Author's response to reviews

Title: Knowledge, Attitudes, and Practices Related to Breast Cancer Screening Among Female Health Care Professionals: A Cross-sectional survey

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Editor in Chief
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Dear Editor-in-Chief

Thank you for the promising comments regarding our manuscript. The manuscript has been further modified for its content and meaning. The amendments have been incorporated in the manuscript text.

Answers to Reviewers:

ABSTRACT

"A total of 395 participants were included in the final analysis." This sounds like many participants dropped out or had to be excluded, which I do not think was the case. Mention the total N: N=395 participated in this study. If a significant number of people dropped out or had to be excluded, mention this. This has been modified as per your advice.

BACKGROUND

KSA: introduce acronym the first time it's used in the running text (besides the abstract)
It should also be: the KSA
This has been changed as per your suggestion.

Increasing numbers (incidence rates): These are only interesting if reported per 100,000 inhabitants or something alike. Otherwise, the relative increase cannot be interpreted
This has been changed as per your correction.

"Although in recent international guidelines, which focus on developed countries, the timeframes for screening have been questioned, this may not apply to the developing countries including Saudi Arabia where the awareness is very low and patients routinely present at advanced stage of breast cancer (8,9)." I am not sure whether I understand this remark. The international debate concerning the age thresholds for mammography screening concerns the question from what age onward screening is efficacious - from a medical perspective. I do not believe a distinction should be made here between developing and developed countries. After all, low awareness of screening among the target population does not imply that the thresholds for inclusion in screening programs should be widened.

We agree with you regarding this debate. Following your advice, we have added the following to shed light on this.
“Breast cancers in women from Arab populations have different characteristics and affected patients are at least a decade younger. Hence, the of Ministry of health in KSA guidelines in contrast to international guidelines recommend the use of screening strategies with mammography for the detection of breast cancer in women aged 40–49 years every 1 to 2 years. The indication that higher benefit on breast cancer mortality justifies a recommendation in favor of implementing breast cancer screening using mammography in this age group in this population”.
Based on local cancer registry data, the incidence of breast cancer in the KSA for this age group is similar to the ones reported in the literature in other countries. Hence the Ministry suggests screening with mammography in women aged 50–69 years every 2 years and no screening with mammography for women aged 70–74 years, however, a nationalized large scale screening program is yet to take off (10).

The debate about the screening age thresholds should be mentioned.
The debate including considerations for KSA has been mentioned as per your recommendation.

How do you determine what is "good" vs. "fair" vs. "poor" knowledge? (links to conceptual/theoretical frame as well as to the instrument development)
Thank you for raising this point.
In order to explain this, a detailed description has been added on page 11 line 190:
The knowledge score achieved in this study is very low; the median score of (range)=1(0-5). When ranked in order, the 75th percentile is =5 (it means knowledge of only 5 items on the scale). Therefore, in this study, we considered a score of (5-14) as fair and a score of (>=15) as good (OR a score of >=5 as "fair to good"). The total score was therefore categorized as poor knowledge (score of 0-4), fair knowledge (score of 5-14), and good knowledge (score of 15-30).

Line 58: This is certainly not in line with all international guidelines, as many countries/recommendations actually start from the age of 50.
Thank you for mentioning this. A detailed explanation has been previously added as advised.
There is some debate about the efficacy of breast self-examination as an appropriate method for early breast cancer detection. This should be noted. E.g., WHO states that there is no evidence of the effect of screening through BSE, although BSE can empower women and it can be used to create awareness. Some organizations/countries recommend against BSE altogether (e.g. Dutch guidelines), while others still promote it (see ACS, Medscape). This deserves much more attention, as it influences the interpretation of your results considerably.

We agree with you on this as BSE can empower women and it can be used to create awareness especially in settings where full-fledged screening programs are still to take effect. A paragraph explaining the recommendations as per Saudi guidelines for BSE has been added. We have added the following

“Also, the usefulness of breast self-examination as an appropriate method for early breast cancer detection has been debated in the recent past. Whereas, WHO states that there is no evidence of the effect of screening through BSE, although BSE can empower women and it can be used to create awareness some organizations/countries recommend against BSE altogether (e.g. Dutch guidelines), while others still promote it (see ACS, Medscape). In KSA, breast self-examination role is important in regions where mammography may not be offered due to socio-cultural reasons”.

METHODS
The description of the questionnaire development is very meager. Measurements should be reported in a separate section. Procedures are to be reported separately. It is unclear on what questions/instruments the authors performed Cronbach’s alpha? On each of the measures (they state on "the questionnaire")? How many questions/instruments were included in the questionnaire? If they are based on "previous studies and a literature review", then is the questionnaire an adaptation of an earlier survey (instrument) or did the authors design questions themselves? In case of the latter: why? Given that validated measures exist? This section should be revised quite extensively to provide greater clarity.

As per your advice, the whole part has been rewritten for better clarity.

Sample size: provide more explanation/arguments, for example for the proportions as well as for the power calculations used.

A proportionate sample size calculation as per the profession was done and a detailed explanation as below has been added in the text.

“The study population was stratified according to their professions into three groups: physicians, nurses, and allied healthcare workers. To ensure appropriate representation from each group of healthcare professionals, the proportionate population sampling method in the form of 4:1:1 for nurses, physicians, and allied healthcare workers, respectively, was adopted. Hence, 260 nurses (out of 2400), 65 physicians (out of 600) and 65 allied health care workers (out of 700) were to be approached on a random basis from each department and the total sample size was determined to be 390”.

Participants worked at different departments across the hospital (Table 1). How relevant is breast cancer (screening) knowledge of e.g. pediatricians? Many of these healthcare workers are not involved in healthcare practices that are concerned with maternal health/breast cancer and they may never discuss screening practices with their patients. Please argue.

Kindly see the following explanation for the importance of this aspect in screening:

Women healthcare workers can bring about a significant change in the overall perspective of their
patients, especially women, regarding screening practices and positively influence their attitudes and beliefs. They are also the first point of contact irrespective of their specialty of work for not only their female patients but also female relatives and friends for advice regarding breast cancer screening. Females can feel embarrassed to talk about this issue with their male physicians. To achieve this, an important step would be to ensure that female healthcare professionals themselves possess adequate knowledge which they can transmit to their patients, relatives and acquaintances.

RESULTS
The response rate is very high. This is great! Was participation voluntary? Did participants receive some form of compensation or credit for participation?

The participants did not receive any compensation or credit for participating in this study, and their participation was voluntary. This has been added in the text of the manuscript.

"Nine (2.3%) participants reported having history of breast cancer and 40 (10.1%) participants reported having a first-degree relative with history of breast cancer" Did you control for this in your analyses concerning knowledge? Or were participants with a history of breast cancer excluded? We have not controlled for this neither we have excluded the participant since the objective of this descriptive study was to assess the knowledge, attitude and practice regarding breast cancer screening only.

"Moreover, 73.2% of the women felt that there was no need for them to examine their breasts". See my earlier comment about BSE. Deleted as per your comment.

"Under reasons for not undergoing mammography, 104 (33.2%) participants responded that they were not old enough and 75 (24.0%) didn't believe there was any reason to undergo mammography." Needless to say, these can be valid reasons.

We agree with you on this. The aim of the study was only to assess the knowledge, attitude and practice of breast cancer screening among health care workers and to present the results as obtained.

DISCUSSION
"Our results for attitudes of participants towards breast cancer screening were also discouraging, which could be due to lack of knowledge in this study population. With regard to BSE, the results appeared positive with most participants being aware of the importance of BSE. Their knowledge related to BSE was also satisfactory. Also, almost 75% of the participants reported practicing BSE. This is much higher than the rate for BSE seen in some other studies (19,24,25). This is very encouraging, indeed and also a little surprising considering the low level of knowledge and attitude in this cohort."

Related to several of my comments above about the desirability of BSE and the age thresholds for screening, and I think this is really important: The fact that participants do not engage in BSE or screening might for valid/good reasons and not be due to a lack of knowledge, but in fact based on proper considerations. How do you account for this? How do you establish the "norm" for what is the correct behavior and what is not? (see also the Tables with survey questions: what are the 'correct' answers?). You should argue for this much more clearly. The main point of this article is that health workers' attitudes and knowledge could potentially influence patients' breast cancer screening
behaviors and that it is therefore important that they have 'correct' attitudes/knowledge. However, it is unclear what you deem 'correct' in light of international screening guidelines and the debates about BSE and screening programs.

Breast cancer screening programs in KSA still have very few takers. The correct answers have been deemed correct as per the recommendations of evidence-based guidelines for breast cancer screening and according to the ministry of health in KSA.

The following has been added in the text for better clarity and understanding.

“One of the aspects of screening is that women in developing country settings are more aware of the BSE as the information regarding BSE is transmitted more frequently and is readily acceptable than mammography given the specific cultural norms in KSA. Women would prefer to undergo BSE in the privacy of their homes than to reach out to health care services for mammography, which is also embarrassing and uncomfortable procedure”.

TABLES
What is the relevance of data on abortions and stillbirths?

It is deleted as per your advice.