Author's response to reviews

Title: Are there socioeconomic disparities in women having discussions on human papillomavirus vaccine with health care providers?

Authors:

   Ker Yi Wong (wong.keryi@nus.edu.sg)
   Young Kyung Do (young.do@duke-nus.edu.sg)

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Author's response to reviews: see over
Dr. Emily Crow  
Executive Editor  
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Response to Reviewer comments for the manuscript “Are there socioeconomic disparities in women having discussions on human papillomavirus vaccine with health care providers?”  
(Manuscript ID: 6521513246170344)

Dear Dr. Crow,

Thank you for your careful review of our manuscript. After considering and incorporating the reviewers’ comments and suggestions, we improved the manuscript with particular attention to the following:

1. Stating the purpose of the paper more clearly
2. Strengthening the link between Methods/Results and Discussion/Conclusions
3. Acknowledging the key study limitations and their potential impact on the interpretation of findings
4. Improving the quality of writing

We respond directly to the comments with specific references to the revisions made in the manuscript.

Reviewer: Li Ping Wong

Reviewer’s report:

COMMENT 1. The manuscript is best presented as empirical and theoretical paper that applies sociological concepts to the understanding of the HPV vaccine communication with HCPs. The main drawback is that the manuscript is purely methodological in purpose. The paper is not grounded in important theoretical issues in HPV vaccine and HCP communication. It merely described the socioeconomic disparities using a statistical model. It is best to investigate the medical sociology and must advance our theoretical understanding of the processes by which social factors and HPV vaccine communication with HPCs are interrelated.

RESPONSE: We agree that this paper did not delve into theoretical issues and sociological concepts relevant to HPV vaccine communication. It was more focused on the clinical and public health implications of having HPV vaccine communication with health care providers (HCPs), which we believe are as important as theoretical research. Theoretical work on HPV vaccine communication, especially from a sociological standpoint, could provide us with a deeper understanding of patient and HCP behaviors related to the HPV vaccine, suggesting an innovative approach to improving women’s health. Moreover, the knowledge gained from this avenue of research could also enrich our sociological understanding of the processes within which such complex interactions are made. There has been an urgent and increasing need for policy research to guide clinical and public health practice in efforts to ameliorate the persistent racial/ethnic and socioeconomic disparities in cervical cancer and HPV vaccination. This line of
research would typically need a nationally representative population-level sample for a statistical model.

Existing literature on HPV vaccination suggests that HCPs' vaccine recommendation is an effective way to promote HPV vaccination. Along these lines, our study aimed to contribute to the literature by focusing on the less studied yet effective means of improving HPV vaccination, that is, communication about the HPV vaccine between women and their HCPs. Our paper builds on the broad literature on the racial and socioeconomic disparities in cervical cancer and in HPV vaccination, mainly borrowing the theoretical underpinning of differential access to health care.

We do acknowledge that potential disparities in provider-patient communication regarding the HPV vaccine cannot be fully explained by health care access alone. In this sense, we did not aim to test a definitive hypothesis based on a specific theoretical framework; rather, we focused on exploring whether any racial and socioeconomic disparities exist even in the clinical setting. To this end, the key methodological issue was to address concerns over sample selection. By highlighting this issue, we may have made our paper appear very methodologically oriented. Importantly, our statistical method allowed for the demonstration of the persistent disparities in HPV vaccine awareness vis-à-vis the apparent lack of such disparities in women's discussions with their HCPs about the HPV vaccine. Most interestingly, our findings suggested that once we controlled for the differential awareness by race and other socioeconomic factors, African Americans were even more likely to have discussed with their HCPs about the HPV vaccine compared with Whites. These findings reiterate the importance of aligning population-based public health approaches with individual-based clinical approaches.

Hence, we believe our paper makes a modest methodological and material contribution to the literature on racial and socioeconomic disparities in women's health. Future research could draw from an improved theoretical knowledge base on the topic of HPV vaccine communication, which ideally uses richer information on the clinical encounters between women and HCPs.

**COMMENT 2.** Further the data used in the analyses were drawn from the national Cancer Institute's 2007 HINTS (5 years ago and further at that point of time the HPV vaccine was not known by many). It may be of little implication for the current empirical evidence, where HPV vaccination is now widely known.

**RESPONSE:** Even though the average awareness of HPV vaccine has undoubtedly heightened over the years, the extent of the increment in awareness is not uniform among populations of different socioeconomic statuses. Hence, our paper still holds relevance for populations in which HPV vaccine awareness remains low. Our revised manuscript now clearly acknowledges this limitation in our discussion, by adding the following statement:

(...) "A second limitation, which is related to the first, is that four years have elapsed since the launch of HINTS in early 2008; thus, the results may not reflect the current situation today. However, while average awareness of the vaccine may have increased over the years, the increment of increase is unknown and its rate differs among populations. Hence, this study is still pertinent in underserved populations whose awareness of the HPV vaccine and accessibility to HCPs remains low, and
in which identifying ways to best target patient education remains crucial." (pp. 13–14, Discussion)

Reviewer: Spring Chenoa Cooper Robbins

Reviewer’s report:

- Major Compulsory Revisions

COMMENT 1. The question posed by the authors was not well defined. Although I understand the paper, the introduction and purpose needs to be more clearly presented and situated.

RESPONSE: We have now made extensive revisions to the Background section, more clearly stating our study hypothesis.

“…we hypothesized that being in a minority race/ethnicity, having lower income and education, and the lack of health insurance and a regular HCP are each associated with a lower likelihood of a discussion on HPV vaccine occurring between a woman and her HCP.” (p. 5, Background)

[Please also see our response to the other Reviewer's comment (COMMENT 1).] The motivation for our hypothesis stems from our understanding of the existing literature that HPV vaccine recommendation from a HCP is an important predictor of vaccine receipt. However, while there have been studies on socioeconomic disparities in the awareness of the vaccine, there have not been studies on whether these socioeconomic disparities also exist in having discussions on HPV vaccines with HCPs. We hope that by highlighting associations between socioeconomic factors and HPV vaccine discussions, HCPs can be made more informed of the population groups that will benefit from HPV vaccinations and related education to increase the HPV vaccine uptake rates in these groups. We attempted to reflect this motivation in our revision more clearly, while still keeping the Background succinct.

COMMENT 2. The discussion and conclusions are not adequately supported by the data. You make statements about the implications of the results, but I don’t think that they are able to be made. For example, you talk about the percentage of women who have had discussions, but you don’t know who initiated the discussion… it could actually be that health care workers are targeting these women for the discussion. You’ve made the assumption that it was the woman initiating the conversation.

RESPONSE: Thank you for highlighting this point. We were aware that the HINTS did not specify whether the vaccine discussion was initiated by the respondent or her HCP. However, we did not conduct the study with the assumption that the woman initiated the conversation (as what our original manuscript may have conveyed); to make this point clear, we have included the following statement in our limitations, to indicate that the specific content and extent of the discussion was unknown:
“… the content and extent of the discussion was unknown, and a standard definition for what qualifies as a ‘discussion on HPV vaccine’ was not explicitly stated in the survey.” (p. 14, Discussion)

We have also amended the section on Outcome variable, under Materials and Methods, with a more explicit statement that the conversation can be initiated by either the respondent or her HCP.

The outcome of interest was a binary indicator variable derived from the question, “Has a health care provider such as a doctor or nurse ever talked to you about a cervical cancer vaccine or HPV shot?” This question did not differentiate between a respondent-initiated and an HCP-initiated discussion. Only the respondents who reported having heard of the cervical cancer vaccine or HPV shot before taking part in the survey were asked this question. (p. 6, Materials and methods: Outcome variable)

COMMENT 3. Limitations of the work are not clearly accounted for in the discussion. Although you begin to address these, I don’t think that you have adequately described the limitations and the impact these limitations have on the research and interpretation.

RESPONSE: The discussion on the study limitations has been amended to include an additional limitation and to elaborate further on the impact of the study limitations on the interpretation of findings and future research.

**Limitation 1:** “…short interval between the approval of the HPV vaccine (the quadrivalent HPV vaccine was approved by the FDA in 2006) and the launch of the HINTS in early 2008.”

**Impact:** “…small number of respondents who reported having HPV vaccine discussions with their HCPs may not be reflective of the corresponding number today. Future research among HCPs who are more familiarized with the vaccines can offer a more accurate picture of the prevalence of vaccine discussions between women and their HCPs.”

**Limitation 2 (added):** “…four years have lapsed from the launch of HINTS 2007 in early 2008 and hence its results may not reflect the current situation today.”

**Impact:** “However, while the average awareness of the vaccine may have increased over the years, the absolute percentage of increment and its rate differs among populations. Hence, this study is still pertinent in underserved populations whose awareness of and accessibility to HCPs remains low and in which identifying ways to best target educational messages remains crucial.”
Limitation 3: “…the self-reported status of having HPV vaccine discussions with an HCP is subject to recall bias. Moreover, the content and extent of the discussion was unknown and the “discussion” was not explicitly defined in the survey.”

Impact: “This could have resulted in an underestimation or overestimation in the number of respondents who reported having HPV vaccine discussions with their providers.”

Limitation 4: “…the HINTS was not developed to include constructs that aim to capture HCP factors and individual psychosocial factors that would have influenced the likelihood of women reporting having HPV vaccine discussions with their HCPs.”

Impact: “Future research surveys that are designed to capture all of these factors will give a more comprehensive analysis on socioeconomic disparities in HPV vaccine discussions.”

COMMENT 4. Writing needs work. There are several instances where words are missing, punctuation is incorrect, or there are incorrect word choices made. I recommend having a professional copy editor review before re-submission.

RESPONSE: The paper has been proofread by two experienced writers, one of whom has years of experience as a professional medical writer and editor, to ensure that the quality of the writing meets the expectations required for a peer-reviewed scientific publication. With their help, extensive revision has been made to our original manuscript to improve readability of the paper. We believe that our revised manuscript has benefitted from your comments and improved substantially since our initial submission. Below is an example of this improvement.

Example: Results (Abstract)

* Original manuscript
Among those aware of the HPV vaccine, 17.3% of respondents reported having HPV vaccine discussions with their HCPs. In the probit model which corrected for sample selection, African Americans were less likely than Whites to be aware of the HPV vaccine but more likely to have HPV vaccine discussions with their HCPs. Lower income and education levels were associated with a lower likelihood of HPV vaccine awareness but were not statistically significantly associated with the probability of having HPV vaccine discussions with HCPs.

* Revised manuscript
Among those aware of the HPV vaccine, 17.3% of respondents reported having discussions about the vaccine with their HCPs. Compared with Whites, African Americans were less likely to be aware of the HPV vaccine but more likely to have discussions with their HCPs concerning the vaccine. A statistically significant association between lower income and education levels and a lower likelihood of HPV vaccine awareness was observed, but low levels of income and education did not appear to affect the probability of having HPV vaccine discussions with HCPs.