

Original Article

Relationship between the perceived severity of unwanted pregnancy and attitudes toward four contraceptive methods among unmarried university students in Korea: differences by gender and sexual experience

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Abstract

Background and objective: This study examined the relationships between the perceived severity of unwanted pregnancy and attitudes toward four contraceptive methods (condoms, oral contraceptive pills, the withdrawal method, and the rhythm method) according to gender and sexual experience among unmarried university students in Korea. **Material and methods:** A descriptive cross-sectional comparative study was conducted among 1,372 unmarried university students (men, n = 755; women, n = 617). This was a secondary analysis based on a prior online survey. Descriptive statistics, the Kruskal-Wallis test, pairwise comparisons using the Mann-Whitney U test with the Bonferroni correction, and logistic regression were used to analyze the data in this study. **Results:** Female students with sexual experience had the highest scores for the perceived severity of unwanted pregnancy. In each group defined according to gender and sexual experience, differences in attitudes toward contraceptive methods significantly influenced the perceived severity of unwanted pregnancy. **Conclusion:** Efforts should be made to increase the perceived severity of unwanted pregnancy among female students who have favorable attitudes toward the rhythm and withdrawal methods. Students with sexual experience who use the rhythm and withdrawal methods should be targeted for educational interventions aiming to strengthen the perceived severity of unwanted pregnancy.

Keywords

Contraceptive methods; Perceived severity of pregnancy; Unwanted pregnancy

1. Introduction

In recent years, changes in sexual values in Korean society have caused premarital sex to become more common and this led to a gradual decrease in age at first sexual intercourse [1, 2]. A study conducted among university students in Korea [3] found that 53.2% of university students had sexual experience. The majority of fertile adult women (77.2%)

experienced anxiety, including fear and depression, regarding the possibility of unwanted pregnancy after having sexual intercourse until the next menstruation [4]. In particular, 93.9% of women with experience of sexual intercourse who have not experienced pregnancy fear the possibility of pregnancy, and such fears were found to be significantly more common among single women than among married women [5]. This fear has contributed to a high pregnancy rate,

whereby 93.3% of women and 60% of men who experienced unwanted pregnancy were unmarried and they were in their 20s [6].

Unwanted pregnancy mainly occurs due to failures of contraception such as not practicing contraception, using ineffective contraceptive methods, or inappropriately using effective contraceptive methods. Of those who experienced unwanted pregnancy, an extremely small percentage (3.0%) practiced contraception [6]. Attitudes toward contraceptive methods are an important factor influencing the practice of contraception. In this context, attitudes refer to an individual's positive or negative evaluation of contraceptive methods [7]. That is, the more positively one thinks about contraception, the stronger is one's conviction to regularly practice contraception, safe sexual activities, and contraceptive methods [8]. Moreover, perceived severity is known to be an important factor that determines ongoing choices of health behaviors and the prevention of health issues in the health behavior model [9]. In other words, as the level of importance or relevance perceived by an individual becomes higher, the individual's interest increases, and it is expected that the attitude will ultimately change toward a positive direction.

Primary prevention of unwanted pregnancy is less effective when it is only conducted among women; instead, including men in counseling and education related to sexual activity and contraception can indirectly influence the rate of unwanted pregnancy [10]. Furthermore, female partners consider their male partners' opinions to be important. When a male partner strongly supports the use of a contraceptive method by the female partner, the female partner becomes more likely to use an effective contraceptive method [11]. Thus, it is advisable to perceive contraception as an issue of gender equality and to approach the issue as such. Accordingly, this study investigated the relationships between attitudes toward four contraceptive methods and the perceived severity of unwanted pregnancy according to gender and experience of sexual intercourse among unmarried university students.

2. Methods

2.1 Participants and procedure

The participants of this study were 1,327 unmarried Korean university students, from whom information was collected for 6 months from November 2013 to April 2014 and the data were used for analysis in the study on perception of emergency contraceptive pill related to the intention to use contraceptive methods by unmarried university students in Korea [12]. A secondary analysis was conducted for the purposes of this study. Undergraduate and graduate students who enrolled at the Seoul National University between November 2013 and April 2014 received an email about this study. After approval, students were emailed once a month for 5 months with the support of the administrative office of the university. Students who willingly participated in this study directly accessed the online survey web-

site at <http://research.joongang.com/survey.php?v=y&id=13-9-1291> [12]. Using G*Power version 3.1, the adequacy of the final sample number of 1,327 students was confirmed with a *post hoc* power analysis, with an odds ratio of 1.3 and a significance level of 5% in the 2-tailed test. The minimum number of samples necessary for logistic regression analysis was 1,188 people. The *post hoc* power analysis of the final number of 1,327 samples used in the analysis of this study yielded a power of 0.97, validating the adequacy of the final number of samples for logistic regression analysis.

2.2 Severity of unwanted pregnancy questionnaire

The perceived severity of unwanted pregnancy at the individual level was assessed by two questions that asked about the severity for oneself at present and in the future, while the social dimension of severity was evaluated with two questions on the severity of unwanted pregnancy for society at present and in the future. A 5-point scale was used, with 1 point corresponding to "no severity at all" and 5 points meaning "very severe." Higher scores corresponded to greater perceived severity. The appropriateness of the questions was confirmed through a review by two maternity nursing professors. In this study, Cronbach's α was 0.79.

2.3 Questionnaire on attitudes toward four contraceptive methods

Attitudes toward the four most commonly used contraceptive methods by university students in Korea (condoms, oral contraceptive pills, the withdrawal method, and the rhythm method) were measured. For each contraceptive method, six questions were presented, including whether the failure rate of contraception is high or low, whether it is a safe contraceptive method, whether the method has a low possibility of side effects, whether the method helps prevent sexually transmitted diseases, whether the method can be trusted, and whether the respondent will choose it as his or her contraceptive method. A 5-point scale was used, with 1 point corresponding to a response of "not at all" and a score of 5 points meaning "very true". Thus, the scores ranged from 6 points to 30 points, with higher scores indicating more positive attitudes. The appropriateness of the question items was confirmed through a review by two professors of maternity nursing. In this study, Cronbach's α was 0.74 (condoms), 0.67 (oral contraceptive pills), 0.85 (withdrawal method), and 0.79 (rhythm method).

2.4 Data analysis

The collected data were analyzed using SPSS for Windows version 24.0 (IBM Corp., Armonk, NY, USA). The frequency and the percentage of nominal variables and the mean and the standard deviation of continuous variables were obtained. In order to investigate differences in the perceived severity of unwanted pregnancy and attitudes toward four contraceptive methods according to gender and sexual experience, the Kolmogorov-Smirnov test was used for the pre-

normality test and Kruskal-Wallis test was performed because the results thereof failed to show a normal distribution. In the post-analysis to test between-group differences, pairwise between-group comparisons of mean values were performed using the Mann-Whitney U test. Multivariate logistic regression analysis was conducted to confirm the magnitude of the influence of attitudes toward contraceptive methods on the perceived severity of unwanted pregnancy,

TABLE 1. Differences in Perceived Severity of Unwanted Pregnancy and Attitudes toward Contraceptive Methods According to Gender and Sexual Experience (n = 1,372)

| Characteristic | Total | Male (n = 755) | | | | Z (p) † | Female (n = 617) | | | | Z (p) † | Z (p) †‡ | Subjects | | | | Z (p) § |
|--|--------------|----------------|-------------------------|----------------------|-----------------|--------------|------------------|-------------------------|----------------------|-----------------|--------------|--------------|--------------|--------------|------------------|--------------|---------|
| | | Total | No experience (n = 248) | Experience (n = 507) | | | Total | No experience (n = 259) | Experience (n = 358) | | | | I (n = 248) | II (n = 507) | III (n = 259) | IV (n = 358) | |
| | | M ± SD | | | | M ± SD | | | | | | M ± SD | | | | | |
| Perceived severity of unwanted pregnancy | 7.08 ± 1.24 | 6.94 ± 1.31 | 6.56 ± 1.38 | 7.13 ± 1.24 | -6.02 (< 0.001) | 7.25 ± 1.11 | 6.99 ± 1.17 | 7.44 ± 1.02 | -5.85 (< 0.001) | -4.35 (< 0.001) | 6.56 ± 1.38 | 7.13 ± 1.24 | 6.99 ± 1.17 | 7.44 ± 1.02 | 87.60 (< 0.001) | | |
| Attitudes toward contraceptive methods | | | | | | | | | | | | | | | | | |
| Use of condoms | 23.91 ± 3.36 | 24.71 ± 3.09 | 23.52 ± 3.26 | 25.29 ± 2.82 | -7.05 (< 0.001) | 22.94 ± 3.43 | 21.85 ± 3.65 | 23.73 ± 3.04 | -6.68 (< 0.001) | -9.33 (< 0.001) | 23.52 ± 3.26 | 25.29 ± 2.82 | 21.85 ± 3.65 | 23.73 ± 3.04 | 175.90 (< 0.001) | | |
| Use of oral contraceptive pills | 17.33 ± 3.63 | 17.31 ± 3.57 | 16.80 ± 3.44 | 17.56 ± 3.61 | -2.62 (0.009) | 17.35 ± 3.71 | 16.58 ± 3.78 | 17.91 ± 3.56 | -4.14 (< 0.001) | -0.42 (0.676) | 16.80 ± 3.44 | 17.56 ± 3.61 | 16.58 ± 3.78 | 17.91 ± 3.56 | 24.67 (< 0.001) | | |
| Use of the withdrawal method | 13.20 ± 5.26 | 13.04 ± 5.12 | 13.52 ± 5.14 | 12.80 ± 5.10 | -1.97 (0.049) | 13.39 ± 5.43 | 14.05 ± 5.97 | 12.92 ± 4.96 | -1.85 (0.065) | -1.04 (0.299) | 13.52 ± 5.14 | 12.80 ± 5.10 | 14.05 ± 5.97 | 12.92 ± 4.96 | 8.03 (0.045) | | |
| Use of the rhythm method | 13.70 ± 4.39 | 13.94 ± 4.47 | 14.76 ± 4.20 | 13.53 ± 4.54 | -3.60 (< 0.001) | 13.40 ± 4.27 | 13.92 ± 4.26 | 13.03 ± 4.24 | -2.68 (0.007) | -2.31 (0.021) | 14.76 ± 4.20 | 13.53 ± 4.54 | 13.92 ± 4.26 | 13.03 ± 4.24 | 26.02 (< 0.001) | | |

† Mann-Whitney U test; ‡ Differences between male and female; § Kruskal-Wallis test. Differences according to gender and sexual experience: I. male students without sexual experience; II. male students with sexual experience; III. female students without sexual experience; IV. female students with sexual experience.

odds ratios (ORs), and 95% confidence intervals (CIs) were obtained. The perceived severity of unwanted pregnancy, which was the dependent variable, was categorized as 1 when it was higher than the average score and 0 when it was lower than the average score for each group.

2.5 Ethical considerations

This study used and analyzed secondary data from an initial study, of which the anonymity and secrecy were guaranteed. The secondary data analysis was conducted after receiving an exemption from the Institutional Review Board after the approval procedure of the same institution (IRB No. E1806/001-009).

3. Results

3.1 Difference in the perceived severity of unwanted pregnancy and attitudes toward four contraceptive methods according to gender and sexual experience

Significant differences by gender were found in the perceived severity of unwanted pregnancy ($Z = -4.35, P < 0.001$), attitudes toward using condoms ($Z = -9.33, P < 0.001$), and attitudes toward the rhythm method ($Z = -2.31, P = 0.021$). A comparison according to sexual experience showed significant differences in the perceived severity of unwanted pregnancy ($Z = -6.02, P < 0.001$) and attitudes toward condoms ($Z = -7.05, P < 0.001$), oral contraceptive pills ($Z = -2.62, P = 0.009$), the withdrawal method ($Z = -1.97, P = 0.049$), and the rhythm method ($Z = -3.60, P < 0.001$). Among female students, the results were significant for the perceived severity of unwanted pregnancy ($Z = -5.85, P < 0.001$) and attitudes toward using condoms ($Z = -6.68, P < 0.001$), oral contraceptive pills ($Z = -4.14, P < 0.001$), and the rhythm method ($Z = -2.68, P = 0.007$) (Table 1).

3.2 Differences in the perceived severity of unwanted pregnancy and attitudes toward contraceptive methods among four groups according to gender and sexual experience

Significant differences were found in the perceived severity of unwanted pregnancy ($Z = 87.60, P < 0.001$) and attitudes toward using condoms ($Z = 175.90, P < 0.001$), oral contraceptive pills ($Z = 24.67, P < 0.001$), the withdrawal method ($Z = 8.03, P = 0.045$), and the rhythm method ($Z = 26.02, P < 0.001$) (Table 1). The specific results of the pairwise comparison using the Mann-Whitney U test for the post hoc analysis of the differences among the four groups are presented in Table 2.

3.3 Influence of attitudes toward four contraceptive methods on the perceived severity of unwanted pregnancy according to gender and sexual experience

The following variables significantly affected the perceived severity of unwanted pregnancy. In Group II, the experience of using the withdrawal method in the past was associated with a low perceived severity of unwanted pregnancy (OR = 0.54, 95% CI 0.34-0.84). In Group III, more positive attitudes toward the withdrawal method were associated with lower perceived severity of unwanted pregnancy (OR = 0.95, 95% CI 0.91-0.99). In Group IV, the perceived severity of unwanted pregnancy was low (OR = 0.52, 95% CI 0.31-0.88) among female students who had experience of using the rhythm method in the past and when the attitude toward the rhythm method was positive (OR = 0.92, 95% CI 0.86-0.99). However, in Group I, no attitude toward contraceptive methods had a significant influence on the perceived severity of unwanted pregnancy (Table 3).

4. Discussion

Differences in attitudes toward contraceptive methods and the perceived severity of unwanted pregnancy were found according to gender and sexual experience among unmarried university students in Korea. Moreover, logistic regression analysis showed that differences in attitudes toward contraceptive methods significantly affected the perceived severity of unwanted pregnancy in each group categorized according to gender and sexual experience.

The group with the highest level of perceived severity of unwanted pregnancy was female students with sexual experience, followed by male students with sexual experience. Male students who did not have sexual experience had the lowest level of perceived severity of unwanted pregnancy. No statistically significant difference was found in average scores between male students with sexual experience and female students without sexual experience. The comprehensive interpretation of the results suggests that the perceived severity of unwanted pregnancy differs according to sexual experience, and, in particular, female students with sexual experience—who are the main agents involved in pregnancy—perceived it as significantly more serious.

Regarding attitudes toward contraceptive methods, using condoms had the highest average score for both male and female participants, followed by using oral contraceptive pills and then the rhythm method. The withdrawal method had the lowest average score. The results of previous studies conducted among university students [13, 14] showed the same results, supporting the findings of this study. Using condoms was the most generally accepted contraceptive method. However, a positive attitude toward a contraceptive method does not mean a higher level of knowledge on specific methods of use or a higher rate of implementation of the contraceptive method. Accordingly, there is a risk of inconsistent implementation of a contraceptive method or failure to use contraception upon first sexual intercourse [13, 14]. Thus,

TABLE 2. Multiple Pairwise Comparisons of the Perceived Severity of Unwanted Pregnancy and Attitudes toward Contraceptive Methods (N = 1,327)

| Variables | Group | Multiplecomparison | Z [†] | Adjusted P value |
|---|-------|--------------------|----------------|------------------|
| Perceived severity of unwanted pregnancy | I | vs. II | -6.24 | < 0.001 |
| | | vs. III | -3.41 | 0.004 |
| | | vs. IV | -9.05 | < 0.001 |
| | II | vs. III | 2.37 | 0.108 |
| | | vs. IV | -3.83 | 0.001 |
| | | vs. IV | -5.45 | < 0.001 |
| Attitudes toward using condoms | I | vs. II | -7.00 | < 0.001 |
| | | vs. III | 4.96 | < 0.001 |
| | | vs. IV | -0.89 | 1 |
| | II | vs. III | 12.87 | < 0.001 |
| | | vs. IV | 6.79 | < 0.001 |
| | | vs. IV | -6.31 | < 0.001 |
| Attitudes toward using oral contraceptive pills | I | vs. II | -2.61 | 0.055 |
| | | vs. III | 0.46 | 1 |
| | | vs. IV | -3.66 | 0.002 |
| | II | vs. III | 3.18 | 0.009 |
| | | vs. IV | -1.45 | 0.875 |
| | | vs. IV | -4.21 | < 0.001 |
| Attitudes toward using the withdrawal method | I | vs. II | 1.92 | 0.328 |
| | | vs. III | -0.47 | 1 |
| | | vs. IV | 1.28 | 1 |
| | II | vs. III | -2.50 | 0.075 |
| | | vs. IV | -0.63 | 1 |
| | | vs. IV | 1.80 | 0.427 |
| Attitudes toward using the rhythm method | I | vs. II | 3.68 | 0.001 |
| | | vs. III | 2.15 | 0.190 |
| | | vs. IV | 4.94 | < 0.001 |
| | II | vs. III | -1.24 | 1 |
| | | vs. IV | 1.79 | 0.446 |
| | | vs. IV | 2.67 | 0.046 |

[†] Mann-Whitney U test. I. male students without sexual experience; II. male students with sexual experience; III. female students without sexual experience; IV. female students with sexual experience.

specific and practical education on contraceptive methods and the usage methods thereof should be included in sex education for unmarried university students.

In terms of differences in attitudes toward contraceptive methods according to gender and sexual experience, the most positive attitude was found for using condoms among male students with sexual experience and for taking contraceptive pills for female students with sexual experience. This can be interpreted as indicating that each group formed a positive attitude toward using a contraceptive method for which each can be responsible. In contrast, male students without sexual experience had a positive attitude toward the rhythm method, while female students without sexual experience had a positive attitude toward the withdrawal method. These results indicate that unmarried university students without sexual experience tended to want the other party to proactively practice contraception. Therefore, sexual experience shaped different attitudes toward self-responsibility in relation to attitudes toward contraceptive methods.

It is also noteworthy that both the perceived severity of unwanted pregnancy and attitudes toward contraceptive methods showed median scores of 6 points and 18 points, respec-

tively. Positive attitudes were not found for contraceptive methods other than condoms, because other contraceptive methods had lower average scores than the median value, whereas both male and female students showed a positive attitude toward using condoms and did not show a notably high level of perceived severity of unwanted pregnancy. The results of this study showed that both male and female university students did not have generally positive attitudes toward all four contraceptive methods. Therefore, it can be presumed that the likelihood of actual practice of contraception by the subjects is low, as in the findings of previous studies [14–16] that reported that sexual activities of university students often do not involve contraception because their sexual activities are usually unplanned and they fail to recognize that even a single sexual act can lead to pregnancy and almost half of young men have sexual activities without contraception, although they don't want their partner to be pregnant. In addition, male students without sexual experience, who had the lowest perceived severity of unwanted pregnancy, should be particularly targeted for sex education.

Differences in the relationships between attitudes toward contraceptive methods and the perceived severity of

TABLE 3. Factors Influencing the Perceived Severity of Unwanted Pregnancy by Gender and Sexual Experience (N = 1,327)

| Group | B | SE | Wald | P | OR (95% CI) |
|---|-------|------|-------|---------|------------------|
| I. Male students without sexual experience | | | | | |
| Using condoms | 0.04 | 0.04 | 0.89 | 0.345 | 1.04 (0.96–1.12) |
| Using oral contraceptive pills | -0.05 | 0.04 | 1.39 | 0.239 | 0.96 (0.89–1.03) |
| Using the withdrawal method | -0.01 | 0.03 | 0.08 | 0.782 | 0.99 (0.95–1.04) |
| Using the rhythm method | -0.01 | 0.03 | 0.03 | 0.859 | 0.99 (0.93–1.06) |
| (Constant) | 0.11 | 0.13 | 0.79 | 0.374 | |
| II. Male students with sexual experience | | | | | |
| Using condoms | -0.02 | 0.03 | 0.23 | 0.635 | 0.98 (0.92–1.05) |
| Using oral contraceptive pills | 0.02 | 0.03 | 0.35 | 0.552 | 1.02 (0.96–1.07) |
| Using the withdrawal method | 0.00 | 0.02 | 0.00 | 0.989 | 1.00 (0.96–1.04) |
| Using the rhythm method | -0.03 | 0.02 | 2.10 | 0.148 | 0.97 (0.93–1.01) |
| Frequency of contraception | 0.13 | 0.14 | 0.95 | 0.330 | 1.14 (0.87–1.49) |
| Experience of using condoms (Ref.: no) | -0.47 | 0.61 | 0.58 | 0.445 | 0.63 (0.19–2.08) |
| Experience of using oral contraceptive pills (Ref.: no) | 0.26 | 0.27 | 0.93 | 0.334 | 1.30 (0.76–2.22) |
| Experience of using the withdrawal method (Ref.: no) | -0.62 | 0.23 | 7.59 | 0.006 | 0.54 (0.34–0.84) |
| Experience of using the rhythm method (Ref.: no) | -0.08 | 0.21 | 0.16 | 0.694 | 0.92 (0.62–1.38) |
| (Constant) | 0.39 | 0.09 | 18.33 | < 0.001 | |
| III. Female students without sexual experience | | | | | |
| Using condoms | -0.01 | 0.04 | 0.11 | 0.737 | 0.99 (0.92–1.06) |
| Using oral contraceptive pills | 0.00 | 0.03 | 0.00 | 0.991 | 1.00 (0.94–1.07) |
| Using the withdrawal method | -0.05 | 0.02 | 4.42 | 0.036 | 0.95 (0.91–0.99) |
| Using the rhythm method | -0.01 | 0.03 | 0.14 | 0.707 | 0.99 (0.93–1.05) |
| (Constant) | -0.09 | 0.12 | 0.47 | 0.494 | |
| IV. Female students with sexual experience | | | | | |
| Using condoms | -0.01 | 0.04 | 0.10 | 0.753 | 0.99 (0.91–1.07) |
| Using oral contraceptive pills | -0.05 | 0.04 | 1.95 | 0.162 | 0.95 (0.88–1.02) |
| Using the withdrawal method | 0.03 | 0.03 | 1.00 | 0.318 | 1.03 (0.97–1.09) |
| Using the rhythm method | -0.08 | 0.04 | 5.69 | 0.017 | 0.92 (0.86–0.99) |
| Frequency of contraception | 0.10 | 0.16 | 0.42 | 0.516 | 1.11 (0.81–1.52) |
| Experience of using condoms (Ref.: no) | -0.20 | 0.56 | 0.13 | 0.716 | 0.82 (0.27–2.45) |
| Experience of using oral contraceptive pills (Ref.: no) | -0.20 | 0.31 | 0.40 | 0.526 | 0.82 (0.45–1.51) |
| Experience of using the withdrawal method (Ref.: no) | -0.48 | 0.30 | 2.54 | 0.111 | 0.62 (0.35–1.12) |
| Experience of using the rhythm method (Ref.: no) | -0.65 | 0.27 | 5.89 | 0.015 | 0.52 (0.31–0.88) |
| (Constant) | 0.99 | 0.12 | 69.28 | < 0.001 | |

unwanted pregnancy were found according to gender and sexual experience. Attitudes toward contraception did not have a significant effect on male students, but attitudes toward the withdrawal and rhythm methods affected the perceived severity of unwanted pregnancy in female students regardless of sexual experience. In the groups with sexual experience, the perceived severity of unwanted pregnancy was lower in male students who had used the withdrawal method and in female students who had used the rhythm method. This can be interpreted as indicating that the use of a contraceptive method in the past, as well as the specific contraceptive method that was used, influenced the perceived severity of unwanted pregnancy. Thus, male and female students with sexual experience should also be targeted for sex education.

In this study, the attitudes toward contraceptive methods that had a significant influence on the perceived severity of unwanted pregnancy in each group according to gender and sexual experience were as follows. In male students without sexual experience, no attitude toward contraceptive methods significantly affected the perceived severity of unwanted

pregnancy. In female students without sexual experience, a more positive attitude toward the withdrawal method was associated with a lower perceived severity of unwanted pregnancy. Specifically, for each 1-unit increment in attitude toward the withdrawal method, the perceived severity of unwanted pregnancy was lowered by 0.95 times. In male students with sexual experience, prior use of the withdrawal method was associated with a significantly lower perceived severity of unwanted pregnancy, by 0.54 times relative to male students who had no such experience. In female students with sexual experience, a more positive attitude toward the rhythm method and prior use of the rhythm method were associated with 0.92 and 0.52 times lower levels of the perceived severity of unwanted pregnancy, respectively, than female students who had not used the rhythm method. This result aligns with that of previous research on artificial abortion among 10,000 Korean women between 15 and 44 years old [17]. It was reported that 40.2% of the women who experienced artificial abortion in Korea did not practice contraception and that 50.6% of the women responded that the reason for not doing so was that they thought that they

would not become pregnant easily. Moreover, many of those who practiced contraception used incomplete contraceptive methods such as the rhythm method or withdrawal method (47.1%). As such, the existing research supports the result of this study that, in general, people did not perceive unwanted pregnancy seriously, which led to differences in attitudes toward using contraceptive methods. In particular, considering the previous finding [17] that the plurality of women (26.2%) whose partner recommended artificial abortion when the pregnancy was shared with the partner were unmarried, the effective practice of contraception is critical because unwanted pregnancy for university students can cause harm to the health and the life of women.

To summarize, the results of this study underscore the necessity of more substantive sex education for unmarried university students that focuses on the importance of contraception for preventing unwanted pregnancy and on fostering the autonomous use of specific and effective contraceptive methods with a proactive, not passive, attitude. In addition, female and male university students without sexual experience have the most urgent need for sex education. Thus, comprehensive education on the prevention of pregnancy and contraceptive methods should be conducted so that the target group can develop a positive attitude toward effective contraceptive methods, while acknowledging the severity of unwanted pregnancy. Moreover, among male and female university students with sexual experience, those who used the withdrawal and rhythm methods were more likely to adhere to these ineffective contraceptive methods in the future because they perceived the severity of unwanted pregnancy as low. Thus, educational programs that increase the perceived severity of unwanted pregnancy must be created, along with the delivery of accurate information on contraception.

5. Conclusions

Despite the relevance of attitudes toward contraceptive methods toward the perceived severity of unwanted pregnancy among unmarried university students, these relationships were not found to be significant in all groups in this study. However, significant associations were found in female students. Because the level of the perceived severity of unwanted pregnancy was low among students who had used the rhythm and withdrawal methods, it is necessary to educate students who have positive attitudes toward these methods by providing effective persuasion or accurate information. Furthermore, the use of ineffective contraceptive methods reduces the perceived severity of unwanted pregnancy. Therefore, more attention should be given to female students who have favorable attitudes toward the rhythm and withdrawal methods. Strong points of this study include that it identified attitudes toward using condoms, oral contraceptive pills, the withdrawal method, and the rhythm method, which are the contraceptive methods most often used by unmarried university students. However, because this study was a secondary data analysis from a study conducted 6-7 years ago and investigated attitudes toward contraceptive methods instead of actual use,

the generalization of the results is limited. Future studies should explore actual occurrences of unwanted pregnancy and whether attitudes toward contraceptive methods actually induce the use of the corresponding methods. Nonetheless, this finding implies that initiatives to prevent unwanted pregnancy should focus on strengthening the perceived severity of unwanted pregnancy among unmarried individuals.

Acknowledgements

This research was supported by the BK21 four project (Center for Human-Caring Nurse Leaders for the Future) funded by the Ministry of Education (MOE, Korea) and National Research Foundation of Korea (NRF).

Conflict of interest

The authors declare no conflicts of interest.

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