

# The Effect of the Reproductive Health Self-Care Educational Booklet on the Self-Care Ability of Female University Students

## Abstract

**Background:** Reproductive health during youth is considered one of the pivotal aspects of sustainable development. In this regard, students are more exposed to reproductive health problems and risks. Accordingly, the aim of this study was to determine the effect of the reproductive health self-care educational booklet on the self-care ability of female university students. **Materials and Methods:** This study was a quasiexperimental research in which a reproductive health self-care educational booklet designed based on needs assessment was provided to 75 newly admitted female university students at Isfahan University of Medical Sciences in 2018-2019 who were selected by quota sampling method from all faculties. Using a researcher-made questionnaire on reproductive health self-care ability (knowledge, attitude, practice), data were collected before, immediately after, and 6 weeks after the intervention. Data analysis was performed using descriptive and analytical statistics in SPSS version 20. **Results:** As the results showed, the mean score of self-care ability ( $F = 208.46, p < 0.001$ ), knowledge ( $F = 130.88, p < 0.001$ ), attitude ( $F = 76.09, p < 0.001$ ), and practice ( $F = 89.76, p < 0.001$ ) of the subjects immediately and 6 weeks after the intervention was significantly higher than before the intervention. However, no significant difference was observed in these scores, between immediately after and 6 weeks after the intervention. **Conclusions:** The results indicated that the designed self-care educational booklet led to a relatively constant promotion of the reproductive health self-care ability of female students. Thus, this booklet seems to be useful in meeting the educational needs of female students in various aspects of reproductive health.

**Keywords:** Booklet, reproductive health, self-care, students

## Introduction

The promotion of reproductive health among younger people, as a key axis of sustainable development, is of great significance.<sup>[1]</sup> Associated with the full physical, mental and social well-being of the reproductive system and its function, reproductive health has been affirmed by many as part of human rights and under the title of reproductive rights. According to the International Conference on Population and Development, it is the right of everyone, especially the younger generation, to have access to accurate information, health care services, and timely access to counseling services.<sup>[2]</sup> Moreover, youth is a transition to adulthood, during which young people are exposed to numerous challenges and issues associated with reproductive and sexual health, such as early pregnancy, unsafe abortion, and sexually transmitted diseases.<sup>[1]</sup> Each

week, about 4,000 15–24-year-old young women become infected with HIV around the world.<sup>[3]</sup> In Iran, only 18.27% of 15–24-year-old male and female youths are properly informed about the methods of preventing HIV transmission.<sup>[4]</sup>

Today, more than 36% of the Iranian young generation is studying in universities and higher education institutions, about 53% of whom are girls and young women.<sup>[5]</sup> As such, it is essential to pay homage to the health behaviors of this group, including their reproductive health behaviors. Moreover, given their dual role in the health of society and future generations, investing in the sexual and reproductive health of this group of people is one of the main strategies for achieving the Sustainable Development Goals.<sup>[6]</sup>

Significant changes in the lifestyle and behavioral patterns of young people during

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their period of study may expose them to reproductive health problems. According to studies, students have a dramatically low awareness of reproductive and sexual health issues, and the role of families in addressing such issues is so limited. Thus, university officials should provide opportunities to address the reproductive health problems of students as properly as possible.<sup>[7-9]</sup> Furthermore, given the prevalence of high-risk and unsafe sexual behaviors in many countries, and to a lesser extent in Iran, as well as the rapid spread of sexually transmitted diseases, especially among the younger generation, a need is felt for special sexual and reproductive health education through taking into account the age, gender, and educational level of people in different groups of society.<sup>[8]</sup> The positive effect of reproductive health education on the knowledge, attitude, and practice of female students regarding reproductive and sexual health has been confirmed in many studies. It has been suggested in these studies that the related education be delivered through different educational models for young girls.<sup>[10,11]</sup> Self-care approach is one of the effective approaches which has long been used in the area of reproductive and sexual health issues.<sup>[12]</sup> This approach emphasizes individual responsibilities for adopting healthy lifestyle behaviors and activities required in managing acute and chronic health disorders and is essential for human development and function.<sup>[13]</sup> It has been shown by studies conducted in Iran that the condition of self-care is not so optimal and there is a need for educational measures in this field, especially among young people.<sup>[14,15]</sup>

Studies on reproductive health issues also show the positive impact of self-care educational programs. Using the self-care guides, people can solve some of their health problems without the need to overuse medication and pay extra costs for treatment by increasing awareness and lifestyle modification. In addition, an educational booklet that is used for health promotion has several advantages; it can lead to independent responsibility of each respondent for knowledge on the basis of information received through the booklet and can be studied at any time and anywhere.<sup>[16]</sup> Moreover, the needs assessment of students showed that the preferred method for participating in training plans was the nonattendance method, and among these methods, mobile software and educational booklet got the most scores.<sup>[17]</sup>

According to the investigations carried out in Iran, there was no comprehensive reproductive health self-care booklet that was compatible with the needs of young university students, as well as in accordance with scientific and ethical standards and evidence-based in the field of reproductive health. Therefore, given the importance of reproductive health promotion for all segments of society, especially the youth, and considering the significance of self-care as one of the important aspects of health-oriented lifestyle in the programs of the Ministry of Health of Iran in recent years, the present study aimed to determine the effect of

the reproductive health self-care educational booklet on self-care ability of female students.

## Materials and Methods

This one-group, three-stage, and multivariate quasiexperimental research examined the effect of implementing the reproductive health self-care educational booklet on the self-care ability, knowledge, attitude, and practice of female university students' reproductive health. The study population consisted of all nongraduate female students newly admitted to Isfahan University of Medical Sciences from December 2018 to April 2019. Inclusion criteria were willingness to participate in the research, no marriage history, aged between 18 and 24, no history of university education, and no history of living in a dormitory. Exclusion criteria were not wanting to continue collaborating in research at any stages, transfer from university or drop out, and not reading the booklet completely. The sample size with 95.00% confidence coefficient and 80.00% test power was estimated to be at least 64 subjects that considering the probable drop of 15%, 75 subjects were selected. Quota sampling was performed by determining the share of each of the nine faculties from the required number of samples [Table 1] and, then, the newly admitted female students were selected by simple random sampling method.

The data collection tool was a researcher-made questionnaire. The questionnaire on reproductive health self-care ability was designed using the results of needs assessment conducted by researchers<sup>[17]</sup> as well as the content of the Reproductive Health Self-Care Booklet. The questionnaire included questions about reproductive health self-care ability in three areas of knowledge, attitude, and practice. The questionnaire had 35 questions in the area of knowledge with a rating scale of "yes" (1), "no" (0), and "I do not know" (0), which was scored accordingly, where the total score of awareness was 0–35 for each subject.

**Table 1: Determining the sample share of each faculty in sampling**

Faculty	Number of newly admitted female students	Percentage of population	Sample share
Medicine	83	13.38	10
Allied Medical Sciences	75	12.09	9
Nursing and Midwifery	108	17.41	13
Pharmacy	70	11.34	9
Dentistry	48	7.74	6
Rehabilitation Sciences	83	13.38	10
Medical Management and Information Sciences	60	9.67	7
Health	64	10.32	8
Nutrition and Food Sciences	29	4.67	3
Total	620	100	75

In the area of attitude, 32 questions were scored based on a 5-point scale ranging from “completely agree” (4) to “strongly disagree” (0), and the total score was 0–128 for each subject. In the area of practice, 30 questions were scored based on a 3-point scale ranging from “always” (2) to “sometimes” (1) and “never” (0), and the total score was 0–60 for each subject. Self-care ability was the estimation of the mean score obtained from the self-care ability questionnaire in the three areas of knowledge, attitude, and practice.

The face and content validities of the questionnaire were confirmed by 15 experts in the fields of reproductive health, midwifery, and medical education. Cronbach’s alpha coefficient was used to determine the reliability of the questionnaire, where a higher than 0.7 value was accepted. In this questionnaire, Cronbach’s alpha coefficient was estimated to be 0.82, 0.73, and 0.75 for the areas of knowledge, attitude, and practice, respectively.

Sampling was done in such a way that the researcher went to the newly admitted students’ classes at each faculty and explained the goals of the research. Then, simple random sampling was done among all interested students to participate in the research till reach the quota of each faculty. After selecting the study subjects and providing the necessary explanations to them, written informed consent was obtained from them for participating in the study. The researcher-made questionnaire of reproductive health self-care ability was given to each individual to complete individually. Then, the printed version of the reproductive health self-care educational booklet was provided to the samples, and they were asked to read the booklet thoroughly within 2–3 weeks. This booklet was designed and compiled by the researchers based on the information collected from scientific documents and needs assessment of female students and reproductive health service providers of Isfahan University of Medical Sciences.<sup>[16]</sup> This educational booklet has been written in 140 pages and 11 chapters including genital anatomy, vulvar and vaginal diseases, menstruation and related issues, polycystic ovarian syndrome, breast diseases, urinary tract infections, sexually transmitted diseases, AIDS and hepatitis, contraceptive methods, sexual harassment, and cervical cancer. The booklet includes information which can be used by every individual, without the need for a professional instructor, to help identify, prevent, and provide care for prevalent early reproductive health problems in young girls.

During this time, the samples were followed up through telephone calls and text messages with regard to the study of the booklet and their questions were answered. The researcher’s contact number was provided to all samples so that they could make a call if they had any questions. Then, after 2–3 weeks, the questionnaires were completed once immediately after the end of the study and then 6 weeks later by the samples, and the data were collected.

The collected data were analyzed by SPSS (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) and using descriptive statistics (frequency distribution and percentage) and the repeated measures analysis of variance.  $p < 0.05$  was considered statistically significant.

### Ethical considerations

The study was approved by the Ethics Committee of the Isfahan University of Medical Sciences (Ethical code IR.MUI.REC.1396.3.646). The aim of the study was explained to the students, and they were assured about confidentiality and anonymity of their information. Written informed consent was obtained from students for participating in the study. Moreover, all of the participants were free to withdraw from the study whenever they wanted.

### Results

From among the 75 distributed questionnaires, 69 questionnaires were analyzed, that is, 92% of them were answered and returned. In total, six students were excluded from the study; two students due to transfer to other universities, three students did not complete studying the booklet within 2–3 weeks, and 1 student withdrew from participating in the study. The mean age of the students was 20.35 (1.38). In total, 50 subjects (72.46%) were undergraduate students and 19 others (27.53%) were medical students. Moreover, 44 students (63.76%) lived in their personal homes, 4 (5.79%) in private dormitories and 21 (30.43%) in university dormitories. In terms of family economic status, 2 subjects (2.89%) had a very good situation, 49 subjects (71.01%) described their situation as suitable, 17 subjects (24.63%) somewhat suitable, and 1 subject (1.44%) unsuitable.

Analysis of variance with repeated measures revealed that the mean scores of knowledge, attitude, practice, and self-care ability of the students’ reproductive health were significantly different between the three time intervals [Table 2].

As shown by LSD post-hoc test, the mean scores of knowledge, attitude, practice, and self-care ability of the students’ reproductive health immediately after and 6 weeks after the intervention were significantly higher than before the intervention ( $p < 0.001$ ). But no significant difference was observed between immediately after and 6 weeks after the intervention in terms of the mean scores of knowledge ( $p = 0.73$ ), attitude ( $p = 0.15$ ), practice ( $p = 0.93$ ), and self-care ability ( $p = 0.34$ ).

### Discussion

The aim of this study was to determine the effect of the reproductive health self-care educational booklet on the self-care ability (knowledge, attitude, practice) of

**Table 2: Mean score of knowledge, attitude, practice, and self-care ability of the students' reproductive health (out of 100) at different times**

Self-care areas	Time	Mean (SD)	Repeated measures ANOVA	
			<i>f</i>	<i>p</i>
Knowledge	Before the intervention	47.95 (17.23)	130.88	<0.001
	Immediately after the intervention	80.41 (8.97)		
	Six weeks after the intervention	80.04 (11.40)		
Attitude	Before the intervention	66.12 (8.55)	76.09	<0.001
	Immediately after the intervention	77.31 (8.14)		
	Six weeks after the intervention	75.73 (8.73)		
Practice	Before the intervention	57.77 (11.92)	89.76	<0.001
	Immediately after the intervention	75.74 (10.84)		
	Six weeks after the intervention	75.81 (10.72)		
Self-care ability	Before the intervention	57.28 (10.21)	208.46	<0.001
	Immediately after the intervention	77.82 (6.52)		
	Six weeks after the intervention	77.19 (7.52)		

female university students. Data analysis indicated that the intervention significantly increased the knowledge of students immediately and 6 weeks later. This is indicative of the relatively stable effect of the booklet in increasing the knowledge of the students, which may be due to the fact that a print version of the booklet was provided to them so that they could refer to it and obtain the necessary knowledge at any time. In this regard, it was shown in Chiou's study that systematic education could improve adolescents' knowledge about dysmenorrhea, and in addition to the immediate effect, the long-term effects of the intervention on dysmenorrhea knowledge were still preserved after 4 months.<sup>[18]</sup> In this study, various multimedia teaching methods together with manual self-care booklet and related models were used to increase the motivation of female adolescents for learning and improving their knowledge. Additionally, asking questions and providing the instructor with instant feedback were encouraged for the improvement of interaction and learning, which are the reasons for the long-term effect of the intervention. However, despite the fact that the client-centered educational method was used in our study and there was no continuous interaction between the instructor and the learner, the effect of the education remained until 6 weeks after the intervention, indicating the success of this booklet in educating students. This method can be a good alternative to conventional in-person educational methods, as limited resources require us to save time and manpower. In the study of Yari *et al.*,<sup>[7]</sup> the implementation of the health education program

increased female students' mean knowledge of reproductive health issues significantly. The intervention of this study was presented in the form of a nine-month program which included various activities such as peer education, reproductive health content, counseling, workshops, lecture sessions, educational carnivals, educational camps, and mass media.

In the Zangiabadi study, the mean score of students' knowledge before teaching contraceptive methods and sexually transmitted diseases through group classes was lower than the median score; but this score increased significantly immediately after education and remained stable up to 6 weeks after the intervention.<sup>[10]</sup> These results, which are in line with ours, are indicative of the positive effect of teaching reproductive health issues through both in-person and in-absentia methods (educational booklet) in raising the knowledge of students. Due to cultural constraints in societies such as our country, where formal sexual and reproductive health education is not sufficiently available, girls have many educational needs in the field of reproductive health issues, which makes them welcome any opportunity for education in this field, and most educational programs show a positive effect on their knowledge and reproductive health status.

According to another finding of the present research, the intervention significantly increased the attitude of the girls immediately and 6 weeks later. These results may be due to the practical and usable points of the educational booklet. The mean score of the attitude of the subjects was higher than the mean scores of their knowledge and practice and had the lowest increase compared to the mean scores of knowledge and practice after the intervention. Given that the samples were medical sciences students, the background preparatio, and the initial positive and acceptable attitude of them toward reproductive health self-care is effective in this regard. Furthermore, in the needs assessment conducted by the researchers, the students had expressed their needs for education in this area,<sup>[17]</sup> indicating their positive attitude toward learning self-care and taking its measures. In Zangiabadi study with the aim of investigating the effect of teaching contraceptive and preventive methods of sexual diseases on female students' knowledge of and attitudes toward reproductive and sexual health, the mean score of the students' attitudes toward reproductive and sexual health was improved immediately after the education. However, there was no statistically significant difference between the mean score of attitude before and 6 weeks after the education, suggesting the unreliability of the changes in the students' attitude.<sup>[10]</sup> Overtime, due to their busy schedule and other academic priorities, they may consider their reproductive health insignificant.

Rabie investigated the effect of education based on group discussion on the self-care of vulnerable women in preventing AIDS. In this study, there was a statistically

significant difference between the mean score of knowledge and attitude of the samples before and two months after the intervention. The results showed that educational intervention through using appropriate methods effectively increased knowledge of the subjects and changed their attitudes positively.<sup>[19]</sup> Using educational booklet, Ibrahim and Sabar Ismail examined in their study the positive effect of menstruation educational booklet on the beliefs and attitudes of female nursing students.<sup>[20]</sup> The results of this study are in line with the results obtained in our study. However, it should be noted that these researchers used other educational techniques such as lectures and educational classes along with booklets, which makes it difficult to measure the independent effect of booklets on learning outcomes, including the attitude of the subjects. In Chiou's study, the systematic health education did not improve the subjects' menstrual attitudes two weeks after the intervention, and a possible explanation was that it may take longer to change attitudes, and it may even be necessary to wait until the intervention had Changed subjects' behavior and knowledge so that attitude change emerged as an expected effective response.<sup>[18]</sup> However, in our study, improvement in attitudes was observed not only 6 weeks after the study but even in the first follow-up immediately after the intervention, which contradicts these results, which may be because the content of the booklet, which was designed based on the concept of self-care and by trying to promote empowerment, individual independence in self-care, and also by trying to correct misconceptions, has been able to improve students' attitude to perform reproductive health care.

As shown in the present study, the mean score of the students' reproductive health self-care practice was significantly different between the three times. It is suggested by the results that the recommendations offered in the booklet have been able to improve effectively the reproductive health self-care behaviors of female students, and the changes in their behaviors have been stable up to 6 weeks after the intervention. To change one's behavior, there is first a need to increase one's knowledge and change one's attitude. Accordingly, these results could be predicted considering the objectives of the study with regard to the booklet's success in increasing the knowledge of the subjects and changing their attitude. Additionally, the researchers tried to provide the audience with as much information as possible to improve their correct behavior and practice in the area of reproductive health self-care. In this regard, Baghersad *et al.*<sup>[21]</sup> investigated the effect of self-care training program based on Orem's model on the behaviors leading to sexually transmitted diseases in vulnerable women. The mean scores of practice and behavior change in the subjects of their study immediately after and 3 months after the intervention were significantly higher than before the intervention. However, there was no significant difference between the mean

scores of the subjects immediately and 3 months after the intervention, which is in line to our results. Kabirian *et al.*<sup>[22]</sup> also showed the effect of evidence-based education on improving the self-care behaviors of female student during menstruation. Using the menstruation educational booklet, Ibrahim and Sabar Ismail indicated the positive effect of this booklet on improving the practice of female nursing students during menstruation. They recommended that a simple menstruation educational booklet should be readily available in these institutions.<sup>[20]</sup>

As revealed by the results of the present study the intervention significantly increased the student's reproductive health self-care ability immediately and 6 weeks later. As can be seen, the self-care ability of reproductive health increased after reading the educational booklet which, considering the obtained results, had been due to the changes in the components of this multidimensional concept such as knowledge, attitude and practice of self-care. In the study of Zeinali *et al.*,<sup>[23]</sup> health information increased the self-care ability of the caregivers of patients with joint hypermobility syndrome. According to Capik *et al.*,<sup>[24]</sup> postpartum self-care education for women improved or prevented their postpartum problems, that is, increased their power of self-care. Havaei *et al.*<sup>[25]</sup> investigated the effect of education based on protection motivation theory on self-care of adolescent reproductive health, and showed that self-care education could positively improve the self-care ability of adolescents.

While many existing studies have examined the effect of limited and single-topic educational booklets, the present study employed a comprehensive reproductive health self-care booklet which is one of the strengths of this study. The booklet used in this study included all the required topics of reproductive health and was prepared based on the reproductive health needs of young girls in the sociocultural context of Iran. However, the present study has some limitations. First, there was a sample dropout during the study due to the volume of the booklet and sometimes interference with midterm exams of students which were solved by calculating the percentage of sample dropout from the beginning of the study. Second, the students' preferred educational method for self-care guide, based on needs assessment, was a mobile phone application. However, its implementation was not feasible due to high costs and the time required for designing a suitable application in this field. As an alternative, the researcher selected the second priority favored by students, which was a printed booklet. Moreover, the students living in the dormitory had contact with each other, and the printed booklet was available to the students, allowing them to share information. Consequently, obtaining a control group was not possible in this setting. Therefore, the researchers recommend conducting future studies with a control group to enhance the validity of the findings.

## Conclusion

Based on the results of the present study, the designed reproductive health self-care educational booklet improved the reproductive health self-care ability of the female students. Given the educational needs of female students for self-care in various areas of reproductive health, this booklet can be used to improve the self-care ability of these students.

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## Conflicts of interest

Nothing to declare.

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