Reviewer's report

Title: Does Korea have hidden female smokers? Smoking rates according to self-reported surveys versus biological markers

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Reviewer: Sun Kim

Reviewer's report:

Although the manuscript provides valuable information on the characteristics of Korean women who are more likely to underreport their smoking, it cannot be accepted in its current state because it has many flaws. First, the introduction lacks information about the strong gender-based social norms toward smoking in Korea. Second, the method sections is not clearly described. The authors use Korea and South Korea interchangeably. Please be consistent with either Korea or South Korea. In addition, the authors erroneously assert that the current work is the first one reporting hidden female smokers in Korea. The first study was done by Jung-Choi et al. (2012) that was cited in this paper. Above all, the manuscript is not suitable for publication unless it is extensively edited. For details, please see below.

Title:

Please consider changing the title to something like this: Discrepancies in smoking rates between self-reports and urinary cotinine levels: A case of women in Korea.

Abstract:

1. The first sentence is somewhat misleading given that Korea is a developed country.
2. Line 24, change “that” to “those (i.e., data)”
3. Lines 25-27, the sentence is not clear. Please consider revising.
4. Line 28, please delete, “In addition” because a chi-square must be conducted in order to compare smoking rates between self-reports and urine cotinine levels.
5. Lines 33-34, please consider revising the sentence. For example, “The rates of smoking among women 7.1% based on self-reports and 18.2% by urinary cotinine tests, and the rates for men were 47.8% and 55.1%, respectively.
6. The negative predictive value for men was lower than that for women. Is this correct?
7. One single study cannot confirm but only supports the notion that hidden female smokers exist in Korea.
8. Lines 40-41. Please revise the sentence using “although the difference was steadily decreasing.”

Background:
Lines 50-51, please delete with regard to smoking because they are redundant given that the words, “This gender difference” refers to smoking.
Line 52, please delete the words “in smoking according to gender” because they are redundant.
Lines 54-55, a grammar error in “the male smoking rate is at least ten times the female smoking rate.” Also please provide references to support the statement.
Lines 58-59, change a National Health Promotion Law to the National....
Line 59, change smoking rate to smoking rates.
Line 59, please consider using a different verb such as “affected” instead of “caused”.
Lines 66-69, revise the sentence stating from “Consequently” because the sentence does not flow from the previous one with the transitional word.
Lines 71-72, please revise the sentence for the flow of reading.
Line 75, change estimate to the past tense and this sentence needs citations.
Lines 80-81, please revise the sentence using correct grammars.
Lines 80-84, A significant discrepancy in Korean female smoking rates between self-reports and urinary cotinine levels has been previously reported. So, please state clearly what the main purpose(s) of the study was (were) and what the study would add to the existing knowledge in the field.

Methods:
The font size should be consistent throughout the main text. Please describe more how the data were collected. Were there any subjects selected more than once during the assessment period? Were the participants randomly selected or conveniently recruited? There was no description of measures used in the study. The authors should have briefly introduced these measures.
Lines 90-95, please reorganize the whole paragraph by clearly stating how the sample of the KNHANES was selected and who interviewed participants.
Lines 95-96, please consider deleting the sentence starting from “It was conducted” because the study included data only collected between 2008 and 2011 during which the survey was conducted annually.
Lines 100-105, this paragraph describing data collection should appear before Measures.
Lines 101-102, describe how participants were informed about the mobile health examination. Did the study include any individuals visited the mobile examination site? Were there any inclusion and exclusion criteria?
Lines 107-108, the definition of current smokers differed from what is widely adopted in literature. To be current smokers, individuals should have smoked at least 100 cigarettes in their lifetime and are also currently smoking either every day or some days.
Results and Discussion sections also contain many grammar errors and unclear
statements and should be revised with editorial help. From now on, I will only address content issues.

Results
Please consider using self-reported rates instead of official smoking rates.
Please report chi square values on significant differences between self-reports and urinary cotinine tests for men and women.
Line 137, it seems that the results reported from this line are based on the self-reported smoking rate. If this is the case, the line should start with a new paragraph.
Lines 139-141, what is the base of comparing smoking rates between single-person and two- or more-person households?

Discussion
Lines 183-184, please revise the sentence because it is somewhat misleading given the study by Jung-Choi (2012) reported the same finding.
Lines 188-190, it is difficult to understand the statements? I am not sure whether the accuracy differences by gender was larger in South Korea than any other countries or is larger in some other countries than in South Korea?
Please discuss more about the findings regarding the decreasing rate of participation in urinary cotinine tests and what may have contributed to the decrease.