

Peer Review File

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Reviewer A

Comment 1: The study was conducted in 54 hospitals in 31 cities in China and 648 nurses from Gynecology department and Urology department were recruited. The author should provide some information regarding the determinate of sample size and how to invite them to participate in the study and described a little why 54 hospitals in 31 cities were selected.

Response: Thanks for your question and sorry for our inappropriate description. We did not select research setting (54 hospitals in 31 cities) during the research design stage, we used convenience sample in this study. All the participates were recruited through online survey, female nurses from gynecology departments and urology departments were invited to finish an online survey powered by www.wjx.cn. The results showed that 648 nurses from gynecology department and urology department were recruited, and they were distributed in 54 hospitals in 31 cities in China.

We have revised the method and results part of the manuscript to make the description of participants in this study more clearly.

Changes in the text: (Method part) We conducted a national cross-sectional survey from October to December 2019 to evaluate the situation of embarrassment among Chinese female nurses when they provide genitalia-related care as well as the factors associated with the level of embarrassment. Female nurses from gynecology and urology departments

were recruited online via convenience sampling and invited to complete an online survey powered by www.wjx.cn, (see Page 6, line 121-129)

(Results part) A total of 648 nurses (311 from gynecology departments and 337 from urology departments) from 54 hospitals in 31 cities were enrolled in this study. (see Page 9, line 195-196.)

Comment 2. Under 40 years was one of the inclusive criteria but why?

Response: Thanks for your question and sorry for the confused description. Under 40 years was not one of the inclusive criteria, it was one of results of participants' characteristics. To avoid misunderstanding, we deleted the sentence "Most of the nurses (91.20%) were under 40 years old".

Comment 3: 3 instruments were used in this study, the constructs and definition should be provided and the author should describe the reliability and validity of the instrument.

Response: Thanks for your suggestion and sorry for the unclear description. We only used two instruments in our study, namely Chinese version of professional identity scale and Jefferson scale of empathy. Level of embarrassment was assessed by one question "How embarrassing is providing genitalia-related care?".

The constructs and definition of the instruments (Chinese version of professional identity scale and Jefferson scale of empathy) have been detailed in manuscript, and we've added the reliability and validity of the two instruments.

Changes in the text: The level of embarrassment when providing genitalia-related care was assessed by asking, “How embarrassing is providing genitalia-related care?” The level of embarrassment was rated from 1 to 5, with responses ranging from 1 being “extremely embarrassing,” and 5 being “not embarrassing at all.” (see Page 7, line 136- 140)

The online survey also included a professional identity scale and the Chinese version of the Jefferson scale of empathy. The professional identity scale (1) was used to measure nurses’ professional identity—the clear recognition of one’s career goals, abilities, personal interests, and personal values (2). The scale consists of five dimensions: self-reflection, dealing with professional frustration, professional social skills, professional social support, and professional identity evaluation. There are 30 items rated on a 5-point Likert scale, with 1 indicating that the dimension was “very inconsistent,” 2 that it was “inconsistent,” 3 that it was “sometimes consistent,” 4 that it was “consistent,” and 5 that it was “very consistent;” the total score ranged from 30–150. Typically, 30–60 points indicated very low levels of professional identity, 61–90 points indicated low levels of professional identity, 91–120 points indicated medium levels of professional identity, and 121–150 points indicated high levels of professional identity. Satisfactory reliability and validity were determined (Cronbach’s $\alpha = 0.938$, $\chi^2/df = 1.85$). A previous study confirmed the scale’s acceptable reliability (3). (see Page 7,8, line 141- 156)

The Chinese version of the Jefferson scale of empathy (4, 5) was used to

assess nurses' level of empathy— the ability to understand others (6). The scale contains 3 dimensions: perspective taking, compassionate care, and understanding of others' perspectives. The scale contains 20 items rated on a Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree), with a total score of 7–140 points. A single item score ≥ 3.5 indicates a relatively ideal level, while total scores ≤ 60 , 61–99, and ≥ 100 indicate low, medium, and high levels of empathy, respectively. The Chinese version scale had sound reliability and validity. The Cronbach's alpha coefficient of the overall scale was 0.797, and the split-half reliability coefficient was 0.788. The content validity index for the overall scale was between 0.2–1, suggesting good reliability and validity. Previous study confirmed the scale's acceptable reliability and validity in the Chinese context (7, 8). (see Page 8, line 157- 169)

Comment 4: t-test or Mann-Whitney U test to compare continuous data depending on distribution of data... and how did the author examine the distribution of data?

Response: Thanks for your question. We used Shapiro-Wilk test to examine the normality of the continuous variables. We have added this to statistical analysis part.

Changes in the text: “We used a t-test or Mann-Whitney U test to compare continuous data, depending on the distribution of continuous data, and used the Shapiro-Wilk test to examine the normality of the data”. (see Page 8, line 173- 175)

Comment 5: Most of the findings are already known, there is no particularly new discovery, and the discussion is not in-depth. Overall, this research topic has cultural meaning, but the purely descriptive research design seems not be able to fully explore this topic. The findings of this research are already known, the research design is not innovative enough, and the clinical application of the research finding has not been discussed. It is recommended that the authors rethink the research design or data analysis methods, which can explore the issue deeper, this research topic has cultural meaning, but the purely descriptive research design seems not be able to fully explore this topic.

Response: Thanks for your comments and suggestion. Yes, the current study using a cross-sectional design with convenience sample, which have limitation in explore the topic deeper. Next, we would work with sociologist, psychologist and anthropology to conduct further research. We have added this in the limitation part. We also added the clinical application of the research finding in the discussion part to highlight the importance of enhance sense of professional identity, empathy and continuous training among nurses.

Changes in the text:

(limitation part) Third, the current research is descriptive and merely provides preliminary results of factors associated with medical embarrassment. Further research is needed to explore how culture, professional identity, and empathy influence the level of medical embarrassment. (see Page14, Line 298-302)

(Discussion part) Previous studies have shown that medical embarrassment is not unidimensional, but has two distinct components: bodily embarrassment and unwanted intimacy during examinations (9, 10). Nurses with A strong desire to help and strong sense of responsibility were able to come out of their comfort zone and address sexual issues with patients (11). These results provide preliminary evidence that scores on the professional identity scale and scale of empathy were correlated with nurses' coping with medical embarrassment. (see Page13, Line 269-276)

Empathy is one of the major factors influencing nurse attributes (12). Nurses with a high level of empathy may better understand a patient's situation (13). Enhancing the understanding of others' perspectives may be beneficial in modulating embarrassment. (see Page13, Line 277-280)

We also found that female nurses with higher education levels felt less embarrassed when providing genital-related care. It is possible that nurses with higher education had more opportunities for sex education, leading to a more positive attitude toward providing intimate care. Furthermore, coping with genitalia-related care situations require nurses to possess certain skills and high levels of experience. Furthermore, coping with genitalia-related care situations require nurses to possess certain skills and high levels of experience. These skills and experience are generally influenced by education level. Reported learning needs indicated that student nurses needed an effective

curriculum to increase their ability and willingness to address patients' sexual health (14). Therefore, adding courses about genital care, especially regarding how to cope with embarrassment, and encouragement from nurse managers to receive continuous training are essential to reduce nurses' embarrassment. (see Page13,14, Line 281-292)

Reviewer B

Comment 1: Line 9: I consider it is so important to add study objective

Response: Thank you for your suggestion, we have added study objective in the abstract part.

Changes in the text: “**Background:** Genital-related care is Therefore, we conducted a cross-sectional study to investigate genitalia-related care embarrassment situation and its associated factors among Chinese female nurses.” (see Page 2, line 47-49)

Comment 2: Line 41-59. In the introduction authors should include more context regarding of genitalia care. I suggest include a paragraph of genitalia care population conception in order to understand this previous background. And the other hand, they can include same factors that explain the embarrassment related with care nursing and their addressing in the nursing curricula:

Response: Thanks for your suggestion. We have added a paragraph of genitalia care population conception.

Changes in the text: “Medical staff like nurses also face this sensitive

situation, especially when providing genitalia-related nursing, which are nursing procedures that necessitates exposure and/or physical contact with the external genitalia (perineum, penis, or orchis) and includes genital hygiene, urinary catheterization, meatal cleansing, genital wound care, pubic area shaving, and taking sexual history on admission to the ward (15).” (see Page 5,line 86-91)

Comment 3: Line 58: It is not necessary to point out the use of STROBE reporting

Response: Thank you for your comment, the Journal guidelines require a reporting checklist and that the checklist be reported in the introduction of the paper, so we move this sentence to the introduction part.

Comment 4: Line 65: The criteria “had a history of genitalia-related care” is not really important, I suppose all nurses in this departments perform genitalia care

Response: Thank you for your suggestion. Yes, all the nurses in these departments perform genitalia care, and we have deleted the criteria “had a history of genitalia-related care”.

Comment 5: Line 101: Authors should include responses for the following questions.

What was the dependent variable and the independent variables?

How they performed the best model (inclusion of the independent variables)?

Are they estimate some statistics to verified the model adjusted?

Response: Thanks for your questions. The responses of these questions are as follows:

1) The dependent variable was the level of embarrassment, and the independent variables included total professional identity score, total empathy score, age, working years, educational level, genital-related care frequency per week and prior sexual experience.

2) The selection of the inclusion of the independent variables was based on the opinions of nursing specialists, all influencing factors that potentially affect embarrassment in this study were included in the analysis.

3) The model fit statistics of ordinal logistic regression using each department data are as follows:

Table 1 Model Fit Statistics

	Intercept only	Intercept and covariates
Gynecology department		
AIC	682.603	666.743
SC	693.823	719.100
-2Log L	676.603	638.743
Urology department		
AIC	1026.602	1015.119
SC	1041.882	1072.420
-2Log L	1018.602	985.119

These results showed that with covariates the model performed better than just intercept.

We have added the description of the ordinal logistic regression in the statistical analysis part as follows:

Changes in the text:

“We used ordinal logistic regression to identify the factors associated with the level of embarrassment among nurses, with the dependent variable being the level of embarrassment and the independent variables being total professional identity score, total empathy score, age, working years, educational level, genital-related care frequency per week, and prior sexual experience. The independent variables were included based on the opinions of nursing specialists.”(see Page 8,9, line 178-181)

Comment 6: Discussion

- I suggest include some studies regarding the relation of higher education and Empathy level in less embarrassment

Response: Thanks for your suggestion. We have added discussion about the relation of higher education and empathy level in less embarrassment.

Changes in the text:

Empathy is one of the major factors influencing nurse attributes (12). Nurses with a high level of empathy may better understand a patient's situation (13). Enhancing the understanding of others' perspectives may be beneficial in modulating embarrassment.(see Page13, line277-280)

We also found that female nurses with higher education levels felt less embarrassed when providing genital-related care. It is possible that nurses with higher education had more opportunities for sex education, leading to a

more positive attitude toward providing intimate care. Furthermore, coping with genitalia-related care situations require nurses to possess certain skills and high levels of experience.. These skills and experience are generally influenced by education level. Reported learning needs indicated that student nurses needed an effective curriculum to increase their ability and willingness to address patients' sexual health (14). Therefore, adding courses about genital care, especially regarding how to cope with embarrassment, and encouragement from nurse managers to receive continuous training are essential to reduce nurses' embarrassment. (see Page 13,14, line281-292)

Comment 7: I believe, the participation of nurses under 40 years can be an important limitation because maybe in nurses with nor age can grow embarrassment. Also, the application on line blocked their participation because the technological gap that exist on older population

Response: Thanks for your comments and sorry for the unclear description. The participation of nurses under 40 years was not one of the inclusive criteria, the results showed 91.2% nurses were under 40 years. We do agree that on-line survey caused a selection bias as you point out, we have revised the limitation part as advised.

Changes in the text: "First, female nurses included in this study were recruited using convenience sampling; most participants were under 40 years, indicating potential selection bias." (see Page 14, line 294-296)

Reviewer C

Comment 1: The introduction is quite superficial. The authors merely noted

that few studies have been conducted on the very topic among nurses. However, they did not discuss the findings of these studies. Please provide a detailed description of the existing studies in terms of their purpose, sample, methods, and key findings and highlight how your study differs from the existing studies. A stronger problem statement is critical to substantiate the global relevance of this study.

Response: Thanks for your comments and suggestions. We have added the main findings of existing studies in the introduction part.

Changes in the text: Although many studies have focused on medical embarrassment and its influence on patients, few studies have examined embarrassment among female nurses. Existing studies on attitudes toward intimate care have mainly involved nursing students and male nurses. Crossan et al. (18) interviewed 166 nursing students in New Zealand to explore their attitudes about providing intimate care to patients of the opposite sex. The results showed that student nurses face many challenges when providing intimate care to patients. Meanwhile, [Turk](#) et al. (19) studied 300 female nursing students' attitudes toward male patients and found that many students had negative attitudes toward genital area-related care. Inoue et al. (20) used semi-structured, open-ended interviews to explore male nurses' experiences of providing intimate care for female patients in Western Australia and discovered that male nurses often experienced various negative feelings.

(see Page 5,6, line 94-106)

Comment 2: Under introduction, page 4 line 52: The authors noted that “the Chinese conservative culture and female among account for the major proportion”. First, please clarify what the authors mean here as the statement is ambiguous. Second, I did understand that the authors are referring to the conservative culture within the health care. Please provide some more details about this culture to support the need for this study. I think it is useful to highlight for the readers so the findings can be interpreted and compared to other cultures.

Response: Thanks for your comments and suggestions. We have added details about the Chinese conservative culture in the discussion part.

Changes in the text: In China, one of the core contents of the "Rites" in Confucianism is that physical contact between adults of different genders outside marriage is traditionally prohibited. Physical contact with any sexual implication, for example, exposure of or physical contact with the penis, is often regarded as the most private matter for Chinese individuals (21). (see Page 12,13, line 254-259)

Comment 3. Methods: Three scales were used for data collection namely Level of embarrassment scale, The professional identity scale, and The Chinese version of the Jefferson scale of empathy. First, I would like to see more information about the validity and reliability, the process of development and pilot testing of the Levels of embarrassment scale (please correct me if I identified the name wrong as I could not see the name of this scale). Did the

authors develop this scale?

Second, please provide a rationale for using the professional identify scale and scale of empathy as the purpose does not make it clear why these two scales were also used. Please also provide more information about the scale items and the validity and reliability of these scales in the Chinese context. I am particularly confused about the use of Empathy scale. If empathy levels were determined because provide a clear rationale for this study.

Response: Thanks for your questions and sorry for the confused description. 1) We only used two instruments in our study, namely Chinese version of professional identity scale and Jefferson scale of empathy. The level of embarrassment when providing genitalia-related care was assessed by asking, “How embarrassing is providing genitalia-related care?”. And the level of embarrassment was rated from 1 to 5, with responses ranging from 1 being “extremely embarrassing,” and 5 being “not embarrassing at all. (see Page 7, line 136- 140).We have added the information about the scale items and the validity and reliability of these scales in the Chinese context.

Change in text:

The level of embarrassment when providing genitalia-related care was assessed by asking, “How embarrassing is providing genitalia-related care?” The level of embarrassment was rated from 1 to 5, with responses ranging from 1 being “extremely embarrassing,” and 5 being “not embarrassing at all. (see Page 7, line 136- 140)

The professional identity scale (1) was used to measure nurses' professional identity—the clear recognition of one's career goals, abilities, personal interests, and personal values (2). The scale consists of five dimensions: self-reflection, dealing with professional frustration, professional social skills, professional social support, and professional identity evaluation.Satisfactory reliability and validity were determined (Cronbach's $\alpha = 0.938$, $\chi^2/df = 1.85$). A previous study confirmed the scale's acceptable reliability (3). (see Page 7,8, line 141- 156)

The Chinese version of the Jefferson scale of empathy (4, 5) was used to assess nurses' level of empathy— the ability to understand others (6). The scale contains 3 dimensions: perspective taking, compassionate care, and understanding of others' perspectives.....The Chinese version scale had sound reliability and validity. The Cronbach's alpha coefficient of the overall scale was 0.797, and the split-half reliability coefficient was 0.788. The content validity index for the overall scale was between 0.2–1, suggesting good reliability and validity. Previous study confirmed the scale's acceptable reliability and validity in the Chinese context (7, 8). (see Page 8, line 157- 169)

2) We have added some discussion about the relationship between professional identify and level of embarrassment as well as empathy and level of embarrassment.

Change in text:

Previous studies have shown that medical embarrassment is not unidimensional, but has two distinct components: bodily embarrassment and unwanted intimacy during examinations (9, 10). Nurses with A strong desire to help and strong sense of responsibility were able to come out of their comfort zone and address sexual issues with patients (11). These results provide preliminary evidence that scores on the professional identity scale and scale of empathy were correlated with nurses' coping with medical embarrassment. (see Page 13, line 269- 276)

Empathy is one of the major factors influencing nurse attributes (12). Nurses with a high level of empathy may better understand a patient's situation (13). Enhancing the understanding of others' perspectives may be beneficial in modulating embarrassment. (see Page13, Line 277-280)

Comment 4. Ethical approval. I did not see any statement if the ethical approval was obtained. I can only see that the authors would be accountable for the work. Please clarify if a formal ethical approval was obtained. I am sure many questions asked for nurses would have made them uncomfortable, so it should be made explicit if the ethics board review this study.

Response: Thanks for your comments and questions. The study protocol was approved by the Ethical Committee of the Peking University People's Hospital(No.2020PHB182-01). The online survey was anonymous. Participants' consent was obtained when they accessed the online survey. We have added the statement in the Ethics statement part. (see Page15,16, Line 323-331)

Comment 5. The discussion is quite superficial. The authors have explained their study findings, but the implications for nursing community and the areas for future research are not highlighted in the discussion. Please expand this section to discuss implications and areas for future research. I hope this review is helpful.

Response: Thanks for your suggestions. We have revised the discussion part, added the clinical application of the research finding in the discussion part to highlight the importance of enhance sense of professional identity, empathy and continuous training among nurses. We also discussed the limitation of current study design and next we would work with sociologist, psychologist and anthropology to conduct further research to explore this topic more deeply.

Changes in the text:

Nurses with A strong desire to help and strong sense of responsibility were able to come out of their comfort zone and address sexual issues with patients (11). These results provide preliminary evidence that scores on the professional identity scale and scale of empathy were correlated with nurses' coping with medical embarrassment. (see Page13, Line 271-276)

Empathy is one of the major factors influencing nurse attributes (12). Nurses with a high level of empathy may better understand a patient's situation (13). Enhancing the understanding of others' perspectives may be beneficial in modulating embarrassment.(see Page13, Line 277-280)

Reported learning needs indicated that student nurses needed an effective curriculum to increase their ability and willingness to address patients'

sexual health (14). Therefore, adding courses about genital care, especially regarding how to cope with embarrassment, and encouragement from nurse managers to receive continuous training are essential to reduce nurses' embarrassment. (see Page14, Line 287-292)

Third, the current research is descriptive and merely provides preliminary results of factors associated with medical embarrassment. Further research is needed to explore how culture, professional identity, and empathy influence the level of medical embarrassment. (see Page14, Line 298-302c)

Reviewer D

Comment The article is relevant and refers to an important discussion on a taboo subject among nurses: the embarrassment with the genitalia of patients under their care.

However, the text as a whole needs a major revision of English grammar and spelling.

Lines 58 and 59 are referred that "We present the following article according to the checklist in the STROBE report". However, a bibliographic reference is not provided. And throughout the work it is not clear why this was done, being placed only at the end of the text. I suggest commenting on this in the text.

Response: Thanks for your suggestions and sorry for the unclear description. We have used editing service to help us with grammar and spelling check. We have acknowledged the editing service in the revised manuscript.

Since we use cross-sectional study design, we followed the STROBE statement

to report our study design and results, and we added the reference of reporting checklist.

Comment : The wording of the methodology must be improved;

Response: Thanks for your comment and suggestion. We have revised the method part and using editing service to help us to polish the language.

Comment :Table 1 requires spell check and urgent formatting.

Response: Thanks for your suggestion. We have check the spell and re-formatting Table 1.