Barriers and Facilitators to Performing Breast Self-Examination in Oman: A Qualitative Study on Perceptions from HealthCare Workers in Primary Care

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Abstract

Objectives: Given the increased prevalence of Breast cancer (BC), understanding reasons for performing/not-performing Breast Self-Examination (BSE) is crucial to promote self-care. This study explored the perceptions of healthcare workers about barriers and facilitators to performing BSE in Oman, and identify interventions to promote BSE practice.

Methods: A qualitative study using four focus group discussions were conducted with 30 healthcare workers (nurses, doctors, administrators, radiographers) in primary care centers in Muscat. Discussions were audio-recorded, transcribed and analyzed thematically guided by constructs from the Health Belief Model.

Results: Healthcare workers' perceptions on barriers to performing BSE were based on reflections on their own practices and observations from patients. Barriers to BSE included lack of knowledge of proper BSE techniques (self-efficacy), limited access to information and effective recommendations (cues to action), socio-cultural stigmas and fear (perceived barriers), and low motivation. Facilitators involved higher education and exposure to breast cancer (perceived susceptibility), peer and family support, and positive healthcare experiences (perceived benefits). Religious beliefs showed dual roles, acting both as fatalistic barriers and as motivators for self-care. Participants expressed uncertainty about the effectiveness of BSE alongside other screening methods but agreed on its role in early detection and monitoring disease progression. Promoting BSE practice requires introduction of BSE in educational curricula and clinical settings, engaging communities, and conducting public health awareness campaigns.

Conclusion: BSE is an effective tool for detecting breast abnormalities. Enhanced efforts are needed to integrate BSE education and practice across academic institutions, workplaces, healthcare facilities and overall, across community services.

Keywords: Breast self-examination; Breast Cancer, primary healthcare; barriers; facilitators; health promotion; Oman

Introduction

Breast cancer (BC) remains a significant global health concern, being the second leading cause of mortality among women worldwide.[1] In 2020, the World Health Organization (WHO) reported 2.3 million new BC diagnoses and 685,000 deaths globally, highlighting its continued prevalence.[2] In 2012, the Global Cancer Project reported that BC was the most common cancer in women, accounting for 25.1% of all cancers. Additionally, the incidence of BC was higher in developed countries, while the mortality rate was higher in less developed countries.[3] By the end of 2020, 7.8 million women diagnosed with BC within the preceding five years were alive, making BC the most prevalent cancer worldwide.[2]

Established risk factors include family history, obesity, smoking, inactivity, hormonal replacement therapy, and early menstruation can cause BC.[4] These factors contribute to the high incidence of BC, as exemplified by the United States, where approximately one in eight women are diagnosed with BC [5]. In Africa, BC affects 1.16 per 1,000 women annually,[6] while incidence rates vary across Asia, with 52/100,000 women in Japan and South Korea, and 34.86/100,000 affected.[7] In the Middle East, incidence rates are also notable, with 21.3 /100,000 women in Jordan, 21.4/ 100,000 women in Iran, and 24.1/100,000 women in Turkey diagnosed. Among Gulf countries, Qatar had the highest incidence of BC after Bahrain and Kuwait.[8,9]

Younger women in many Arabic-speaking countries are often diagnosed with BC and at advanced stages.[10] In Oman, late-stage diagnoses are prevalent, leading to poorer prognoses. Despite breast-conserving surgery and chemotherapy, the 5-year survival rate in Oman remains at 64%, which is lower in comparison to other countries.[11] The American Cancer Society has reported a 93-100% survival rate for BC detected early, while this rate drops to 22–72% for advanced stage BC.[7] Hence, screening methods like mammograms, clinical breast examinations, and breast self-examinations (BSE) are fundamental.

Monthly BSE is a non-invasive, safe, affordable, and easily performed method to detect any abnormal changes in the breast.[12–14] The American Cancer Society recommends that initiating BSE from the age of 20 to detect breast abnormalities.[15] Regular BSE enhances familiarity with normal breast structures and aids in the early identification of anomalies, allowing timely reporting to healthcare services.[12,15] However, an analysis of 16 studies with 5,743 participants showed low BSE uptake, with prevalence ranging from 0% to 26.4%.[13] Given the positive correlation between BSE performance and BC diagnosis,[16] and the challenge of inadequate or absent BSE practices,[7] promoting BSE is vital for early BC detection and management, particularly in the context of limited BC knowledge.[17]

Despite its importance, some obstacles hinder women from performing BSE.[18] Literature identifies lack of privacy, fear of BC diagnosis, and embarrassment as barriers to BSE.[10] Studies in the Middle East report that a lack of knowledge and absence of symptoms affect BSE performance.[17] Cultural barriers also affected BC diagnosis in older Chinese-American women, with cultural factors influencing cancer screening behaviors.[19] Additionally, Vietnamese women with low health literacy were less likely to regularly perform BSE.[20]

In Oman, the overall knowledge of BC risk factors, symptoms, and screening methods, including BSE, was low among female Omani teachers with a lack of awareness and knowledge of BC symptoms among Omani women in general.[11,21] While studies have examined BSE practices globally, there is a lack of understanding of the specific barriers and facilitators within the Omani primary healthcare context. Therefore, given the increased BC prevalence and limited BC knowledge among young Omani women, understanding reasons for performing/not-performing BSE is crucial to enhance awareness and promote self-care and preventive practices. This study aimed to explore the barriers and facilitators to performing BSE in Oman using a qualitative approach, specifically focusing on the perceptions of healthcare workers in primary healthcare settings. Perceptions included reflections on their own practices and observations from patients. Additionally, the study sought to identify views on interventions to promote BSE.

Methods

This was a qualitative research study based on an interpretative phenomenological analysis (IPA) method of understanding a group's perception of a particular topic using purposeful sampling.[22] IPA was initially chosen because of its emphasis on lived experience and to inform the interpretive orientation. However, upon reflection, thematic analysis was utilized in the analytic process. Additionally, the study followed the Standards for Reporting Qualitative Research (SRQR).[23] Focus group discussions (FGDs) were chosen over in-depth interviews, because the research team was in favor of the dynamic group interactions within the FGDs and variable insights across disciplines particularly with sensitive topics, such as BC.

A semi-structured topic guide (Table 1) containing prompt questions was used to elicit participants' perceptions on barriers and facilitators to performing BSE in Oman. The guide was structured to address the objectives of this study. The questions in the guide were designed to address the gap in knowledge about BSE practice particularly in Arabic-speaking countries namely Oman. Additionally, the Theory of Planned Behavior (TPB) was utilized to guide the constructs of the topic guide.[24]

The research team was comprised of senior nurses, and a doctor with expertise in primary healthcare, public health, and qualitative research methodologies. The final version of the manuscript was carefully reviewed and approved by a Consultant Health Psychologist (MM).

Participants were recruited from primary healthcare facilities in the Directorate General of Health Services in Muscat region where early awareness and referrals happen collaboratively. Participants were healthcare workers with at least two years of work experience in primary care. Healthcare workers were frontline providers and play a major role in patient education and thus understanding their perceptions is critical for designing effective interventions. To ensure sufficient diversity of opinion, heterogeneous healthcare workers from different disciplines (nurses, pharmacists, health administrators and general practitioners) were invited to participate. Participants were invited through primary care managers through purposeful sampling, ensuring variation in profession and years of experience. The aim was to recruit between six and ten participants per FGD. Potential participants were approached and invited through phone calls by the director of nursing (LA, AA, MM and HA), who provided information about the aims, expected outcomes, and proposed date and venue of the FGDs. Although Arabic was the mother tongue for all participants, the interviews were conducted in English, the common working language in Oman's health sector.

Table 1: Topic Guide Questions.

	Questions
Opening	1. Are you performing breast self-examination? Why? 2. Can you explain your role in promoting breast self-examination? 3. What activities/functions are you taking to perform BSE?
Transition	1. What are your thoughts regarding the promotion of BSE in PHC and the community?
	1. What are the barriers to BSE? 2. What are the facilitators to BSE? 3. What are your perceptions around? ● Susceptibility (the risk or chances of contracting BC) ● Severity (the seriousness of the consequences of BC) ● Benefits (effectiveness of BSE as a self-screening tool for BC) ● Barriers to BSE (reasons for not performing or recommending BSE)

	● Cues to action (readiness to make a positive change and willingness to perform BSE) ● Self-efficacy (confidence in performing BSE) 4. What is the role of primary healthcare in BSE?
Ending	Is there anything else you would like to add?

The topic guide was reviewed by the research team and pilot-tested in a mixed group of health workers. Changes were made to ensure common understanding and effective dynamic discussions.

The Health Belief Model (HBM) was used to guide the discussions as well as the analysis of the generated data. The constructs in the current HBM include: perceived susceptibility (refers to perceptions of the risk of contracting a health condition), perceived severity (perceptions of the seriousness of the consequences of contracting a disease), perceived benefit (beliefs in the efficacy of the advised action to reduce risk), perceived barriers (factors hindering the application of the advised action), cues to action (strategies to activate "readiness" for taking an action), and self-efficacy (confidence in the ability to take action).[25]

Data collection activities were facilitated by the research team (TA, LA, AA, and HA) from December 2024 to January 2025. Four FGDs were conducted with an average duration of 45 minutes (range: 60–90 min). Participants provided their demographic information at the start of each FGD. Recruitment and FGDs continued until saturation were reached (themes repeated, no new ideas emerging by the 4th FGD). The conversations were audio recorded and then literally transcribed. Transcripts were verified against audio recordings for accuracy.

The study ensured rigor by addressing transferability, credibility, dependability, and reflexivity. Transferability was supported through detailed context and background so findings could apply elsewhere. Credibility came from careful participant recruitment and thorough data review. Dependability was maintained by clearly describing the methods for future tracking.[26,27] Reflexivity involved researchers reflecting on their biases and confirming findings with participants.[28] Additionally, it should be noted that no members of the research team had direct administrative or supervisory authority over the study participants.

Thematic analysis, guided by constructs from the HBM, included data familiarization; code generation; theme searching; reviewing; theme identification; and finding summarization.[29] TA reviewed the transcript files and developed the original coding structure. Initial codes were assigned by AA, MA which were reviewed by AP and TA. To ensure coherence of the themes, HA, AP, and TA deductively coded all data in respect to the domains of the interview guide and were thus familiar with the data. Discrepancies were resolved through discussion with MA, AP, and AH. All authors reviewed the results and approved the final report.

Results

All participants (n= 30) were females with ages ranging from 28 to 48 years. Years of work experience ranged from 9 to 13 years. Majority (n=17) were nurses followed by doctors (n=6), administrators (n=5), a dietician and a radiographer. Despite demonstrating adequate knowledge of BSE, and acknowledging its benefits, only two participants declared being consistent and regular in performing monthly BSE. However, all participants stated they were recommended BSE practice for early detection of breast abnormalities.

Table 2: The demographic characteristics of the participants

	FGD1 (n=6)	**FGD2 (n=7)**	**FGD3 (n=7)**	**FGD4 (n=10)**
Mean age (SD)	43 ± 2	45 ± 2	40 ± 2	28 ± 4
Mean number of years of work experience (SD)	10 ± 4	13 ± 3	9 ± 5	12 ± 4
Work responsibilities	4	5	5	3
Nurses (N)	2	1	0	2
Administrators (A)	0	1	0	5

Doctors (D)	0	0	1	0
Radiographer (R)	0	0	1	0
Dietician (Dt)				

Common themes identified from the participants of the four FGDs regarding barriers to BSE included: a) lack of knowledge about proper BSE techniques, b) limited access to information, c) limited recommendations for BSE by healthcare providers, c) socio-cultural factors, and e) lack of motivation. Participants expressed uncertainty about BSE techniques and requested that more training should be provided in different languages to accommodate diverse backgrounds (non-native speakers). Other barriers to performing BSE included excuse making, fear of finding a mass, and low prioritization of BSE.

Lack of knowledge about proper BSE techniques

"I hear about it, but don't know how to do it properly" N3FGD1

"No one taught us exactly how to do it. I mean to perform it correctly" R1FGD3

"Even if we read about it, we are still not confident about performing the self-examination" DtFGD3

"Breast masses may not be harmful" N1FGD3

Limited access to information

"I don't know where to go to ask for proper training" A1FGD1

"Language barriers especially for foreigners or non-Arabic speakers" D3FGD4

Limited recommendations for BSE in primary healthcare

"Healthcare providers are not recommending BSE" A2FGD4

"They are too busy in the health centers they don't have time to talk about BSE" N1FGD3

Socio-cultural related factors

"Women maybe stigmatized following the diagnosis" N4FGD1

"Discussing or examining the breasts can be embarrassing and shameful" R1FGD3

"Finding a mass is scary" N3FGD2

"I have no time, as all I think about is my family" DtFGD3

Lack of motivation

"Honestly, many times I forget to do it" D2FGD4

"I don't have time, busy all the time" N3FGD2

"Some women don't see it as a priority, they have other family responsibilities" N4FGD2

Facilitators to performing BSE

Several facilitators for performing BSE were identified as themes within the FGDs. Participants emphasized the positive effect of higher education, exposure to BSE or family history of BC, and peer support. Good experiences with primary healthcare were viewed as important to promote BSE practice.

High levels of education

"I believe highly educated women especially those who are exposed to health issues have a tendency to be more committed to BSE" N3FGD4

"When I speak about BSE, those who are educated understand better" N5FGD2

Family history or exposure or previous history

"Women with family history of BC are more aware and committed to BSE" N2FGD3

"I trust that women who have gone through any type of cancer would take BSE seriously" D1FGD2

Peer support

"Having a close friend who performs BSE helps" A1FGD4

"Role of an educated spouse is important" N1FGD4

Good experience in primary care

"Women who are welcomed in the primary care health center by nurses and BSE is offered to them tend to do it at home" N2FGD2

"During my postnatal clinic I was examined and asked by the nurse in the health center to perform BSE" DtFGD3

"In my visit to the diabetic clinic, the doctor once examined me and asked me to do it regularly" R1FGD3

Controversial factors around performing BSE

Views on religion and recommending BSE in clinical settings were controversial. Religion itself acted as both a barrier and facilitator to performing BSE. Some participants reported possible fatalistic beliefs "Qadar in Arabic" which is laying everything in the hand of God without pursuing preventative actions. Others, (the majority) believed that religion is a strong incentive to encourage self-care including BSE.

"Some women believe that God would help them in going through the treatment and in recovering if they are ever diagnosed with cancer" N3FGD4

"It is Gods' will and responsibility to take care of women with cancer. We don't have to worry it's the Qadar in Arabic" A1FGD4

> "Our religion asks us to take care of our body and for this BSE is mandatory" D1FGD4

Participants raised concerns that despite working in the medical field, healthcare workers may not be committed to perform BSE for themselves or to recommend it within their routine practice in clinical settings. This hesitancy was linked to lack of solid evidence on the effectiveness of BSE on health outcomes and the presence of other screening tools (mammography and clinical examinations). However, all participants agreed on the importance of maintaining healthy practices such as BSE to early detect breast abnormalities and follow up post- breast disease management plans.

> "We as healthcare workers are aware of the importance of BSE but not sure if we are committed to do it or to teach it" N3FGD3

> Despite knowledge of the importance of BSE, healthcare workers may rely on other existing screening tools" N3FGD1

> "If mammograms are available, I don't think we need to make BSE mandatory" D2FGD4

Perceptions on effective interventions to encourage BSE

Many participants recommended integrating BSE education into schools and university curricula, so young women can learn about BSE from an early age. They also believed that healthcare workers should lead by example and that there is a need for guidelines to ensure HCPs recommend BSE when appropriate. Furthermore, there was a strong opinion that local communities and public health campaigns should be involved to make BSE a widely understood and practiced health behavior.

> "There has to be early BSE education in schools and universities" N3FGD3

> "Empowering healthcare providers to recommend BSE in their clinics" R1FGD3

> "Conduct community awareness campaigns for BSE" N3FGD1

Discussion

The identified barriers and facilitators to performing BSE reported by healthcare workers in primary care align to those reported in different studies and across different cultures.[30–32] Within many Arab Muslim contexts, the lack of accessible valid and multi-lingual educational resources contributed significantly to the poor practice of BSE. Many women may not receive adequate information about breast cancer risks, prevention strategies or adequate techniques for self-examination.[33,34]

Research has indicated that the social constructions of femininity often discouraged open discussions with respect to breast health.[35] Women may experience discomfort in the search for information or health assistance due to the perception that breast related issues may be inappropriate or shameful. This highlights a substantial barrier to participate in BSE practices especially if BSE is not within routine recommendations in healthcare clinical settings.[36,37] The socio-cultural and health system related constraints not only prevent people from discussing their breast health issues and seeking information, but also prevents them from participating in regular BSE. This cultural hesitation can lead to a later diagnosis and poorer results for women living with BC.

Conversely, social/peer support emerged as critical facilitators of health behaviors related to BSE. Our study results reflect, evidence from current literature which indicates that marital and family support positively influences women's decision to perform BSE and other screening practices.[38] Religion perspectives varied as some reported the

commitment to protect the body from harm therefore encouraging BSE whilst others reported a more fatalistic view that God would take care of BC. Interventions are needed that focus on changing health behaviors promoting a proactive approach to health enabling women, encouraging them to actively participate in their healthcare.[39,40]

Unfortunately, there appears to be a gap in the practice of BSE among healthcare workers, both in their own routines and in recommendations to patients. This is a missed opportunity, particularly as many healthcare workers are women who could effectively model and advocate for BSE. By promoting this simple and affordable method, healthcare workers can significantly contribute to the early detection of breast abnormalities.[41]

Irrespective of the controversies around the practice of BSE,[42] women need to be educated and encouraged to identify any breast changes. The concept of breast awareness is paramount in the early detection of breast cancer and should be part of general breast health education.[43,44]

This study's application of the HBM helps further understand perceived barriers among participants and suggests ways to empower healthcare workers to perform and recommend BSE in clinical settings. Addressing perceived barriers necessitates building confidence to make BSE part of routine clinical practice.[45] Current systematic reviews demonstrate that culturally sensitive educational workshops, tailored to the unique needs of women, significantly enhance knowledge regarding the importance of BSE and screening practices.[46,47] Thus, as recommended in the current study, integrating breast health education in community-centered initiatives, addressing socio-cultural beliefs and encouraging BSE practices within clinical settings can lead to early detection of breast abnormalities.

Despite the strengths in the comprehensive multi-disciplinary discussions on BSE in this study, this qualitative approach lacks insights from patients and non-medical individuals. Future research could focus on women from diverse backgrounds and experiences, beyond just health workers.

Conclusion

This qualitative study reveals that despite adequate awareness of BSE's importance, primary healthcare workers in Oman face multiple barriers including knowledge gaps in BSE technique, socio-cultural stigmas, limited healthcare-promoted recommendations, and ambivalent religious beliefs, which reduce consistent BSE practice. Facilitators such as educational attainment, family and peer support, and positive healthcare experiences provide key entry points for interventions. The application of the Health Belief Model elucidated how perceptions of susceptibility, severity, benefits, and barriers influence behaviors around BSE. Comprehensive strategies that embed culturally sensitive BSE education in schools and universities, develop clear clinical guidelines empowering healthcare workers to recommend BSE confidently, and launch community-based awareness campaigns are urgently needed. These initiatives can foster a culture of breast health awareness, enhance self-care practices, and contribute to earlier breast cancer detection and improved health outcomes in Oman.

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