive and patient oriented activities performed, community pharmacists' job is limited to medication dispensing [26]. This is attributable to many factors including the unavailability of a pharmacists' national organization committed to advancing the pharmacy profession and supporting the professional development of pharmacists.

Despite their low involvement in breast cancer health promotion activities, the majority of pharmacists were willing to be involved in educating their patients about breast cancer and viewed breast cancer health promotion as their responsibility. Furthermore, they did not associate detrimental factors such as lack of management support, lack of interest in breast cancer health promotion, lack of remuneration and risk of offending patients with their inability to offer breast cancer health promotion. These results are not unexpected for Qatar's community pharmacists. Community pharmacists in Qatar are increasingly interested in having a well-recognized role in today's health care system and in moving their focus from pharmaceutical products to patients. More than 80% of pharmacists in our study agreed that providing breast cancer counseling improved their professional portfolios and satisfaction. This goes in line with the findings of a recent survey conducted by QU College of Pharmacy to assess the professional satisfaction of Qatar's pharmacists. In this survey, when asked about their level of professional satisfaction, 40% of community pharmacists reported that they are professionally dissatisfied and suggested that improving their professional role would increase their satisfaction (El Hajj M, Zaidan M, Kheir N, Jewesson PJ. Pharmacist Characteristics, Medication Use Perceptions and Professional Satisfaction: A First National Survey in the State of Qatar submitted for publication).

These results are of high significance considering the goal to increase breast cancer awareness in Qatar. Healthcare providers are not easily accessible so as to obtain information on the early detection and screening of breast cancer. Apart from sporadic community outreach programs and media alerts on breast cancer, individuals often have to actively seek breast cancer related information. On the other hand, there are around 320 community pharmacists practicing in diverse communities in Qatar. Community pharmacists are well suited to help patients take informed decisions about their health. This is due to their easy accessibility and frequent contact with the patients and the general population [27]. However a good question to ask is, "are Qatar's pharmacists sufficiently

prepared to take the role of breast cancer health promoters?". Although the majority of the pharmacists, surveyed in our study, indicated that they were comfortable in providing breast cancer health promotion to female patients, their mean breast cancer knowledge score was 63% with 48% of pharmacists scoring less than 60%. This low breast cancer knowledge may be due to many factors. The first factor is that these pharmacists are coming from different pharmacy curriculums. These curriculums may not sufficiently prepare the graduates to take on the role of public health educators. Another factor is that continuous pharmacy education was never offered to Qatar's community pharmacists until QU College of Pharmacy established the first national continuing professional pharmacy development (CPPD) program in 2008.

Education and training are essential for community pharmacists to provide any health promotion activity [28, 29]. Most pharmacists in our study expressed interest in receiving additional breast cancer education. Accordingly, QU College of Pharmacy CPPD program added breast cancer continuous education workshops to its calendar of events.

Lack of time and personnel were other perceived barriers for providing breast cancer education. Lack of time is an obstacle that stands against the provision of cognitive services by pharmacists worldwide [30–35]. Only 17% of pharmacists in our study stated that more than one pharmacy technician was available on duty in the pharmacy at any particular shift. Thus, for pharmacists to adequately provide breast cancer information to patients, without significant disruption to their daily activities, more pharmacy technicians need to be hired and better delineation should exist between the role of pharmacy technicians and that of pharmacists in this country. If pharmacists are less involved in medication dispensing, they will have more time to spend in patient oriented activities [36].

Lack of patients' demand for pharmacist provided breast cancer health promotion was another perceived barrier. This barrier can be bypassed by educating the public about the pharmacist's role in health promotion and encouraging Qatar's pharmacists to promote their abilities in this area. However, Qatar's pharmacists need first to be prepared and trained to play this new role.

Lack of breast cancer educational materials was also reported as a barrier. To overcome this barrier, efforts should be exerted to encourage national cancer organizations in Qatar to supply community pharmacies with breast cancer educational materials for public distribution.

In addition to overcoming all perceived barriers, attention should be given to the education of undergraduate pharmacy students to ensure that they are well prepared for breast cancer health promotion.

Limitations

We acknowledge that our study has its limitations. As this was a self-reported survey, the responses may have contained some data inaccuracies resulting from intentional deception, poor recall of information, or misunderstanding of the question and may be biased by an inclination to provide social desirable responses and acquiescence. Another limitation is that the survey reliability was not tested among the population of Qatar's community pharmacists. In addition, the survey was only completed by 60% of community pharmacists in Qatar. Thus generalization of the study results to all Qatar's pharmacists should be made carefully.

Conclusion

This study represents the first attempt to assess the current breast cancer health promotion practices of community pharmacists in Qatar. Although the results indicated that most pharmacists were not involved in any breast cancer health promotion, the majority were interested in educating patients about breast cancer. However, low breast cancer knowledge in addition to other identified barriers can prevent actualizing pharmacist's role in breast cancer education. Therefore, further work should focus on providing these pharmacists with high quality breast cancer continuous education and overcoming all identified barriers, as pharmacists are well situated to make an important contribution to breast cancer education in this country.

Acknowledgments The authors wish to thank the pharmacists who completed and returned the questionnaire. They would also wish to thank Dr. Ahmad Nadir Kheir for revising this manuscript.

Funding This publication was made possible by a grant from the Qatar National Research Fund under its Undergraduate Research Experience Program.

Conflicts of interest The authors of this manuscript have no conflicts of interest to declare. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the Qatar National Research Fund.

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