RESEARCH ARTICLE

Knowledge, Perceptions, and Attitudes Toward Contraceptive Medicine among Undergraduate Students in Southern Vietnam

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Abstract

Aims: This study examined the knowledge, attitudes, and perceptions of Vietnamese university students regarding various contraceptive methods. **Materials and Methods:** The cross-sectional descriptive study was conducted from March 2017 to May 2017. A pre-tested self-administered questionnaire was used to collect the necessary data, including general information as well as the participants' knowledge, awareness, perceptions, and intention regarding contraceptives. **Statistical Analysis used:** The Chi-square, Kruskal–Wallis, and Mann–Whitney U-tests were manipulated to calculate the association between the study variables. **Results:** Of the 1,107 respondents, 100% had previously heard about different contraceptive methods. The results showed that the contraceptive-related knowledge of medical students was higher than that of non-medical students ($P < 0.001$). The majority of participants exhibited a good level of awareness and positive perceptions regarding contraceptives. Some 60% of participants revealed that they would use contraceptives in the future if needed, which indicated a positive attitude and a strong tendency to use contraceptive methods in the future. However, the findings show that the majority of students had inadequate knowledge, awareness, and perceptions about contraceptives. It is hence necessary to develop and provide relevant health education to better empower young people. **Conclusions:** Both the knowledge and awareness of contraceptives among Vietnamese university students are low, while the number of misperceptions is high. This study will contribute to efforts focusing on providing reproductive health education and counseling, as well as demonstrating the importance of using reliable means of communication.

Key words: Attitude, contraceptives, knowledge, perceptions, students, Vietnam

INTRODUCTION

Uncontrollable population increases represent a burden to the economy, resources, labor, and other assets of many developing countries. Worldwide, some 83% of people live in low-development countries characterized by a high fertility rate and a high infant mortality rate as well as low life expectancy.[1] The global population is predicted to increase to 2.4 billion within 34 years, moving from 7.4 billion at present to 9.8 billion in 2050.[1] A gap between births not only decreases fertility but also improves mothers' health. The main reasons for morality among females of reproductive age stem from complications arising during pregnancy and childbirth. Mothers' mortality remains unallowable high. Indeed, approximately 830 women die from the complications of pregnancy or childbirth worldwide each day. In 2015, it was found that roughly 303,000 women died during and after pregnancy and childbirth, with most of the deaths being preventable. In Sub-Saharan Africa, many countries have halved their levels of maternal mortality since 1990. In other areas, including North

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Africa and Asia, even better advances have been made. During the 25-year period from 1990 to 2015, the global maternal mortality rate (i.e., the number of maternal deaths per 100,000 live births) decreased to only 2.3% per year. However, in some countries, the annual decrease in maternal mortality from 2000 to 2010 was over 5.5%.[2]

According to the World Population Datasheet 2016, the current population of Vietnam is 92.7 million, with the infant mortality rate and total fertility rate being 15 and 2.1, respectively. Further, some 76% of married women aged 15–49 reported using contraception, of which 57% used a modern method.[1] A 2014 investigation by the General Statistics Office of Vietnam showed that the fertility rate among adolescents for the 3 years between 2010 and 2013 was 45 children per 1000 women aged 15–49, while 6.3% of women aged 15–19 reported having given birth.[3] Moreover, 75.7% of women who are currently married or living together as husband and wife reported using contraceptive methods.[3] The most commonly used method is an intrauterine device, which accounts for 28.2% of contraceptive use.[3]

The use of contraception has increased in many regions worldwide, especially in Latin America and Asia, although it remains low in Sub-Saharan Africa. In general, the use of modern contraception has slightly increased, rising from 54% in 1990 to 57.4% in 2015. In Africa, it has increased from 23.6% to 28.5%. In Asia, it has slightly increased from 60.9% to 61.8%, while in Latin America and the Caribbean, it has remained steady at around 66.7%.[4] Yet, the unmet need for access to adequate contraception remains too high. This injustice is enhanced by both population explosions and a lack of family planning education. In Latin America and the Caribbean as well as in Asia, the rates of unmet requirements are 10.7% and 10.2%, respectively. In addition, almost 24% of African women who are of reproductive age do not have access to modern contraceptives.[4]

The present study aimed to assess the knowledge, attitudes, and perceptions regarding contraceptives among university students in Vietnam as well as to analyze the relationship and factors that affect the knowledge, attitudes, and perceptions concerning contraception among this population.

MATERIALS AND METHODS

Study design and data collection

A cross-sectional survey was conducted over a 3-month period from March 2017 to May 2017, with a descriptive and exploratory approach being adopted to assess the knowledge and perceptions of Vietnamese university students toward contraceptive use. Data relevant to the study's objectives and research questions were collected using a self-administered questionnaire. The questionnaire was developed based on various prior studies,[5-7] and it was divided into four sections, namely, Section (1), the sociodemographic characteristics of the participants; Section (2), an evaluation of their knowledge regarding contraceptive methods; Section (3), statements about the participants' awareness regarding contraception; and Section (4), their perceptions and behavior in relation to contraceptives. The pretesting of the questionnaire was performed with 15 students to ensure that the participants understood all the questions as well as to examine the reliability and validity of the scales used in our survey. The responses given by these 15 students were not used in the final data analysis.

The participants were asked to respond to individual statements using either "yes," "no," or "not sure" for the knowledge assessment. The participants were awarded one point for a correct answer and no points for a wrong or unsure choice. The scale used to measure the participants' knowledge ranged from a maximum of nine points to a minimum of zero points. A score of ≥5 points was categorized as indicating a good level of knowledge, while a score of <5 was interpreted as indicating a bad level of knowledge.[5]

The participants' awareness was assessed using a five-point Likert scale. The scale ranged from 1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, to 5 = fully agree. Reverse coding was performed for negatively worded questions. The scale used to assess the participants' awareness ranged from a maximum of 35 points to a minimum of seven points. Participants with a score of ≥25 were considered to exhibit a high level of awareness, while those with a score of <25 were considered to exhibit low awareness.[5] The perception and behavior areas assessed included willingness to pay for contraception, a feeling of embarrassment when seeking contraception, attitudes regarding the use of contraceptive, the safety and convenience of using condoms, and sexual education for teenagers and women.[6,7]

Data analysis

Data derived from the questionnaire were entered into Microsoft Excel 2016. Descriptive statistics were used in all the sections of the questionnaire, numbers and proportions were calculated, and cross-tabulations with intergroup comparisons were assembled for participants with different sociodemographic information. We applied Student's *t*-test and one-way analysis of variance to compare the means when analyzing the participants' knowledge among the different groups in the study sample. A Chi-square test was performed to determine the association between the independent and dependent variables when the expected cells were five or more in the contingency table.

Ethical considerations

Ethical approval for this study was obtained from the University of Medicine and Pharmacy at Ho Chi Minh City.

Written informed consent was obtained from all participants before completing the questionnaire survey. The collected data were kept confidential using an anonymous voluntary questionnaire that did not record the participants' names. The data were only used for research purposes. The participants were informed about their right to withdraw from the study at any time without incurring any penalty in terms of their healthcare or sexual consultations.

RESULTS

Participation rate

1,200 students were approached and all agreed to participate in the study, which led to a total participation rate of 100%. However, the results presented the responses of just 1,101 participants, since 93 of them gave a lot of item non-responses.

Sociodemographic characteristics

Information regarding the sociodemographic characteristics of the study participants was summarized in Table 1, including the participants' gender, religion, ethnic group, marital status, and level at university. The study population was comprised of 67.9% males and 32.1% females. The majority of participants were from the Kinh ethnic group (94.5%), and most (97.3%) were single. The participants' level at university ranged between the 1st and 6th year.

Knowledge was assessed by awarding one point for the right answer and zero points for a wrong or unsure choice. The scale measured knowledge from a maximum of nine to a minimum of zero. A score of ≥5 was interpreted as indicating a good level of knowledge, while a score of <5 was taken as indicating a poor level of knowledge. The mean knowledge score of the medical students was 5.39 ± 1.37, which was significantly higher than the non-medical students' mean score of 4.31 ± 1.20 ($P < 0.001$). Overall, the mean knowledge of the study participants was 4.83 ± 1.38. The *P*-value* was calculated using the independent samples *t*-test, while the *P*-value** was calculated using a one-way analysis of variance.

Contraceptive education and knowledge

Of the 1,107 study participants, 100% indicated that they had previously heard of different contraceptive methods, including condoms (96.4%), emergency oral contraceptive (63.8%), vaginal diaphragm (63.7%), intrauterine device (67.8%), spermicide (36.9%), and Norplant implants (31.5%). The major sources of information were audio-visual media such as TV broadcasts, books, radio, and the internet (68.7%). In addition, 61.8% of participants obtained information about contraception from school, 49.1% from their friends, and 45.2% from their family.

Table 1 also presented the mean knowledge scores for each demographic group. The mean knowledge score for all the participants was 4.83 ± 1.38. As expected, the students studying medicine and health care exhibited better knowledge regarding different contraceptive methods than the students studying other disciplines. The medical students' group had a mean score of 5.39 ± 1.37, which was higher than that of the non-medical students' group at 4.31 ± 1.20 ($P < 0.001$). The participants' level at university was significantly associated with their level of knowledge ($P < 0.001$), as shown in Table 1, while there was no significant difference found between either males and females or single and married students in terms of their knowledge of contraception. Over 46% of participants ($n = 514$) believed that a woman would not be able to get pregnant for at least 2 months after she stopped taking birth control pills. Yet, for the question regarding whether there is an increased risk of breast cancer in women taking estrogen-containing oral contraceptive, only 31.6% ($n = 350$) of participants gave the correct answer. The complete responses of participants to the knowledge questions are presented in Table 2. It can be seen that the proportion of medical students who gave correct answers was always higher than that for the non-medical group for all questions in the knowledge section.

Awareness was evaluated by awarding one point for strongly disagree, two for disagree, three for not sure, four for agree, and five for strongly agree. Reverse coding was performed for negatively worded questions. The scale measured awareness from a maximum of 35 to a minimum of seven. Scores <25 were taken to indicate low awareness, while scores ≥25 were considered to indicate high awareness. The mean awareness score was 19.43 ± 3.56. The *P*-value* was calculated using the Chi-square test.

Table 3 showed the participants' responses to the questions regarding their awareness of contraceptive methods. The majority of participants from both the medical and non-medical student groups agreed or completely agreed (74.7% and 71.9%, respectively) that contraceptive methods can protect the health of family and society. Likewise, only 36.2% and 24.7% of medical and non-medical student participants, respectively, disagreed or completely disagreed that the use of contraceptive methods among young people will increase the risk of infertility in the future. Nevertheless, the medical students agreed with this statement to a greater extent when compared to the non-medical students ($P = 0.079$). Moreover, 84.8% and 69.8% of medical and non-medical student participants, respectively, reported that a discussion about contraception with a spouse is not embarrassing, while others saw no need to discuss contraceptives with their parents or partners and actually felt uncomfortable raising the issue. Overall, the mean awareness score of the study participants was 19.43 ± 3.56.

Table 1: Correlation between knowledge and sociodemographic variables (*n*=1107)

General knowledge	Medical students (*n*=513)			Non-medical students (*n*=594)			Total (*n*=1107)		
	n (%)	Mean±SD	*P*	*n* (%)	Mean±SD	*P*	*n* (%)	Mean±SD	*P*
Gender									
Male	165 (32.2)	5.38±1.36	<0.001*	190 (32.0)	4.47±1.28	<0.001*	355 (32.1)	4.90±1.39	0.083*
Female	348 (67.8)	5.39±1.38		404 (68.0)	4.24±1.16		752 (67.9)	4.77±1.39	
Ethic									
Kinh	479 (93.4)	5.34±1.35	<0.001*	567 (95.5)	4.33±1.19	0.010*	1046 (94.5)	4.79±1.36	0.085*
Other	34 (6.6)	6.00±1.56		27 (4.5)	4.00±1.39		61 (5.5)	5.11±1.78	
Religion									
Buddhism	112 (21.8)	5.20±1.46	0.290**	119 (20.0)	4.24±1.30	0.798*	231 (20.9)	4.70±1.46	0.568**
Catholic-ism	46 (9.0)	5.43±1.22		78 (13.1)	4.38±1.15		124 (11.2)	4.77±1.28	
Other	12 (2.3)	5.83±1.80		7 (1.2)	4.37±1.13		19 (1.7)	4.84±1.35	
None	343 (66.9)	5.43±1.35		390 (65.7)	4.33±1.19		733 (66.2)	4.84±1.38	
Marital status									
Single	497 (96.9)	5.39±1.35	0.050*	580 (97.6)	4.32±1.20	0.020*	1077 (97.3)	4.81±1.38	0.403*
Married	16 (3.1)	5.25±1.95		14 (2.4)	4.14±1.35		30 (2.7)	4.73±1.76	
Level at university									
1st	14 (2.7)	4.57±1.55	<0.001**	83 (14.0)	4.14±1.25	<0.001**	97 (8.8)	4.21±1.30	<0.001**
2nd	79 (15.4)	5.33±1.15		116 (19.5)	4.17±1.08		195 (17.6)	4.64±1.25	
3rd	180 (35.1)	4.99±1.46		218 (36.7)	4.39±1.12		398 (36.0)	4.66±1.32	
4th	131 (25.5)	5.76±1.25		148 (24.9)	4.30±1.34		279 (25.2)	4.99±1.49	
5th	76 (14.8)	5.84±1.30		19 (3.2)	4.84±1.34		95 (8.6)	5.64±1.36	
6th	33 (6.4)	5.48±1.23		10 (1.7)	4.90±1.20		43 (3.9)	5.35±1.23	
Total	5.39±1.37			4.31±1.20			4.83±1.38		<0.001*

*P<0.05, **P<0.01. SD: Standard deviation

Table 2: Participants' knowledge correction regarding contraceptives (*n* [%])

Statement - knowledge	Medical students (*n*=513)	Non-medical students (*n*=594)	Total (*n*=1107)
Have you ever heard of contraceptive methods?	513 (100)	594 (100.0)	1107 (100.0)
The risk of some types of cancer in women can be reduced using oral contraceptives	141 (27.5)	80 (13.5)	221 (20.0)
A woman will not get pregnant within at least 2 months after having stopped taking birth control pills	307 (59.8)	207 (34.8)	514 (46.4)
Male condoms can protect against STDs	452 (88.1)	476 (80.1)	928 (83.8)
The common unwanted effects of birth control pills are weight gain and mood swings	323 (63.0)	254 (42.8)	577 (52.1)
It is safe to have sex during the period of infertility	250 (48.7)	209 (35.2)	459 (41.5)
The risk of breast cancer is increased in women taking estrogen-containing oral contraceptives	219 (42.7)	131 (22.1)	350 (31.6)
To get birth control pills, a woman must undergo a pelvic examination	53 (10.3)	28 (4.7)	81 (7.3)

STDs: Sexually transmitted diseases

Perceptions of contraceptives

Approximately 90% of participants strongly disagreed with the statement "it is unnecessary to purchase contraceptives". However, more than a quarter of the students (25.9%) stated that they needed courage to purchase condoms from pharmacies, conventional shops, or dispensaries. It was further reported that 51.1% of medical students agreed that

Table 3: Participants' awareness regarding contraceptives

Awareness	Strongly agree		Agree		Not sure		Disagree		Strongly disagree		*P**
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	
Only women take responsibility for using contraceptive methods	311 (60.6)	390 (65.7)	181 (35.3)	180 (30.3)	10 (1.9)	10 (1.7)	3 (0.6)	7 (1.2)	8 (1.6)	7 (1.2)	0.796
Contraceptive methods are more harmful than beneficial to health	80 (15.6)	65 (10.9)	253 (49.3)	200 (33.7)	65 (12.7)	117 (19.7)	90 (17.5)	155 (26.1)	25 (4.9)	57 (9.6)	0.002
Contraceptive methods can protect the health of family and society	50 (9.7)	41 (6.9)	43 (8.4)	63 (10.6)	37 (7.2)	63 (10.6)	276 (53.8)	313 (52.7)	107 (20.9)	114 (19.2)	0.576
The use of contraceptive methods in young people will increase the risk of infertility in the future	55 (10.7)	47 (7.9)	131 (25.5)	100 (16.8)	102 (19.9)	118 (19.9)	179 (34.9)	245 (41.2)	46 (9.0)	84 (14.1)	0.079
Contraceptive pills do not 100% guarantee avoidance of pregnancy	40 (7.8)	35 (5.9)	58 (11.3)	59 (9.9)	55 (10.7)	139 (23.4)	236 (46.0)	263 (44.3)	124 (24.2)	98 (16.5)	0.023
Women's experiences of unwanted effects are related to change to a safer form of contraceptive	44 (8.6)	36 (6.1)	95 (18.5)	96 (16.2)	153 (29.8)	230 (38.7)	200 (39.0)	188 (31.6)	21 (4.1)	44 (7.4)	0.158
Discussion about contraception with a spouse is embarrassing	177 (34.5)	144 (24.2)	258 (50.3)	271 (45.6)	49 (9.6)	113 (19.0)	23 (4.5)	50 (8.4)	6 (1.2)	16 (2.7)	0.016

The *P* value* was calculated using the Chi-square test. (a): Medical students, (b): Non-medical students

contraceptives allow women to pursue higher education by delaying pregnancy and hence help them to gain some measure of economic security. The non-medical students agreed with this point of view to a lesser extent, although the strength of the difference was only small (46.1%, $P = 0.102$). The participants' perceptions of contraceptives are tabulated in Table 4. Comparisons were made for all the questions in this section using the Chi-square test, which revealed no significant differences between the medical students' and non-medical students' responses.

Attitudes toward contraception use

Only 22.1% (n = 245) of participants revealed that they or their partners had previously used contraceptives. Of those who had used them, almost 80% (n = 195) had used condoms, 33.5% (n = 82) had used emergency oral pills, and 27.8% (n = 68) has used vaginal diaphragm. The reported preferences regarding contraceptive methods ranged from 51.4% who preferred condoms due to their convenience and simplicity to 12.7% who preferred contraceptive pills. A large proportion of participants (49.6%) expressed negative perceptions of pills due to the perceived unwanted side effects, including "weight gain" and "mood swings."

Of the 862 participants (77.9%) who had never previously used contraceptives, 67.1% (n = 578) reported the reason for this being not having sexual relations or a demand for natural sex. Some 17% felt afraid of the potential side effects when using contraceptive methods. Other reasons for the reported non-usage of contraception were "boyfriend did not allow it" (3.7%, n = 32), "religious abstinence" (7.0%, n = 60), or perhaps surprisingly, "they wanted to get pregnant" (12.2%, n = 105). When asked about their future use of contraception if required, almost 60% (n = 505) of participants said that they would use contraceptives, thereby exhibiting a positive attitude that indicates a strong tendency to use contraceptive methods in the future. Those 350 subjects (41.4%), who stated that they would not use contraception in the future or were not sure whether they would, reported being concerned about potential health disadvantages or a lack of effectiveness.

Relationship between attitudes and knowledge

The relationship between the attitudes and knowledge exhibited by the participants was examined using the Mann–Whitney U-test. Knowledge was considered to be a categorical variable (good and poor), while each question concerning attitude was assessed by awarding five points to "strongly agree" and one point to "strongly disagree." Reverse coding was performed for negatively worded questions. The maximum overall score for each participant was 35, while the minimum was seven. There was a statistically significant association between the participants' knowledge and attitudes regarding contraceptives. This suggested that students with a good level of knowledge generally showed

Table 4: Participants' perceptions toward contraceptives (*n* [%])

Perception	Strongly agree		Agree		Not sure		Disagree		Strongly disagree		*P**
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	
It is unnecessary to purchase contraceptives	206 (40.2)	209 (35.2)	269 (52.4)	319 (53.7)	19 (3.7)	29 (4.9)	15 (2.9)	25 (4.2)	4 (0.8)	12 (2.0)	0.704
It is embarrassing to ask for condoms from pharmacies, conventional shops, or dispensaries	102 (19.9)	71 (12.0)	216 (42.1)	214 (36.0)	97 (18.9)	133 (22.4)	88 (17.2)	141 (23.7)	10 (1.9)	35 (5.9)	0.023
Using condoms will generate less sexual pleasure during intercourse	32 (6.2)	17 (2.9)	81 (15.8)	60 (10.1)	265 (51.7)	357 (60.1)	114 (22.2)	130 (21.9)	21 (4.1)	30 (5.1)	0.073
Changes in male attitudes mean that increased participation in contraception may increase the usage rate of contraception in some areas	37 (7.2)	33 (5.6)	5 (1.0)	10 (1.7)	37 (7.2)	57 (9.6)	273 (53.2)	329 (55.4)	161 (31.4)	165 (27.8)	0.747
Contraceptives can reduce the fear of unwanted pregnancy and afford woman the freedom to enjoy a sexual relationship	51 (9.9)	52 (8.8)	122 (23.8)	114 (19.2)	78 (15.2)	150 (25.3)	207 (40.4)	222 (37.4)	55 (10.7)	56 (9.4)	0.225
Contraceptives allow women to pursue higher education by delaying pregnancy and therefore help them to achieve some measure of economic security	35 (6.8)	20 (3.4)	39 (7.6)	60 (10.1)	51 (9.9)	97 (16.3)	315 (61.4)	352 (59.3)	73 (14.2)	65 (10.9)	0.102
It is complicated to apply contraceptive methods	43 (8.4)	34 (5.7)	318 (62.0)	291 (49.0)	91 (17.7)	190 (32.0)	58 (11.3)	66 (11.1)	3 (0.6)	13 (2.2)	0.016
Sex education, including contraception, should be introduced at an early age	30 (5.8)	45 (7.6)	123 (24.0)	126 (21.2)	43 (8.4)	53 (8.9)	206 (40.2)	231 (38.9)	111 (21.6)	139 (23.4)	0.916
Health-care providers must provide counseling about contraceptive methods, the mechanism of action, the best time to use them, and possible side effects to all women	42 (8.2)	26 (4.4)	8 (1.6)	11 (1.9)	25 (4.9)	35 (5.9)	205 (40.0)	284 (47.8)	233 (45.4)	238 (40.1)	0.236

(a): Medical students, (b): Non-medical students. The *P* value* was calculated using Chi-square test

positive attitudes toward the utilization of contraceptives (Mann–Whitney U = 131,432.5, $P = 0.000$).

DISCUSSION

Overall, the participants showed a generally inadequate level of knowledge regarding contraceptive methods as well as misconceptions about the safety of using them. However, the results of this study suggested that university students were knowledgeable about different methods of contraception, including condoms, intrauterine device, emergency oral pills, and vaginal diaphragm. The results were therefore in line with those of other studies, which indicated that condoms were the most commonly used method of contraception due to the perceived advantages, simplicity, and convenience.[8] Condoms were considered to decrease the risk of sexually transmitted diseases (STDs) such as HIV/AIDs, human papillomavirus, hepatitis B, and genital herpes.[9,10] However, almost 16% of participants in this study disagreed with this statement. The medical students were better informed regarding the utilization and protection that condoms afford against STDs. We also found that the intention to use condoms and other contraceptives on the part of female students was similar to that of male students, which led to the not surprising outcome that both boys and girls felt responsible for using contraceptives and taking care of their reproductive health.

Recent studies have revealed that contraceptive pills containing estrogen might cause breast cancer.[11,12] The students who participated in this study exhibited a poor level of understanding in this regard, with 68.4% responding wrongly to this question. This was similar to the findings of a study conducted in Malaysia, wherein 68.9% of participants also gave incorrect responses.[5] However, a cross-sectional survey conducted in India showed contrasting results, with over 70% of participants agreeing with this statement.[6]

There is significant doubt regarding the correlation between contraception utilization and infertility among young people. Much has previously been written about the effect of contraceptives on the risk of infertility, and the findings of the present study revealed that approximately half of all participants did not know or were confused about whether contraceptives would lead to infertility. These results were more positive than those of a study conducted in Malaysia, in which over two-thirds of participants reported being unsure about this issue,[5] while only 18% of adolescents in senior high schools in the central region of Ghana exhibited good awareness about this issue.[13] Surprisingly, a higher number of non-medical students gave correct answers to this question (55.3% vs. 43.9% for non-medical and medical students, respectively). However, $P = 0.079$ suggested that while there did exist a disparity, the statistical difference was not significant. Nevertheless, the safety of emergency oral pills and contraceptive pills has been approved by the World Health Organization and the US Food and Drug Administration, since there is no evidence of fetal abnormalities or an increased risk of later abnormal fetal development. Despite the reported concerns regarding the safety and effectiveness of contraceptives, the woman in a previous study was willing to use them if necessary because they seemed safer than abortions.[14] Thus, 30% of participants in this study who stated that they would never use contraceptives in the future due to being afraid of experiencing health disadvantages or a lack of effectiveness suggested the need for awareness programs to acknowledge that contraceptives are safe and effective and that their advantages outweigh their risks in most circumstances.

Two-thirds of the participants in this study believed that oral contraceptive pills did not 100% prevent unwanted pregnancy. These results were also supported by Elkalmi *et al*.[5] in their study, in which almost 90% of participants agreed with this statement. Based on a report by the US Health and Human Services, five to nine of every 100 women who use birth control pills each year may experience unplanned pregnancies.[15] A comparison between the medical and non-medical students indicated a difference of opinion regarding the statement "it is uncomfortable and embarrassing to discuss contraception with others." Fewer students from the medical universities agreed or strongly agreed with this when compared to the non-medical students (5.7% vs. 11.1% for the medical and non-medical students, respectively, $P = 0.016$). This was in line with the findings of previous reports.[5,6,13] This finding was further supported by Ramathuba *et al*.,[7] who reported that the adolescents who participated in their study could not discuss contraceptives with their parents or partners.

Contraception has been found to afford women the freedom to engage in sexual intercourse without fear of unintended pregnancies as well as the possibility to attend higher education.[5] This finding was also supported by the study of Hogmark *et al*.,[6] who found that sex education encouraged young adults to have sex. The participants' answers in the present study were not particularly different, since about half of them agree or strongly agree with the statement. The majority of study participants believed that using contraceptive methods was very complicated. This finding was supported by the study of Hagan and Buxton,[13] which indicated that contraceptive pills were considered inconvenient and difficult to use.

A large number of students in this study obtained information about contraceptives from their parents, friends, or siblings, which was in accordance with the findings of previous studies.[16,17] Unfortunately, these informal networks could prove to be untrustworthy and lead to the spreading of misinformation, while medical and media sources were associated with better and more reliable knowledge. Therefore, it is suggested that there exists a need to provide

sex education and information regarding contraceptives at the primary school level. Further, more programs about this issue should be featured in the media, such as TV, radio, and the internet, while counseling services concerning contraceptives should be offered by health-care providers. This notion was agreed with by the majority of participants in the present study, which was in accordance with the findings of previous studies conducted by Ramathuba *et al*.[7] and Elkalmi *et al*.[5]

It must be recognized that this study did have a number of limitations. Firstly, the study was conducted in only selected universities, which might limit the generalizability of the findings to all university students in Vietnam. However, by selecting multiple universities from across the country, we believe that our results are fairly representative of Vietnamese university students in general. Secondly, sexual issues are of a sensitive nature; thus, the participants' free expression and honesty might be constrained. Thirdly, the method of using an anonymous self-administered questionnaire lacks consistency in terms of identifying all misunderstandings in spite of the attendance of a researcher in the field. To minimize this limitation, we ensured the confidentiality and privacy of the participants. Some study assistants attended the classroom to answer any possible questions given by participants while collecting data, and we also confirmed that the questionnaire was as simple and understandable as possible.

CONCLUSION

Despite the acknowledged limitations, this study provides valuable information regarding the knowledge, awareness, perceptions, and attitudes toward contraceptives among Vietnamese university students. Overall, we conclude that both the knowledge and awareness of contraceptives among Vietnamese university students are low, while the number of misperceptions is high. It is our hope that this study will contribute to efforts focusing on providing reproductive health education and counseling, as well as demonstrating the importance of using reliable means of communication such as medical and media sources to spread accurate information, which have previously been found to be associated with good knowledge regarding contraceptives.

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