Received 6 January 2018
Accepted 19 March 2018

The effects of an educational program on knowledge, attitudes and intentions regarding condom and emergency contraceptive pill use among Thai female university students

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Abstract

Purpose – University students who have low knowledge, attitudes and intentions regarding the prevention of unintended pregnancies may experience higher rates of unintended pregnancies. An educational program was developed based on the self-efficacy theory and peer-led education to improve unintended pregnancy problems among university students. The purpose of this paper is to examine the effect of an educational program on knowledge, attitudes and intentions regarding the use of condoms and emergency contraceptive pills among Thai university students.

Design/methodology/approach – The effectiveness of the educational program was tested by a quasi-experimental study with a pre- and post-test design. The study was conducted between September and October 2017. Multistage sampling was used to recruit 73 Thai female university students, including 36 students in the intervention group and 37 students in the comparison group. The intervention group received an eight-week educational program, while the comparison group did not. A self-administered questionnaire was used to assess the improvement of knowledge, attitudes and intention regarding condom and emergency contraceptive pill use. Descriptive statistics, paired samples *t*-test, Wilcoxon test and Mann–Whitney tests were used for data analysis.

Findings – Most participants in both groups had sexual intercourse. After the end of the program, the before-after mean score of the intervention group's knowledge (8.0, 11.0), attitudes (29.4, 32.4) and intention (17.4, 20.4) were significantly increased (p-value < 0.001). Post-intervention, there were statistically significant differences in knowledge scores (p-value < 0.001) and intention scores (p-value $= 0.04$) between the intervention group and the comparison group.

Originality/value – This educational program increases knowledge and intention but does not influence attitudes toward using condoms and emergency contraceptive pills.

Keywords Educational program, Peer-led education, Condom and emergency contraceptive pills use, Unintended pregnancy, Pregnancy in adolescence-prevention and control

Paper type Research paper

Conflict of interest: the authors report no conflicts of interests in relation to this work.

The authors wish to thank the 90th Anniversary Chulalongkorn University Fund, Faculty of Public Health at Burapha University, for study funding, and all informants and the universities which allowed the authors to conduct research.

Journal of Health Research
Vol. 32 No. 4, 2018
pp. 270-278
Emerald Publishing Limited
2586-940X
DOI 10.1108/JHR-05-2018-033

Background

Unintended pregnancies are an increasing public health problem among youth in both developed and developing countries, including Thailand[1, 2]. Unintended pregnancies are related to individual characteristics, child marriage, gender inequality, poverty, sexual violence and coercion, obstacles to human rights, age at first sexual intercourse and limited knowledge, which influences attitudes toward and use of contraception[3, 4]. In 2014, the estimated number of worldwide unintended pregnancies among teens aged 15–19 was 16m and the birth rate 49 per 1,000[5]. This rate has not decreased[5]. The birth rate among female Thai adolescents aged 15–19 was 44.8 per 1,000[6, 7], which is higher than the Asia-Pacific region[4]. According to the 2013 Abortion Surveillance in Thailand Report, two-thirds of Thai female adolescents had their first sexual intercourse at age 17, and more than half did not use contraception[8]. In 2015, the Ministry of Public Health, Thailand, reported 3,286 births in the Chon Buri province. The birth rate among girls aged 15–19 was 66.3 per 1,000, the highest in Thailand[9]. Most female adolescents are unaware of the consequences of unprotected sex[10]. The lack of knowledge about reproduction and contraception paired with modern lifestyles and open relationships contribute to a high prevalence of unintended pregnancies[11]. Unintended pregnancies significantly affect maternal and child health, leading to higher rates of depression, school dropout, economic problems, preterm births and low birth weight[12]. There is thus a need to increase pregnancy-prevention behaviors. A previous study found that 59.8 percent of teens did not use condoms during their first sexual encounter and 24.7 percent always use emergency contraceptive pills[13]. No previous studies have tested the effect of educational programs on knowledge, attitudes, and use of condoms and emergency contraceptive pills among Thai university students. This study examines contraception use among Thai university students and the effect of an educational program on their knowledge, attitudes and intentions regarding contraception. This study's educational program was designed based on a self-efficacy theory and peer-led education. The research assistant was of a similar age and lived in the same context as participants, creating a comfortable climate for data collection.

Methodology

Study design

The quasi-experimental design in this study comprised of an intervention group and a comparison group with pre-post-test design. The study was performed from September-October 2017.

Study procedure

The sample size was calculated using the formula of Chirawatkun[14] to determine the number of Thai female university students in the comparison and intervention groups. The alpha (α) for the test was set at 0.05 to achieve a power of 0.80. The difference in the means for intention to prevent unplanned pregnancy among early adolescents before and after education[15] was 3.46. In total, 37 students were needed for each group. A multistage sampling technique was used to recruit the participants. First, two of the four government universities in Chon Buri province were purposively selected for being located in the same urban area. Second, 37 Thai female students in each university were randomly recruited by proportional size from two faculty clusters: humanities and social science, and science and technology faculties. Recruitment criteria included: Thai female university students in their first to fourth year of undergraduate study; having a boyfriend on the date they signed the consent form for the study; ability to participate fully over the eight weeks of the study; and

neither pregnancy history in the past nor current pregnancy. In order to control contamination, the material or electronic content was not given to participants. Moreover, the intervention university was 16 kilometers away from the comparison university

The educational program for knowledge, attitudes and intentions on using condoms and emergency contraceptive pills

The educational program consists of seven activities carried out once a week for eight weeks. The learning methods included lectures, group discussions, edutainment, brainstorming, live modeling and role playing. The seven activities were as follows: introduction to the educational program; "Knowing condoms and emergency contraceptive pills"; "Existing solution selection"; "Communication and creating understanding"; "Realizing self-values"; "Life's path"; and "Verifying if the information is reliable."

Three fourth-year students of the Public Health faculty who had been educated in the basic principles of prevention in their third-year curriculum were recruited to be voluntary research assistants. They were trained on contraceptives, condoms and emergency contraceptive pills, health literacy and self-efficacy theory, teenage pregnancy, risk behavior, teaching skills, communication skills, data collection skills and familiarization with the program. After training, students who performed the best teaching ability/conducting activity were selected to lead classes/activities in the program, while two students were selected for data collection in the intervention and comparison groups, respectively.

Materials

A self-administered questionnaire was designed specifically as a tool to assess the knowledge, attitude and intention regarding the use of condom and emergency contraceptive pills in the intervention group and the comparison group before and after program implementation. The questionnaire was composed of 52 questions divided into five parts, as follows: sociodemographic characteristics (7 questions including age, overall grade point average (GPAX; calculated the accumulated grade points until the end of the last semester into mean for summarization of the students' whole performance), parents' marital status, parents' relationship, current residence type and average income per month); sexual risk behavior (15 questions, including having a boyfriend, experience of hugging and kissing and sexual experience); knowledge of condoms and emergency contraceptive pills (12 questions); attitudes toward the use of condoms and emergency contraceptive pills (12 questions); and intentions with regard to the use of condoms and emergency contraceptive pills (12 questions). The questions for knowledge of condom and emergency contraceptive pills were adapted mainly from the following two sources: *Use of Emergency Contraceptive Pills and Condoms by College Students: A Survey*[16] and *Intention to Use Condoms among University Students in Nakhon Pathom Province, Thailand*[17]. The questions for attitudes regarding condom and emergency contraceptive pills were adapted mainly from the following two sources: *Asking Young People About Sexual and Reproductive Behaviors: Illustrative Questionnaire for Interview Surveys with Young People*[7] and *Use of Emergency Contraceptive Pills and Condoms by College Students: A Survey*[16]. The questions for intentions regarding the use of condom and emergency contraceptive pills were adapted from the following two sources: *Development and Validation of a Condom Self-efficacy Scale for College Students*[18] and *Development of a Condom Use Self-efficacy Scale for Undergraduate Students*[19].

The questionnaire was validated by five experts in the area of public health and adolescent sexual behavior. The items-objective congruence index value was 0.78. To test the reliability of the questionnaire, a pilot study was conducted with a sample of 30 students who had similar characteristics to the respondents. The Cronbach's α was 0.70, 0.72 and 0.71 for knowledge, attitudes and intentions regarding use of condoms and emergency

contraceptive pills, respectively. These results were considered acceptable. The 12 yes/no questions about knowledge of condoms and emergency contraceptive pills were scored, with a total score of 12 points. The 12 questions about attitudes toward condoms and emergency contraceptive pills were scored using a five-point Likert scale, with a total score of 48 points. The 12 questions about intentions on condoms and emergency contraceptive pills were scored using a five-point Likert scale, with a total of 48 points.

Ethical consideration

Ethical approval was obtained from the Burapha University Ethics Review Committee for Human Research Subjects (certified code: Hu 029-2560). Study objectives and data collection procedures were fully explained to the university students prior to their participation, and they signed informed consent forms to indicate their willingness to participate. Code names were used to protect participants' privacy, and data were kept confidential.

Data analysis

Data analysis was carried out using SPSS version 22 (Chulalongkorn University licensed). Sociodemographic characteristics between the groups were analyzed in terms of frequencies and percentages. Sociodemographic differences between the two groups were tested using χ^2 and Fisher exact tests. Normality was tested for knowledge attitude and intention. The Wilcoxon test was used for comparing the knowledge score due to its abnormal distribution. A paired samples *t*-test was used for comparing attitude and intention scores.

The scores (after intervention) in the knowledge, attitude and intention scores between the groups was not normal so those were analyzed by using the Mann–Whitney test. To compare knowledge, attitudes and intentions regarding using condoms and emergency contraceptive pills within each group, we used mean, standard deviation, mean difference (95% CI), median (interquartile range) and *p*-value of total scores in each subscale. The comparison between groups was carried out using number, median, IQR and *p*-value.

Results

During the study period, one student in the intervention group dropped out because she was expelled from the university, leaving 36 students in the intervention group and 37 students in the comparison group, with 73 students in the final analysis.

Table I shows the demographic characteristics comparison of the two groups. The participants in the intervention and comparison groups were not significantly different in terms of age, grade average point, parent marital status and average income distribution (all p-values > 0.05). The percentage of participants in the intervention group who stayed outside university dormitories was 86.1 whilst the percentage who stayed with a boyfriend was 25.0. Both percentages were significantly higher than that of the comparison group. Most of both groups had experienced hugging and kissing. Nearly two-thirds of both groups had a history of sexual intercourse; however, most boyfriends used condoms during sexual intercourse and nearly half of them used emergency contraceptive pills.

Table II shows statistically significant differences in the scores for knowledge, attitudes and intentions before and after intervention in the intervention group ($p < 0.001$). On the other hand, there were no statistically significant differences in the scores for knowledge, attitudes and intentions before and after intervention in the comparison group ($p = 0.95$). The change of mean difference attitude score in the intervention group was 3 (95% CI $= -4.70, -1.14$), and the change of mean difference intention score in the intervention group was 3 (95% CI $= -4.48, -1.63$).

Demographic characteristics	Intervention group ($n = 36$) Number (%)	Comparison group ($n = 37$) Number (%)	p-value
Age (years)			0.72[a]
⩽20	20 (55.6)	19 (51.4)	
>20	16 (44.4)	18 (48.6)	
Grade average point			0.74[a]
⩽2.5	10 (27.8)	9 (24.3)	
>2.5	26 (72.2)	28 (75.7)	
Parent marital status			0.74[a]
Separated	10 (27.8)	9 (27.3)	
Married	26 (72.2)	28 (75.7)	
Average income per month (baht)			0.12[a]
⩽5,000	6 (16.7)	12 (32.4)	
>5,000	30 (83.3)	25 (67.6)	
Current residence type			0.06[a]
Dormitory outside the university	31 (86.1)	25 (67.6)	
Dormitory in the university	5 (13.9)	12 (32.4)	
Staying with boyfriend			0.21[a]
Yes	9 (25.0)	5 (13.5)	
No	27 (75.0)	32 (86.5)	
Hugging and kissing experience[c]			0.26[b]
Yes	34 (94.4)	31 (83.8)	
No	2 (5.6)	6 (16.2)	
Previous sexual intercourse (vaginal)			0.50[a]
Yes	26 (72.2)	24 (64.9)	
No	10 (27.8)	13 (35.1)	
Experience of drinking alcohol in the last 6 months			0.87[a]
Yes	14 (56.0)	14 (58.3)	
No	11 (44.0)	10 (41.7)	
Experience of an emergency contraceptive pill			0.40[a]
Yes	15 (57.7)	11 (45.8)	
No	11 (42.3)	13 (54.2)	
Using condom[d]			1.00[b]
Yes	24 (92.3)	23 (95.8)	
No	2 (7.7)	1 (4.2)	

Notes: [a]χ^2 test; [b]Fisher exact test

Table I.
Demographic and sexual behavior-related characteristics of intervention group and comparison group

Groups	Knowledge[a] Before	Knowledge[a] After	Attitude[b] Before	Attitude[b] After	Intention[b] Before	Intention[b] After
Intervention group ($n = 36$)						
$\bar{x}$(SD)	8.0 (3.0)[c]	11.0 (2.0)[c]	29.4 (4.4)	32.4 (4.4)	17.4 (3.6)	20.4 (3.4)
Mean difference (95% CI)	–		3.0 (−4.70, −1.14)		3.0 (−4.48, −1.63)	
p-value	< 0.001		< 0.001		< 0.001	
Comparison group ($n = 37$)						
$\bar{x}$(SD)	7.0 (3.0)[c]	7.0 (3.0)[c]	31.3 (3.9)	31.3 (4.8)	19.3 (4.1)	18.3 (4.4)
Mean difference (95% CI)	–		0.0 (−1.78, 1.67)		−1.0 (−0.33, 2.28)	
p-value	0.95		0.95		0.14	

Notes: [a]Wilcoxon test; [b]paired samples t-test; [c]median (IQR)

Table II.
Comparison of knowledge, attitude and intention scores in the intervention group and the comparison group before and after intervention

According to the scores for knowledge, attitudes and intentions after intervention, there were statistically significant differences in knowledge ($p < 0.001$) and intention ($p = 0.04$) between the intervention group and the comparison group, respectively. There was no statistically significant differences in attitude between these groups ($p = 0.18$) (Table III).

Discussion

This educational program showed significant effects on knowledge and intention in the intervention group. Moreover, the educational program had significant in-group effects on knowledge, attitudes and intention, similar to another study on an educational program with nursing students[20]. The research assistants in this educational program were selected from fourth-year students of the same age and trained in pregnancy-prevention content and techniques to communicate about safe sex. This was similar to another study on "Smart boys" and "sweet girls" sex education needs in Thai teenagers: a mixed-method study[21]. Knowledge, therefore, was easily transferred to university students, and the participants' attitudes, intentions and behaviors about using condom and emergency contraceptive pills improved. The RAs liked peer-led sex education on adolescent and reproductive health, as reported in many other studies[22-24]. However, one study found that peer-led education was an ineffective strategy to change adolescent behaviors[25].

The self-efficacy theory was the main principle in the design of this educational program to increase knowledge, attitudes, and intentions to use condom and emergency contraceptive pills. Implementing the four principles of verbal persuasion; vicarious experiences; mastery experiences; and emotional arousal[26] in the educational program increased knowledge and intention but did not change attitudes in the intervention group. The participants gained knowledge from many teaching methods, especially the live-modeling technique based on vicarious experiences. Observational learning from live modeling promoted appropriate behaviors and discouraged inappropriate behaviors[27]. Overall, the educational program applying the emotional-arousal principle in conjunction with the edutainment technique was found to be attractive, funny, and not boring to adolescents. The educational program climate prepared the participants for learning. It can cautiously be concluded that adolescents have sensitive emotions, so appropriate techniques need to be selected to avoid unplanned, negative events, wherever possible[28-30].

An attitude is a set of emotions, beliefs and behaviors toward past and present experiences that influences behaviors[31]. No differences in attitude change in the intervention and the comparison groups were observed. A possible explanation for this result is that more than half the participants had negative attitudes toward condom and emergency contraceptive pills use. The study results show that more than half the participants believed that condoms are only for use with temporary partners and that using emergency contraceptive pills cause many complications. Boyfriend/lover influence and social norms may negatively affect attitudes toward the use of condom and emergency

Scores	*n*	Median	(IQR)	*p*-value
Knowledge				< 0.001
Intervention group	36	11.00	(2.0)	
Comparison group	37	7.00	(3.0)	
Attitude				0.18
Intervention group	36	33.0	(5.0)	
Comparison group	37	31.0	(6.0)	
Intention				0.04
Intervention group	36	21.0	(6.0)	
Comparison group	37	19.0	(7.0)	

Table III. Comparison of knowledge, attitude, and intention scores between the intervention group and the comparison group after intervention by Mann–Whitney test

contraceptive pills[32, 33]. The length of the program was limited to eight weeks because it was integrated into the normal university academic timetable which resulted in some restrictions. Moreover, due to the end of the semester, it was impossible to lengthen the program. A booster during the semester end is recommended using social media and online communication in order to increase attitudes toward condom and emergency contraceptive pills use[34].

The educational program design based on self-efficacy theory increased intention. The activities aimed at increasing adolescent intention were group discussion, role play and brainstorming about condom and emergency contraceptive use, including the pros and cons and verification of information. Mastery experiences were the main principle to generate intention among adolescents because direct experience is highly effective in developing self-efficacy[27, 35]. Knowledge is essential to assist an individual's successful practice and behaviors[26]. Knowledge and comprehension that affects attitudes can result in modification in behavior[31]. Moreover, intention also influences behaviors[36]. This study found that the program increased knowledge and intention.

Conclusion

This peer-led educational program on condom and emergency pill use had a positive effect on improving the knowledge and intentions of Thai female university students.

Recommendations

This study did not show significant change in attitude; therefore, new approaches should be created and further tested to improve positive attitudes regarding the use of using contraception methods to prevent unwanted pregnancies among university students. The educational program increases knowledge and intention toward condom and emergency contraceptive use. Extending the program to male university students will directly increase condom use to prevent unintended pregnancies. Generalizing the study results requires consideration of the context, which was industry and tourism.

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