

LETTER to the EDITOR

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Methodological and Theoretical Considerations Regarding a Study on Cervical Cancer Screening Practices in Pakistan*Asian Pac J Cancer Prev*, 27 (8), 2747-2748**Dear Editor**

I congratulate the authors of the research titled, "Knowledge, Attitudes and Practices of Cervical Cancer Screening among Women Attending Gynecology Clinics at Tertiary Care Hospitals in the Capital City of Pakistan: A Cross-Sectional Survey" [1] which I read with utmost interest. This study addresses an important aspect of the behavior of women in tertiary care hospitals of Pakistan towards a public health issue namely Cervical cancer (CC) and methods to prevent it. Although the study comprehensively covers such aspects, there are several methodological and conceptual gaps that I would like to highlight which may limit the impact of these findings.

Firstly, the study substitutes "number of marriages" for "number of sexual partners" considering the socio-cultural aspect of a conservative environment. On paper this consideration seems valid viewing Pakistan's social point of view but keeping in mind scientific measures it creates exposure misclassification. This in turn most likely biases associations towards null creating false-negatives rather than it being a cultural versus scientific issue. As a result, this persists residual confounders hence the conclusions are undermined and should be interpreted with caution. Furthermore, this can also underestimate the risk of exposure to Sexually Transmitted Infections (STI) such as the Human Papillomavirus (HPV) that is causally linked with the development of cervical precancer and cancer [2]. Moreover, this underestimates the correlation of sexual behavior and cervical cancer [3]. In par with the conservative aspect of Pakistan, indirect questioning techniques or self-administered questionnaires ensuring anonymity would acquire more accurate results.

Secondly, the study does not appear to test for interacting correlations such as that of between education and income or urban and occupation [4]. These are advanced yet important factors that determine societal aspects and dynamics. Due to these interactions not being tested, regression analysis was not able to be carried out accurately as the confounding variables were not tested for thus were not adjusted to accordingly. Hence, the lack of interacting factors tested alongside limited predictors meant that vital socio-structural dynamics were compromised.

Lastly, the study mentions the utilization of the Health Belief Model (HBM) but it fails to mention validated subscales alongside composite scorings. These are vital if we are to quantify overall health belief strength and predict health behavior. Instead of subscale scoring, the study

overly relies upon dichotomous questions which inhibit the ability to analyze the behavioral patterns and weakens the validity of the construct of the HBM used [5]. Adding on, the use of a "pre-validated questionnaire" may weaken the confidence in the dichotomous answer type questions since no details are provided on the psychometric testing of the Urdu version. The fact that majority of the individuals (n=295) come from rural backgrounds, it is highly likely that this hinders the true validity of the findings and raises concerns about measurement validity and information bias.

To conclude, it is evident from the points mentioned above how the theoretical gaps in the study can affect the conclusions. Future studies on knowledge, attitude and practices in similar settings should tend to avoid vague terminologies and properly include methodological steps for HBM. Avoiding such will result in lesser misclassification of data, more accurate residual confounding leading to better regression analysis and hence results that are reliable.

References

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Reply to the letter to the editor: Addressing Exposure Misclassification and Sparse Likert Data: Methodological Insights from a Cervical Cancer Screening KAP Study

Dear Editor

I thank the authors for their thoughtful letter to the editor in response to our article [1] and for raising methodological and conceptual concerns. Constructive academic discourse is essential for strengthening research in low-and middle-income country settings.

I acknowledge the concern regarding potential exposure misclassification arising from the use of “number of marriages” as a proxy for “sexual partners”. However, it is imperative to note that the definition of exposure and consequently the likelihood of exposure misclassification is inherently determined by the study’s objective [2]. In epidemiologic research, the choice of an exposure measure must align with the study’s conceptual framework [2]. Our study aimed to assess knowledge, attitudes and practices (KAP) related to cervical cancer (CC) screening in a conservative society of Pakistan, rather than to make etiological inference regarding biological HPV exposure or causal associations between sexual behavior and HPV acquisition. Within this context, direct measurement of lifetime sexual partners is challenging due to social desirability and non-disclosure bias arising from religious, societal and cultural norms [3]. Therefore “number of marriages” served as a culturally acceptable measure of marital and sexual history.

Regarding methodological concern, I would respectfully clarify that our study examined relationships between key sociodemographic variables and CC knowledge through bivariate analysis, and performed multivariable logistic regression analysis including education, income, urbanicity and prior Pap smear uptake. These variables were selected as a priori based on existing literature, allowing for adjustment of key confounders. The absence of formal interaction terms does not imply that confounding was unaddressed, nor does it invalidate the regression analysis. Interaction testing examines effect modification and is methodologically distinct from confounding control [4]. Given the exploratory and descriptive nature of this KAP study, the primary aim was to identify main sociodemographic predictors of KAP rather than to model complex socio-structural interactions. Incorporating multiple interaction terms would have increased model complexity, reduced statistical power,

and risked overfitting, without necessarily enhancing the interpretability or direct relevance [4] to our study objectives. As such, interaction analysis was beyond the scope of our study but represents a valuable direction for future research of CC screening behavior.

With respect to Health Belief Model (HBM), we collected responses using a five-point Likert scale from HBM constructs as mentioned in methods. However, most participants selected “I don’t know” or ‘agree’ categories resulting in sparse data and skewed distributions. To improve measurement validity, responses were collapsed for data analyses and reported in “Result” section as “uncertain” (94.5% selecting “I don’t know”) and “believed” (5% selecting “agree”). Psychometric research supports collapsing sparse response categories when individual categories are rarely used as this can improve model fit and enhance reliability in factor analysis and survey research [5]. I recognize the importance of providing details on the translation and validation of pre-validated questionnaires and questionnaires can be provided on request. Our Urdu version underwent forward-backward translation and pilot testing, to ensure semantic and conceptual evidence, thereby preserving the integrity of the instrument.

In conclusion, I appreciate the opportunity to clarify these methodological choices guided by the study’s objective, the sociocultural context and psychometric considerations. I hope this discussion encourages further research to build on these findings.

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