Author’s response to reviews

Title: Validation of a Susceptibility, Benefits, and Barrier Scale for Mammography Screening among Peruvian Women: a Cross-Sectional Study

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Author’s response to reviews: see over
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BMC Women’s Health Editors

Dear Editors,

We are submitting a revised version of the manuscript titled “Validation of a Susceptibility, Benefits, and Barrier Scale for Mammography Screening among Peruvian Women: a Cross-Sectional Study”.

For the manuscript preparation we followed the instructions provided by your web page and we accept the conditions posed. This manuscript is original and has not been published elsewhere nor submitted for publication simultaneously. If this manuscript is accepted, the paper will not be published elsewhere in the same form, in English or in any other language, without written consent of the copyright holder.

We thank you and the reviewers for your helpful comments and suggestions (see below). We have incorporated all of the suggestions into a revised manuscript. Do not hesitate to contact us if you require further information.

Sincerely,

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REVIEWERS’ COMMENTS

Reviewer: Tytti Sarkeala

Major comments:
1. More information on the Champion’s scale, e.g. on the scale items and the previous study populations should be given. Is the Champion’s scale currently utilized somewhere?

   - An appendix was added with the items of the scale.
   - More information about the previous study populations was added to methods section:
     “The scale was originally validated in a cohort of 804 women age 50 or over who were members of a Health Maintenance Organization (HMO) in Indiana, US. Sixty-eight percent were Caucasians and 30% were African-Americans. The other 2% were Asian, Hispanic or Native American[22].
   - In terms of utilization of the Champion’s scale, we added “The Champion’s scale has been mostly used in the US as a research tool to study the beliefs about breast cancer...
screening in different populations[23, 24] and to develop interventions to improve the utilization of mammography[25]. Multiple adaptations have been validated for other populations around the globe[26-28]. More recently, a Spanish version of the scale was adapted and tested in a cohort of 274 women in Spain[29].”

2. Accordingly, more information on mammography screening utilization in Peru should be given, e.g. do the women need to seek mammograms by themselves, or is mammography screening based on invitation? Is it expensive to have a mammogram in Peru? Is mammography screening generally available, and is it available simultaneously with cervical cancer screening?

More information about mammography screening utilization in Peru has been added to introduction section: “The cost of screening mammograms in Peru varies from 20 to 100 US dollars for uninsured women, who represent half of the country’s female population. Mammograms are considered expensive, especially among the poor and very poor groups that have an average monthly income of ~80 dollars and represent about a third of the Peruvian population[11]. Insured and uninsured women in Peru can access mammograms through public and private clinics via providers’ referral or through local diagnostic centers that offer screening without a physician’s order.”

3. The study group consisted of women attending a gynaecology clinic in the capital city of Peru. Did the women come to the clinic due to cervical cancer screening, due to mammography screening, or due to both of these (see above)? In any case, the study group has already ‘bypassed the accessibility barrier’, and therefore does not necessarily form a representative sample of Peruvian women aged 40-65 years. This should be discussed in the manuscript.

The study group included women who attended a gynecology clinic in Lima, Peru for several reasons. As mentioned in methods section, we excluded “women with prior history of breast cancer or breast surgery, women who sought care due to breast related illness, and those with history of breast cancer in a first degree relative” to somewhat exclude those who were previously exposed to breast disorders and would likely be more compliant with screening mammogram. In the limitations section we added: Our study population included women who attended a gynecology clinic therefore already bypassed the access barrier. This might explain the relatively high rate of recent mammogram utilization in our group (37%) in comparison to similar reports in Peru[9, 10]. “Thereby, our study population might not necessarily be a representative sample of Peruvian women. Community-based studies are recommended to explore the beliefs about screening mammogram among those who do not routinely access medical care”

4. In the Champion paper (1999), the study group consisted of women aged 50+ (mean age 61) with a fairly high mean educational level (12.5 years). Those not being able to read or write were excluded. Could the differences between the Champion and the current study group affect e.g. on the level and distribution of perceived susceptibility to breast cancer or perceived benefits of mammography screening?
We added further discussion: “It is also possible that differences in demographics between our population and the Champion’s cohort could have contributed to our results. In the Champion’s study, women were 50 years or more with a mean of 61 and had a high mean educational level (12.5 years). In our study, we included women aged 40 or more with a mean of 50. More than 75% of our participants had less than 11 years of education. Moreover, 49% of our sample were interviewed whereas in the Champion’s study the scale was only self-administered as those not able to read or write were excluded. Finally, differences in the study design could have contributed to discrepancies between our study and the Champion’s study. The later study evaluated the completion of mammogram screening after the baseline assessment of the scale (predictive validity). Our study assessed the scale and mammography utilization at the same time (concurrent validity). In certain circumstances, having a recently negative mammogram could have reinforced the belief that one is not susceptible to breast cancer or that there was no benefit from having the screening, especially among the younger participants”.

5. The authors conclude that the Champion’s scale should not be used among Peruvian women until the content of the scale is revised. Considering the low mammography rates in Peru, there could also be other means to be developed, e.g. accessibility to screening and information systems. If there is a lack of information and services, there probably won’t be large differences in perceived beliefs about breast cancer and mammography screening among the screening target population?

There are multiple barriers that need to be addressed to promote screening mammogram utilization in Peru. This study has mainly focused on women who access care. As now mentioned in limitations, further community-based studies are needed to better understand what are the barriers among those who do not access routine medical care. Information systems are also important. Our logistic regression analysis showed that “knowledge about breast cancer and mammogram as well as history of recent Papanicolaou test were associated to mammography screening which correlates with what was reported in prior studies [24,26]”. We added “Future interventions to promote mammography utilization in our region should also address this lack of information about breast cancer and screening methods”.

Minor comments:

6. Out of the 285 women in the study group, approximately 37% had received a screening mammogram within 15 months, 20% had received at least one mammogram prior to 15 months, and 43% had never received a mammogram. Which groups did the authors compare when assessing the concurrent validity of the scale?

We compared those who had received a screening mammogram within 15 months (37%) with those who had not received a screening mammogram within 15 months (20%+43%). This is outlined in the methods section. International guidelines recommend annual
screening mammography. We considered 15 months as cutoff for non-compliance to make our results more comparable with Champion’s study.

7. How the independent analyses on age, prior Pap test, and knowledge about breast cancer are connected to validation of the Champion’s scale?

The independent analyses on these factors were conducted as they were considered potential confounders in the concurrent validity analysis (association between screening mammogram and scales). Previous studies suggest that these factors and others included in the logistic regression are associated to the utilization of mammogram. For example, there is good correlation between prior Pap smear and more utilization of mammography. Interestingly, the barriers subscale was independently associated to mammogram use in the logistic regression analysis (table 5). We added the results of crude (non-adjusted) analysis to table 5 to see how much of an impact controlling for confounders has. Reporting and discussing some of the secondary associations found in the logistic regression analysis was considered important as provides background for future research in scale development and interventions to promote breast cancer screening in Peru.

Quality of written English: Needs some language corrections before being Published.

Manuscript was reviewed. Language corrections included in current version.

Reviewer: Ilknur Aydin Avci

I wonder why authors did not study seriousness and health motivation. Champion’s 1999 article doesn’t include this subscale. But Champion’s 1993 version includes all subscales of health belief towards breast cancer screening. Especially, perceived seriousness is very important for health. Authors can examine this subscale.

We based our study on the 1999 revised susceptibilities, benefits, and barriers scale for mammography screening. The Champions’ 1993 version included 6 subscales (susceptibilities, benefits, barriers, health motivation, seriousness and confidence). The 6 subscales showed good construct validity and reliability as well as predictive validity; however, the predictive validity analysis was based on the association with breast self exam, not with mammography screening. Therefore, we decided to use the 1999 revised version and did not include the other 3 subscales for better comparability. Moreover, we considered that administering the other 3 scales (26 more items) would have been difficult in our setting and might have affected the overall completeness of the scale. We appreciate your advice and will certainly consider these subscales, especially perceived seriousness, for future scale development research for mammography utilization in Peru.