Your comments were very useful to build up an overall picture of this manuscript again. Revision has been made according to the suggestions of the reviewer. And I tried our best to address the issues appropriately and relevantly. Thank you for your comments.

Title: Sociodemographic gradients in breast and cervical cancer screening in Korea: Korean National Cancer Screening Survey (KNCSS) 2005-2009

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Reviewer 1: Laura L Marlow
Reviewer 2: Julietta Patnick
Reviewer 3: Jo Waller

I added some words (Abstract, Results, the 2nd sentence, p2):
Household income was not significantly associated with mammograms or Pap smears after adjusting for age and sociodemographic factors.
Background

1-1. The background section would benefit from some restructuring and additional detail. In particular I think it would read more clearly if the first and second paragraphs were swapped around. (Reviewer #1)

1-2. Paragraph 1: Line 4, the authors need to define the abbreviation NHI. (Reviewer #1)

1-3. Paragraph 1: Line 2, the authors say “with a premium below 50%”, it is not clear what this means and should be more clearly defined. (Reviewer #1)

1-4. Paragraph 2, line 1, the authors say “cancer screening rates in Korea ……have increased steadily” Since when? (Reviewer #1)

I modified the abstract section and background section as follow

(Abstract, background, the 1st paragraph, p2):

**Background:** Cancer screening rates in Korea for five cancer types have increased steadily since 2002. With regard to the life-time cancer screening rates in 2009 according to cancer sites, the second highest was breast cancer (78.1%) and the third highest was cervical cancer (76.1%). Despite overall increases in the screening rate, disparities in breast and cervical cancer screening, based on sociodemographic characteristics, still exist.

(Background, the 1st and 2nd paragraph, p3):

Cancer screening rates in Korea for five cancer types have increased steadily since 2002. Regarding the life-time cancer screening rates in 2009, according to cancer site, the second highest was breast cancer (78.1%), and the third highest was cervical cancer (76.1%). A comparison of the cancer screening rates in Korea with those in other countries showed that the rates for breast (78.1%) and cervical cancer screening
(76.1%) in Korea were lower than those in Great Britain (93 and 91%, respectively).

In 1999, Korea began organized screening as part of the National Cancer Screening Program (NCSP), covering the entire population. NCSP invites women in Korea over the age of 40 years for breast cancer screening every 2 years, and women over the age of 30 years for cervical cancer screening every 2 years. NCSP provides screening services free of charge for Medical Aid enrollees and people with National Health Insurance (NHI) with a contribution below 50%. Additionally, NCSP provides cancer screening to people with a contribution over 50% and has subsidized 90% of the costs of these services. The insurance contribution is calculated based on the individual's income level. In addition to the NCSP, cancer screening is conducted in outpatient clinics and private health assessment centers for opportunistic screening. However, individuals must pay for all procedure-related costs associated with such opportunistic screening.

2. Paragraph 3, line 9, the authors say "morbidity and death rates have not been reduced" Do they mean specifically in the group of women with low socioeconomic status? This should be made clear. (Reviewer #1)

I modified the sentences (Background, the 3rd paragraph, the 3rd sentence, p4):

Data from the USA indicated that the breast cancer screening rates of women in lower sociodemographic status were low, and that their morbidity and death rates have not been reduced.

3-1. The referencing in the background section appears to have gone awry. It needs checking and tidying. This is probably left over from the process of drafting and editing. (Reviewer #2)

3-2. In the discussion section the figures of 67% and 78% for breast and cervical participation rates in the USA need referencing. (Reviewer #2)

Format, references and type-setting have been updated.

Methods
1. Is there an upper age limit for breast and cervical screening in Korea? (Reviewer #1)

The National Cancer Screening Program (NCSP) does not have upper age limitation. I added a sentence to clarify what it means (Methods, Data sources, the 1st paragraph, the 11th sentence, p5):

We included people from the age of 40 to 74 years in the Korea National Cancer Screening Survey (KNCSS) because those older than 75 years have difficulty recalling and answering many questions \((n = 4,139)\).

2-1. You need to discuss how women were asked about their reasons for not having screening and how this was coded (open, closed etc), this is discussed in the results but not the methods. (Reviewer #1)

2-2. In the Measures section, it would be helpful to describe the question women were asked about barriers to screening (illustrated in Figs 1 and 2). Were they asked an open question, or did they choose responses from a list? (Reviewer #3)

I added some sentences (Methods, Measures, the 3rd paragraph, the 1st sentence, p5):

Those who did not attend were asked to choose one of eight reasons: had not heard about cancer screening, did not feel it was necessary, lacked time, could not afford cancer screening, feared the exam procedure, feared detecting cancer, had no faith in cancer screening, and no medical facilities in the neighborhood.

Results

1. There is no response rate provided, this is vital information and necessary for the reader to interpret how representative the survey is of the general population. (Reviewer #1)
I added a sentence (Results, the 1st paragraph, the 1st sentence, p6):

The response rates were 55.8-58.3% from 2005 to 2009 [18].

2. There is one long sentence at the end of the second paragraph

"After adjustment for age and sociodemographic factors compared to having had none". This is difficult to follow and should be rewritten.

(Reviewer #1)

I modified some sentences, as follow (Results, the 2nd paragraph, the 5th sentence, p7):

After adjusting for age and sociodemographic factors, private health insurance was the only significant predictor when we compared women who had had mammograms with those who had not (\( p < 0.0001 \)). Marital status (\( p < 0.0001 \)) and private health insurance (\( p < 0.0001 \)) were significant predictors of having had a Pap smear versus having had none.

Discussion

1. Paragraph 1, the authors should re-write this paragraph to clarify the findings, at the moment it is difficult to determine which analyses they are referring to. (Reviewer #1)

I modified some sentences, as follow (Discussion, the 1st paragraph, the 1st sentence, p7):

The findings of this study contribute to our understanding of the sociodemographic characteristics associated with the use of breast and cervical cancer screening. Being married and having a higher education level, rural residence, and private health insurance were significantly associated with higher rates of breast and cervical cancer screening, after adjusting for age and sociodemographic factors. Household income was not significantly associated with mammograms or Pap smears.
I added a sentence in discussion section, as follow (Discussion, the 2nd paragraph, the 3rd sentence, p8):

Inequalities in breast and cervical cancer screening still exist in the UK, despite free screening for the entire population.

I modified some sentences as follow (Discussion, the 4th paragraph, the 6th sentence, p9):

Thus, we need to increase the knowledge and awareness of cancer in the target population to increase the participation rate in cancer screening programs. Attempts to promote cancer screening have used a public health model that targets entire communities, e.g., mass-media campaigns about the organized screening system in Korea. Additional individual-directed interventions in health care settings regarding cancer screening use are required, such as individualized in-person or telephone.
counseling, individualized letters and reminders, or other individual-directed strategies, to increase participation and reduce the disparity in cancer screening.

4-1. Paragraph 5, there are many other reasons for low perceived risk of breast and cervical cancer besides perceptions of “good health or an absence of symptoms” e.g. no experience of cancer among friends and family, misperceptions about the causes of cancer, not feeling at risk of cervical cancer because of sexual experience. The authors should include other suggestions or rephrase so that it is clear the examples they have given are not exhaustive. (Reviewer #1)

4-2. End of paragraph 6, The authors say "breast and cervical screening rates are still low indicating that Korean women are not yet aware of the importance of breast and cervical screening" There are many reasons why women may not have screening and the authors suggestion that this is simply because of poor knowledge trivializes the situation. A more appropriate interpretation of the implications should be included. (Reviewer #1)

4-3. The authors write "Korean women are not yet aware....." However, this is an assumption. Alternative reasons could include that the service offered is unattractive to women or promoted in an unattractive manner. The definitive "ARE NOT" should at least be "MAY NOT YET BE". (Reviewer #2)

I added some sentences as follow (Discussion, the 5th paragraph, the 1st sentence, p9):

There may be other reasons for the low perceived risk of breast and cervical cancer in addition to perceptions of good health or an absence of symptoms. There could be no experience of cancer among friends and family, misperceptions about the causes of cancer, or not feeling at risk of cervical cancer because of sexual experience. Alternative reasons could include the fact that the service offered is unattractive to women or
promoted in an unattractive manner. However, we did not investigate these reasons in this study. We need to study these reasons further.

5. Given the interest in reasons for non-attendance at cervical screening in young women (e.g. Lancucki et al, 2010), it might be worth commenting that younger women in this sample were more likely to cite lack of time as a barrier to attendance. (Reviewer #3)

I added some sentences in results section and discussions section, as follow (Discussion, the 5th paragraph, the 6th sentence, p10):

The rate of not undergoing screening of breast and cervical cancer due to a lack of time was high in the women between 40 and 49 years old compared with other age groups. Officials are discussing whether to give a holiday for cancer screening or to provide cancer screening service at the employee’s place of work while on duty.

6. Health insurance was the strongest predictor of screening in all analyses presented in this paper, but this is not mentioned in the discussion. I thought it was particularly interesting that health insurance would play such a role even though screening is offered free for most of the women who are on low incomes and would not have insurance. The authors should include an interpretation of what they think about these findings. (Reviewer #1)
Private health insurance was the strongest predictor of breast and cervical cancer screening. Koreans can take cancer screening through organized or opportunistic systems. Even if they can take cancer screening free of charge or for a small fee, which is only 10% of the cost, when they want to take organized cancer screening, some people prefer opportunistic screening to organized screening. In this case, having private health insurance is a necessary precondition for improving the use of cancer screening, because private health insurance can remove economic and practical barriers to screening in opportunistic settings.

7. Limitations: The analyses focus on women who have ever had screening, so a woman of 50 who has had just one screen at age 30 but never been for screening again would be catagorised in the same way as someone who religiously goes for every screening invitation. This is a major limitation and could explain why some of the study findings are inconsistent with previous research. The authors should in the very least acknowledge this in the limitations. (Reviewer #1)

Third, we focused on women who have ever had screening in this study. It is difficult to compare the life-time screening rates with screening rates with recommendations directly.

1. In the tables, I suggest changing 'No' to 'N'. I initially mis-read Table 1 and thought the percentages referred to women with No mammogram, rather than the N and percentage who reporting having had a mammogram. (Reviewer #3)
I changed “NO” to “n” in table1.

2. In table 2, columns 1 and 2 which provide the sample numbers are not necessary because this information is all available in table 1. This is also the case for the first column in table 3. (Reviewer #1)

I deleted columns 1 and 2 in table2 and columns 1 in table3.

3. The numbers in table 3, column 2 (no. in sample: ever both/ever some) do not match the equivalent numbers in table 1? (Reviewer #1)

I modified the table3.

4. Can figures 1 and 2 be combined. It would be useful to see this data in the same figure in order to make comparisons about reasons for not having the 2 types of screening. (Reviewer #1)

I combined the figures 1 and 2.