**Author’s response to reviews**

**Title:** Attitudes and practices related to intrauterine devices for nulliparous women among Chinese health care providers

**Authors:**

Ziliang Wang (wangziliang1986@126.com)
Chaohua Lou (louchaohua60@163.com)
Longmei Jin (longmeijin@126.com)
Maohua Miao (miaomaohua@163.com)
Xiaowen Tu (tuxwcn@163.com)
Hong Liang (lucylhcn@163.com)
Yan Cheng (yancheng79@yahoo.com)
Wei Yuan (yuanweis1@yahoo.com)

**Version:** 1 **Date:** 31 Dec 2018

**Author’s response to reviews:**

Dear Editor,

Great thanks to you and the reviewers for your comments and suggestions. We have revised the manuscript accordingly, as below:

Reviewer #1:

This article focused in attitudes and practices related to intrauterine devices (IUDs) for nulliparous women among Chinese health care providers. It demonstrates that negative attitudes and infrequent practices regarding IUDs use for nulliparous women are common in Chinese health care providers. Health care providers' misperceptions of the safety and contraindications of IUDs are associated with their negative attitudes towards IUDs use for nulliparous women and may further reduce their provision of related services. This issue in China is clearly related to the heavy influence on Chinese health care providers by traditional sexual concept. Educational interventions are needed to improve health care providers' accurate knowledge of IUDs and fill the gap between traditional sexual concept and young women's needs of contraceptive services.
These findings are informative and practical to public health care services, particularly in those countries, like China with a relatively high rate of unintended pregnancy and induced abortion.

Response: We thank the reviewer for the comments.

Reviewer #2:

This paper focused on the reproductive issue among young unmarried women, which reflected higher attention to women's health condition and social status, and had certain social value. This paper has a reasonable structure, conducting a survey about knowledge of intrauterine devices (IUDs) and willingness to recommend IUDs to nulliparous women among Chinese health care providers by questionnaire. It showed that negative attitudes and infrequent practices regarding IUDs use for nulliparous women are common in Chinese health care providers, meanwhile some other conclusions are drawn. The detailed comments are as follows:

1. The introduction about why this survey should be conducted is very poor. 1) There was no clear limit on the range of subjects in the experiment. Was this phenomenon caused by one's own will or by other factors? Was there such a need in the population being used? 2) The basic information of the providers was not detailed. There may be geographical, educational level and other factors affecting the results of the experiment.

Response: We thank the reviewer for the comments. We have added information to introduce the important role of health care providers in increasing use of IUDs among young women (page 6, lines 7-11), to support the need for this survey conducted among Chinese health care providers. One aim of this study was to explore what potential factors might contribute to providers' attitudes and practices and further present barriers to increasing IUDs use among young women.

We have also added information on how we conducted this survey (page 7, lines13-14). To investigate the attitudes and practices of different types of health care providers and maximize the generalizability of our study, we recruited subjects from two national academic conferences on obstetrics and gynecology or women’s health care. We distributed questionnaires in sessions on contraception topics to target health care providers who might provided related services or at least be relevant to this topic. Instead of adopting inclusion criteria to limit the range of subjects, we collected their demographic characteristics (including educational level) and occupational characteristics (including work setting and location) to further explore if these factors would affect their attitudes or practices. The basic information of providers was presented in the first paragraph of the results section (page 10).
3) The introduction of IUDs did not highlight its importance, and citation literature was not sufficient. It did not provide a specific figure to explain on the issue of IUDs' safety, only mentioned that 'it has been studied'.

Response: We thank the reviewer for this suggestion. We have added an explanation on the safety of IUDs with specific figures and more literatures (page 6, lines 1-2).

4) It is noted that this manuscript needs careful editing paying attention to the sentence structure so that the purpose of this study is clear to the reader.

Response: We have modified the sentence structure to make the purpose of this study clearer to read (page 7, lines 3-7).

2. There are few explanations of the rationale for the questionnaire design and statistical methods used in the study. For example, whether the impact of time and hospital factors is excluded? why 'unsure' was defined as misperceptions about the safety of IUDs? What did 'failure rates' mean? How did the figure '63.0%' conclude? Furthermore, if providers know few about IUDs, then setting up whether or not to recommend the use of IUDs and other issues does not make sense. By the way, the number of respondents was not enough and the participation rate was only 76.3%.

Response: We thank the reviewer for the comments.

We have added references for the questionnaire design (page 7, lines 19-20; page 8, lines 5, 8, 13, and 17). We defined "unsure" as misperceptions based on related studies in order that we could compared our findings with the previous study a. In addition, "unsure" could be interpreted as that providers didn't have accurate knowledge or understanding about IUDs.

We have added an explanation on "failure rates" and also given the references (page 8, lines 5-8). We stated that "typical use failure rate <1% was defined as correct answer, while 1-5% and >5% were defined as slightly and strongly underestimation, respectively" (page 8, lines 8-10), and 63.0% of respondents slightly underestimated the effectiveness.

In the method section, we listed all potential factors we collected, including health care providers’ demographic characteristics (sex, age, educational level) and occupational
characteristics (professional title, working years, provision of contraceptive services, receipt of training in IUDs, work setting and location, on-site availability of IUDs) (page 7, lines 14-17). Then, we explained how we selected related variables for multivariate analyses (we included health care providers’ demographic and occupational characteristics with p value<0.2) (page 10, lines 3-13). In addition, included variables were presented in Table 3 and Table 4 (pages 12-13).

We hypothesized that providers' misperceptions about IUDs, (e.g., they were unaware of "IUDs are safe", either they thought IUDs were unsafe or they were unsure about IUDs' safety), could affect their willingness and practice to recommend or provide this method to nulliparous women, and further affect their practices. In the current study, the findings supported our hypotheses. In addition, the results showed that our respondents provided IUDs much more frequently to parous women compared to nulliparous women, which suggested that our respondents "knew" IUDs but knew IUDs in an inaccurate way.

We agree that the relatively small sample size might limit the generalizability of our results. We presented it as a limitation in the discussion section (page 17, lines 4-9). On the other hand, considering the fact that only a fraction of obstetrics and gynecology physicians are involved in contraceptive services provision, our subjects from national conferences, in spite of the small number, might be more representative than they seemed like.


We hope that the manuscript has been revised in a manner that will make it suitable for publication.

Thank you!

Yours sincerely,
Wei Yuan