

**Knowledge of contraception
and sexually transmitted diseases
(STDs) among 18-24 years old
Vietnamese university students**

A quantitative Research

Thao Thu Nguyen

Bachelor's thesis
May 2017
Social Service, Health and Sport
Degree Programme in Nursing

Author(s) Nguyen, Thao Thu	Type of publication Bachelor's thesis	Date May 2017
	Number of pages 58+16	Language of publication: English
		Permission for web publication: X
Title of publication Knowledge of contraception and sexually transmitted diseases (STDs) among 18-24 years old Vietnamese university students A quantitative research		
Degree programme Degree program in Nursing		
Supervisor(s) Garbrah, William and Seriola, Leena		
Assigned by		
<p>With the experiences in the growth of economics and cultural diversity, sexual health behaviors of young Vietnamese have also changed. This change addresses the need of knowledge about contraception and sexually transmitted diseases (STDs) in order to promote public sexual health.</p> <p>This study aimed to measure the knowledge of contraception and STDs among Vietnamese university students aged 18-24 years old. The result of the study was meant for educational institutions to know the students' level of knowledge about the topic thus to plan for extra education and training for it. The study was conducted using quantitative methods in order to collect a large number of cases for certain aspects in a relatively short time frame and to produce generalizability.</p> <p>Data was collected via a quantitative questionnaire, which composed of 29 questions. The questionnaire was built online (Webropol) and answered by 250 students, from 2 universities in Hanoi, Vietnam within 2 weeks. The author used Webropol as a tool for data analysis. Data was presented in percentage (%) and total number of objects (N, n) to display frequency distribution of the variables and draw comparisons.</p> <p>The collected data showed that the group had relatively poor knowledge of this topic. Female population performed better in the knowledge of contraceptions whereas male had more concrete knowledge about STDs. Lack of education about the matter from family, school and health care institution was acknowledged. Even though most participants admitted getting the information from Internet, they wished to learn more about this matter from other sources e.g. sexual partners.</p> <p>As the study was conducted for educational purpose, it might serve as a tool for institutions to study the need for education for young people to promote safe sexual health. The scope of the study was limited to only universities in a particular region of the country. Studies that combine attitude and knowledge and other social-psychologic factors of the surveyed group might give more insightful findings of the topic.</p>		
Keywords (subjects) Sexual health promotion, contraception, sexually transmitted diseases, Vietnam, public health		
Miscellaneous		

Content

1	Introduction	5
2	Sexual Health Promotion in Vietnam	6
2.1	Concept Clarification	6
2.2	Sexual Health Education in Vietnam	7
2.3	Public Health Organization and Infrastructure to Promote Sexual Health in Vietnam	9
2.4	Vietnamese Adolescents and Sexual Life	9
2.5	Methods of Contraception	10
2.6	Hormonal Methods	11
2.7	Emergency Contraception	14
2.8	Other Contraceptive Methods	15
2.9	Sexually Transmitted Diseases	19
3	Aim, Purpose and Research Questions	23
4	Research Process	23
4.1	Research Methodology	23
4.2	Data Collection	25
4.3	Participants and Recruitments	26
4.4	Data Analysis	26
5	The Results of The Research.....	27
5.1	Knowledge of Contraception.....	27
5.2	Knowledge of Sexually Transmitted Diseases	31
5.3	Sources of Knowledge about Contraception and STDs.....	35
6	Discussions	39
6.1	Discussions on The Result of The Study	39
6.2	Ethical Consideration.....	44

6.3 Validity and Reliability	46
7 Conclusion and Recommendation for Further Studies	48
REFERENCES.....	50
APPENDICES.....	59
APPENDIX 1 –The Questionnaire (Translated into English from Vietnamese)...	59
APPENDIX 2 – Email asking for universities’ permission to launch the questionnaire (translated into English).....	64
APPENDIX 3 – Collected results of the questionnaire	65

Figures

Figure 1 First encounter of information about contraception and STDs in average (in percentage and numbers).....	36
Figure 2 Sources participants acquired information about contraception and STDs from (in percentage and number).....	37
Figure 3 Sources participants wish to get more information about contraception and STDs from (in percentage and number)	38

Tables

Table 1 Amount of correct answer about role of contraception and male contraception in percentage and number	28
Table 2 Amount of correct answers of categorizing contraceptions in percentage and number	28
Table 3 Amount of correct answer about general knowledge of contraception in percentage and number.....	29
Table 4 Amount of correct answer of right use of other hormonal contraception in percentage and number.....	30
Table 5 Amount of correct answer about the right use of emergency contraceptions in percentage and number.....	31
Table 6 Amount of correct answer of general knowledge about STDs in percentage and number.....	31
Table 7 Participants' answer of common symptoms of STDs in percentage and number (correct answer in bold)	32
Table 8 Participants' answer of complication of untreated STDs in percentage and number (correct answers in bold).....	34
Table 9 Amount of correct answers about treatment of STDs in percentage and number	35
Table 10 Answers about the role of contraception and categorizing contraception based on genders in percentage and numbers.....	65
Table 11 Answers about categorizing contraception in percentage and numbers	66

Table 12 Answers about side effects and other benefits of contraception in percentage and numbers	67
Table 13 Answers about right use of other hormonal methods in percentage and numbers	68
Table 14 Answers about right use of Emergency contraception in percentage and numbers	69
Table 15 Answers about knowledge of causes, ways of transmission and protection of STDs in percentage and numbers	70
Table 16 Answers about knowledge of identifying non-STDs and STDs in percentage and numbers	71
Table 17 Answers about knowledge of common symptoms of STDs in percentage and numbers	71
Table 18 Answers about knowledge of complication of untreated STDs in percentage and numbers	72
Table 19 Answers about knowledge of treatment of STDs in percentage and numbers	73
Table 20 Answers about first encounter of information about contraception and STDs in average in percentage and numbers	73
Table 21 Sources participants acquired information about contraception and STDs from in percentage and numbers	74
Table 22 Sources participants wish to gain more information about contraception and STDs from in percentage and numbers.....	74

1 Introduction

The importance of sexual health is highly valued as it is fundamentally linked to the physical and emotional health and well-being of individuals, couples and families, helping to benefit the social and economic development of societies (World Health Organization (WHO), 2010 a). Therefore, it is crucial that every individual can get access to the knowledge and opportunity to pursue a safe and threat-free sexual life. An essential implication of sexual health promotion is family planning, which achieved through the use of contraceptive methods and the treatment of infertility (World Health Organization (WHO), 2013). In 1988, Vietnamese government enacted a policy on encouraging families to have no more than two (2) children. The policy originated from China's One-Child policy in the late 1980s. Ever since the policy was enacted, the promotion of contraception and infertility increased, reaching 77.2% in 2013 (General Office for Population Family Planning, 2013). On the other hand, the country's abortion rate rocketed to be at the 5th place in the whole world and the 1st place in Southeast Asia among minors. In 2012, Vietnam abortion cases peaked at 1.5 million cases annually, with 20% was among underage (Tuoi Tre News, 2013).

The quality of sexual health can be profoundly impacted by Sexually Transmitted Infections (STIs) or Sexually Transmitted Diseases (STDs). According to statistics published by World Health Organization (2015), estimated 1 million of people are infected with STDs worldwide on a daily basis. STDs, rather than HIV, affect the quality of life, reproductive health, child health by increasing the burden of morbidity and mortality on developed and developing countries, which consequently facilitates the transmission of HIV and its impacts on individuals and national economies. There will be an enormous burden and loss for the productivity due to the associated costs both medical and non-medical. (World Health Organization (WHO), 2007).

By experiencing numerous social and economic changes, the sexual life patterns of Vietnamese people are also changing. In order to facilitate a sustainable sexual life, empowering knowledge about contraception and STDs needs to be focused on.

Therefore, in this research, the author hoped to examine the current level of knowledge of young Vietnamese people regarding contraceptives and Sexually Transmitted Diseases (STDs).

2 Sexual Health Promotion in Vietnam

2.1 Concept Clarification

Sexual health was first introduced by WHO (1975) as “the integration of the somatic, emotional, intellectual and social aspects of sexual being, in ways that are positively enriching and that enhance personality, communication and love”. In 2002, WHO expanded the definition of sexual health and the importance of promoting healthy sexual life as:

A state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled. (World Health Organization (WHO), 2002).

Adolescence is considered as a critical developmental period, conventionally deemed as years between the start of puberty and the establishment of social independence, seen through physiologic, psychosocial, temporal and cultural lenses . (Curtis, 2015; Steinberg, 2014). WHO considers adolescence as the essential period of human growth and development, from ages 10-19 (World Health Organization (WHO), n.d.). However, according to Le (2000), adolescence or young adulthood as a distinct development phase in the life of an individual is not traditionally defined in Vietnam. Consequently, the term young adult in Vietnam is used to define people who are 10-24 of age, a transition phase between childhood and adulthood (Khuat, 2003).

According to Medical News Today (2009), contraception can mean the use of various devices, drugs, agents, sexual practices, or surgical procedures to prevent conception or impregnation (pregnancy). Even though terms of contraception and birth control are used interchangeably, they have quite separate meanings clinically. Contraception, along with contragestion and abortion, is one of 3 methods of birth control. (Medical News Today, 2009). Besides the general effects of preventing pregnancy, use of contraceptives also have non-contraceptive effects on human health, such as lowering cancer risk of certain cancer (endometrial cancer, ovarian cancer, etc) by influencing on hormone release in women's body; protecting sexual partners from STIs mainly by the use of condom; and using contraception to treat irregularities, symptoms and disorders associated with the menstrual cycle (Kavanaugh & Anderson, 2013).

The term "Sexually transmitted diseases" (STDs) refers to diseases that are spread through sexual contact. In the modern world, many experts in public health agree to replace STDs with Sexually transmitted infections (STIs). (American Sexual Health Association, 2016 a). Sexually transmitted diseases (STDs) are diseases caused by more than 30 different bacteria, viruses and parasites, spread through person-to-person sexually contact. The most common conditions are gonorrhea, Chlamydia infection, syphilis, trichomoniasis, chancroid, genital herpes, genital warts, human immunodeficiency virus (HIV) infection and hepatitis B infection (World Health Organization (WHO), 2010 b).

2.2 Sexual Health Education in Vietnam

In school, lessons about reproduction are introduced to students at grade 9 of junior high school (age 14-15); however, the actual teaching about safe sex has never officially been in the curriculum of any school. The results from a study on the sources of sexual knowledge among high school students in Vietnam shows that the majority of participants regarded media such as TV and magazines as sources of

information for sexual knowledge; only a small number of participants had acquired knowledge from the Internet—a medium that has been gaining global attention as a source of notable influence among adolescents as well as adults. (Watanabe et al., 2014)

Based on Nguyen's study (2009) on public opinions on sex education, the public acknowledges that sex education is a decisive factor to reduce unwanted pregnancy and abortion and is supported by many doctors, health providers and higher educated people who believe that everyone should have the right to understand how to protect themselves. Nevertheless, there are still many resistances from traditional, conservative Vietnamese culture that sex is a sensitive topic that should not be taught at school. This mind-set led to a delay in introducing sexual health education and the consequence is obvious. It is also said that most parents are reluctant to talk about sex with their children as almost every participant in Nguyen's study (2009) indicated that their parents never initiated to talk about sex with them. The most common excuse for their denial to answers questions regarding sex is that parents believe that their teenage children are too young to learn about that and argue that they can learn about sex naturally when they are "mature enough". Often parents will just tell their children not to have premarital sex as it will jeopardize their family and their own reputations.

Parents and teachers are concerned if it is too early to educate their children and students about sex and sexuality. Some are embarrassed to start the talks as it can encourage their children to have sex while they are still at school; others worry that if they make the talk, they can be seen as too engrossed with sex from the children's point of view. Even in cases that minors receive education from their family and teachers, most of the contents are very shallow and incomplete. Thus it leads to the lack of orientation and misunderstanding among adolescences. (World Youth News, 2007)

2.3 Public Health Organization and Infrastructure to Promote Sexual Health in Vietnam

The Reformation in 1986, a movement of economic liberalization initiated by Vietnamese communist party, has made major positive impacts on the national health care systems. Since then, the government allows private health care section to grow, in competing with the public section. Thus, patients nowadays have more options for health care services. However, the Commune Health Station (CHS) is still the primary health care system in Vietnam. CHS is also mainly responsible for promoting reproductive health and family planning among Vietnamese (RHFP) (Ngo et al., 2010). Since CHS is funded with scarce resources for RHFP services, it can only manage to provide limited investment in infrastructure and training. Consequently, the service quality of RHFP is perceived as poor, due to the concerns about staff qualifications, outdated equipment, and limited drugs and supplies (MOH and WHO, 2007). As a result, many patients choose to seek care at private health care section or clinics or bypass their local CHS to visit higher level hospitals even for minor health problems (Ngo et al., 2010). In addition to that, loose regulations and laws of trading medicine to individuals make it easier for self-treatment by purchasing medicines in pharmacies without prescriptions (Khe et al., 2002). All of these reasons contribute to the low use of family planning, antenatal and delivery services through the CHS network (Duong et al., 2005). In addition to that, Rekart (2002) states in his work that Vietnam has weak and disorganized system and infrastructure for STD control; and it is very hard to get access to good care and treatment especially for sex workers, injection drug users, STD patients, HIV patients, gay men, and other marginal groups.

2.4 Vietnamese Adolescents and Sexual Life

According to Mensch and co-workers (2003), adolescents' sexuality and related reproductive health problems are sensitive issues in Vietnam where premarital sex is strongly condemned as unvirtuous in accordance to Confucius morals and values. Consequently, Vietnamese people often use the term "Social evils" to refer to drug use, prostitution, STI/HIV and pre-marital sexual relationships. Even though recent

studies have shown that premarital sex has been increasing but the teenage childbearing rates are generally quite low throughout the country with differences in regions and provinces. However, the use of contraceptive methods among unmarried youth is still very low (Committee for population, family and children, 2003).

Since the problem is not openly addressed, there has been an unmet need among women for contraception, in combination with inexpensive and accessible abortion services, creating an “abortion culture” (Xinh et al., 2004). It is believed that social stigma and privacy are reasons that make adolescents seek abortions at private clinics even though the quality of care can be insufficient. Since the problem falls into private health care, there is a difficulty in obtaining reliable statistics on abortion cases in private clinics; thus, it is impossible to obtain official statistics of abortion in general (Dang & Nguyen, 2001). Overall, reports of high rates of abortion and increasing prevalence of STIs including HIV among unmarried youth couple contribute to the demand of research to improve services and counseling for this group (Klingberg-Allvin, 2007).

2.5 Methods of Contraception

Nowadays, there are different methods (means) of contraception available in the market. However, all methods should be delivered to users with respect and have to fulfill their human rights necessities and promote the clients to make informed choices for themselves. In practice, most of the contraceptive methods are meant for women. However, women’s choices are imposed or limited by both direct and indirect social, economic and cultural factors. Hence, women’s choices of contraception methods result from particular, societal and cultural context; choices are complex, multifactorial and subject to change (World Health Organization (WHO), 2009). The factors include limited choice of methods; limited access to contraception, particularly among young people, poorer segments of populations, or unmarried people; fear or experience of side-effects; cultural or religious opposition; poor quality of available services; and gender-based barriers (World Health Organization (WHO), 2013).

Regardless of all these above mentioned factors, choices of contraception should be made in consideration with advantages and disadvantages of specific contraceptive methods varying according to individual circumstances, perceptions, and interpretations (World Health Organization (WHO), 2009).

2.6 Hormonal Methods

Hormonal contraception can be divided into two (2) groups: 1) Combined hormonal contraceptives and 2) Only contain progesterone. Combined hormonal contraceptives: includes the use of vaginal ring, contraceptive patch and combined contraceptive pills contained estrogen and progesterone or their synthetic equivalents. The action of this type is based mainly on the activeness of progesterone, results in prevention of ovulation; concurrently, it also makes the cervical fluid become stickier and harder for penetration of sperm. In these methods, the role of estrogen is inferior to progesterone, mostly for keeping a regular pace of menstrual cycle. History of vein thrombosis, increased predisposition to arterial thrombosis, hormone-related cancer, hypertension, age over 35 years, smoking, classic migraine with aura, gross overweight can be contraindications of combined hormonal contraception. (Merck Sharp & Dohme Corp., 2014). Only contain progesterone methods: includes minipills and contraceptive implant (subcutaneous rod, hormonal coil and contraceptive injection). If a person use these methods for contraception, the menstrual cycle is unlikely to be regular as the amount of bleeding is reduced significantly. Also, the effectiveness of this method varies on the type of progesterone (Merck Sharp & Dohme Corp., 2014).

Combined oral contraceptives (COCs) – The pill: includes using pill contained estrogen and progestogen. The main mechanism of this method is ovulation inhibition and changes in the cervical mucus that inhibit sperm penetration. In addition, the hormonal method has effects on the endometrium that could affect implantation. However, there has not been any concrete clinical proof that not using implantation can enhance the use of these pills. As pregnancy begins, all these methods did not

show any abortifacient effect (Rivera et al., 1999). Pills can reduce the chance of getting pregnancy by over 99% if taken correctly and consistently, by 92% if commonly used (World Health Organization (WHO), 2013). A woman takes one pill daily, preferably at the same time each day (Bedprakas, 2017). Many types of oral contraceptives are available, and a health care provider helps to decide which type best meets a woman's needs. However, women who smoke, over, 35 years old or having a history of high blood pressure, blood clots, breast, liver, or endometrial cancer and those who are breastfeeding are not recommended taking COCs (NICHD, 2013; World Health Organization (WHO), 2013).

Progestogen-only pills (POPs) – The minipill: This pill contains a progestogen hormone which is similar to the natural progesterone women produce in their ovaries and contain different types of progestogens. POPs are effective in prevent ovulation as it thickens cervical mucus to block sperm and egg from meeting. (Family Planning Association, 2014 a). The success rate in preventing pregnancy is 99% for consistent use and 90-97% if used commonly. It is recommended for people who are over 35 years old, smoke and for those who have side effects with estrogen. It is also safe for women who are breastfeeding; however, it is strictly required to be taken at the same time every day. (World Health Organization (WHO), 2013). One major side effect that POPs can cause is bleeding (Faculty of sexual and reproductive Healthcare , 2008).

Progestogen-only injectable contraceptives (POICs): Progestogen-only injectable contraceptives (POICs) are the long-lasting birth control that can be effective up to 2 or 3 months. It prevents pregnancy by the inhibition of ovulation and thickens the cervical mucus, thereby presents a barrier for sperm penetration. In addition, changes to the endometrium make it an unfavorable environment for implantation. Some adverse effects for taking POIs are weight change, altered mood and libido, acne, headache and migraine. It also causes risk for cardiovascular diseases and osteoporosis (National Collaborating Centre for Women's and Children's Health, 2005).

Monthly injectables or combined injectable contraceptives (CICs): This is the combination of a group of hormonal contraceptives, which is administered through intramuscular injection (National Collaborating Centre for Women's and Children's Health, 2005). To achieve this goal, an estrogen had to be included in the formulation with a significant reduction in the progestin dose (Toppozada, 1994). The combination was made due to the fact that some oral contraceptive can cause bleeding and must be induced with a strict time schedule. In poor situation, many women lack formal education and have problems complying with the requirement of taking the pill daily, resulting in irregular pill intake and a high contraceptive failure. Hence, these methods have been considered to be an addition to the contraceptive choices available to those women. The most suitable candidates for once-a-month injectable contraceptives are women who are satisfied with combined oral contraceptives pills, but are having problems with compliance (Hassan & El-Gibaly, 2009).

Vaginal ring: The vaginal ring is a small, soft plastic ring that you place inside your vagina. It's about 4mm thick and 5.5cm large in diameter. It can be placed inside the vagina for 21 days and replaced by the new one. The ring releases estrogen and progestogen, therefore, it prevents ovulation and makes it difficult for sperm to get to an egg and thins the womb lining. (National Health System, 2014a). However, as mentioned by Family Planning Association (2014), if the ring is correctly used, the effectiveness is over 99%, if not, the user might still be pregnant. Vaginal rings are preferred for its convenience and it does not cause any side effects like oral contraceptives. Additionally, it is proved to be effective with premenstrual symptoms, helps to reduce risk of cancer of the ovary, uterus and colon. It also reduces acne and menopausal symptoms. (Family Planning Association, 2014 b).

Contraceptive patch: The patch releases hormones estrogen and progesterone through the skin into the blood circulation. One patch is effective for a week; there should be one week break after every 3 weeks, in which you usually have your period.

Like other patches used for medication, a contraceptive patch needs to be placed on the clean, hairless, dry area of the body where tight clothes cannot chafe it. Normal preferable areas for attaching the patch are buttock, stomach, upper back or upper arm. Potential adverse effects from contraceptive patches are breast tenderness, headache, nausea or mood swings. It is also not recommended for women who have contraindications to hormonal contraception. (Merck Sharp & Dohme Corp., 2014).

Implant: This is a small, flexible, plastic tube (rod) of 40mm length which is inserted under the skin of the upper arm by a trained professional and lasts for 3 years. The tube releases progesterone to prevent ovulation thus thickens the cervical walls and thins the womb lining. (National Health System UK, 2014b)

2.7 Emergency Contraception

Emergency contraception is not an actual contraceptive method but rather an emergency solution. It can be done in two ways, either by using an emergency contraceptive pill or with a doctor inserting a copper coil into the uterus (Merck Sharp & Dohme Corp., 2014).

Intrauterine methods: Contraception using intrauterine contraceptive devices (IUCD) is called intrauterine methods. An IUCD is a small, T-shaped device made from plastic and copper that is left inside the uterus. It is also known as the coil. IUCD prevents pregnancy by affecting the way sperm move so they can't join with an egg. There are copper and hormonal IUCDs. The hormonal IUCDs also release progesterone and prevent an egg from leaving the ovary. IUCDs in general are quite safe for most women; however, it is inadvisable for women who have pelvic infection during childbirth or abortion, STIs, cancer of cervix and uterus and also with pregnancy. Hormonal IUCDs are not suitable for people with liver diseases and breast cancer. (Planned Parenthood Organization, 2014 a). IUCDs are preferable for long-term

contraception and do not require remembering the dosing (Merck Sharp & Dohme Corp., 2014).

Emergency contraceptive pills: Emergency contraceptive pills are also known as morning-after pills. It takes time for pregnancy to happen and be up to 6 days for the sperm and egg to meet after the intercourse. Hence, emergency contraception pills work by keeping woman's ovary from releasing an egg for longer than usual. These pills have to be taken after maximum 5 days after sexual intercourse. (Planned Parenthood Organization, 2014 b)

2.8 Other Contraceptive Methods

Barrier methods: Barrier methods of birth control are physical or chemical barriers that help to prevent penetration of sperm from woman's cervix into the uterus and fallopian tubes to fertilize an egg. Some of these methods can prevent Sexually transmitted diseases (STDs). Condoms, spermicides, diaphragm, cervical cap are barrier methods (American Congress of Obstetricians and Gynecologists, 2014).

Condoms: There are condoms for both males and females. The male condom is worn over the erect or hardened penis and prevent actual direct contact between the penis and vagina (National Health System UK, 2014 c). It must be removed before the erection ends so the sperm can leak out and must not be reused. The female condom is a thin, strong plastic layer which is placed inside the vagina to prevent eggs and sperms from meeting. (U.S National Library of Medicine, 2014 a). Condoms are known for safe protection against STIs (World Health Organization (WHO), 2013).

Spermicides: Spermicides are vaginal creams, foams, films, suppositories and sponges. They prevent pregnancy by forming a chemical barrier that either kills sperm or paralyzes them. However, spermicides should be used together with other

contraceptives to increase the effectiveness of contraception. Women who have frequent daily intercourse can increase their risk of getting HIV if their partner is HIV carrier, as spermicides cause vaginal irritation. (Center for Young Women's Health, 2014).

Diaphragm: Diaphragm is a soft, cup-shaped contraceptive that fits in the palm of the hand, made from thin rubber (plastic or silicone). It fits inside the vagina of the woman and prevents the sperm from passing through the cervix. Before the intercourse, the woman should place it into the vaginal fornix, at the mouth of the womb, the cup side up. It can fit either by hand or special applicators. It can be reused, needs to be washed after each use and keep undamaged for the next use. There should always be spermicides accompanied with the diaphragm so that the contraceptive effectiveness is sufficient. (Merck Sharp & Dohme Corp., 2014).

Cervical cap: A cervical cap is a small, bowl-shaped device that fits over the woman's cervix and can be removed by a strap. A woman uses cervical cap by putting spermicide inside the bowl and grooves around the outside of the cap then inserts it into the vagina. The cap is pressed up against the cervix to form a seal. After intercourse, the cap should be left in the vagina for at least 6 hours but no longer than 48 hours. Wearing the cap can cause pain and discomfort while having intercourse. The device is also more complicated to use than other methods such as condoms. It can also cause vaginal infections and provides no protection against STIs. (Association of Reproductive Health Professionals, 2014).

Sterilization: This is the most extreme method of contraception as it is considered as irreversible and is the only contraception methods controlled by law in some countries. It is also important to know that even sterilization is not guaranteed 100% contraceptive reliability. (Merck Sharp & Dohme Corp., 2014). Sterilization always

requires surgery. There are sterilizations for both male (vasectomy) and female (tubal ligation).

Male sterilization (vasectomy): Male sterilization or vasectomy is performed on a man to permanently keep him from being able to get a woman pregnant. The procedure is done under local anesthesia. After the local anesthesia is given, health care provider will make tiny incisions on the scrotum and the vas deferens are then cut, tied or blocked. After the vasectomy, a man will still produce semen (fluid that comes out of his penis when he has sex); it takes about 3 months to clear the sperm out of the system. A man also should still be using other birth control until his physician tells him there is no longer sperm in his semen. There might be surgery to reverse a vasectomy but it is normally considered a permanent procedure. The man can also freeze his sperm in case of future use before the procedure is given. However, after having vasectomy, a man is no longer protected from STIs, including HIV; he also might be suffering from swelling, bruising and tenderness for a short time after having the procedure. (U.S. Department of Health & Human Services, 2014)

Female Sterilization (tubal ligation): Tubal ligation is the surgery to close a woman's Fallopian tubes, blocking the path between ovaries and uterus. It is considered a permanent form of birth control, but major surgery can sometimes restore the ability to get pregnant. The procedure is also done under general or local anesthesia. Tubal ligation can also be done right after giving birth baby through a small cut in the navel. It can also be done during a cesarean section. (U.S. National Library of Medicine, 2014 b). Tubal ligation can be very useful for the long run as it is permanent birth control with immediate effect. Women with tubal ligation can still be sexually active but require no daily attention for contraception. However, it also has some drawbacks such as risk associated with surgery and no longer protection against STIs, including HIV/AIDS. (Feminist Women's health center, n.d.)

Lactational amenorrhea method (LAM): The Lactational Amenorrhea Method (LAM) is a short-term family planning method based on the natural effect of breastfeeding on fertility. Breastfeeding, especially continuous breastfeeding inhibits the release of hormones that activate the release of an egg-ovulation. A woman can use LAM if the baby is only breastfed day and night, less than 6 months old; and the mother's bleeding has not yet returned after giving birth to a baby. Since the effectiveness of this method depends on the exclusive breastfeeding, therefore if the mother is separated from the baby more than a few hours, she cannot expect a high level of contraception protection. (Institution of Reproductive Health, 2015).

Withdrawal method (coitus interruptus): Withdrawal method or coitus interruptus or pull out method, is the term used to describe the action of withdrawing the penis from the vagina and away from a woman's external genitals before ejaculation to prevent sperm from reaching the vagina. (Mayo Clinic, 2015). This method requires much self-control and is not even considered as having a reliable effectiveness of birth control. It also does not offer any protection from STIs. In the summarize made by WHO (2013), along with fertility awareness method, withdrawal method is categorized as a traditional method of contraception, also is the least effective method as the proper timing of withdrawal is often difficult to calculate.

Fertility awareness methods (natural family planning or periodic abstinence): This method is based on monitoring fertile days in menstrual cycle. Couple using this method to prevent pregnancy must avoid unprotected vaginal sex during the most fertile days by abstaining or using condoms. Fertility awareness methods are also for those who want to be pregnant as it requires keeping track of the menstrual cycle consistently. It can be 95-97% effective but needs partner cooperation. (World Health Organization (WHO), 2013).

2.9 Sexually Transmitted Diseases

According to The Society of Obstetricians and Gynecologists of Canada (2012), STDs or STIs can be grouped into three (3) families:

- *Viral Infections* (Human Papillomavirus (HPV), Genital Herpes, Hepatitis B Virus and Human Immunodeficiency Virus (HIV)): caused by viruses passed from person-to-person during sexual activity;
- *Bacterial Infections* (Chlamydia, Gonorrhea and Syphilis): caused by bacteria passed from person-to-person during sexual activity;
- *Parasitic Infections* (Trichomoniasis, Pubic Lice and Smites): caused by parasites passed from person-to-person during sexual activity.

According to WHO (2007), there are annually 340 million new cases of sexually transmitted bacterial and protozoal infections occur globally. In Vietnam, there are about 1 million cases diagnosed with sexually transmitted diseases each year (Hanoi's Health Center of Mother and Child, 2013). It is also predicted that the number of cases will grow dramatically due to social, demographic and migratory trends. The burden is mostly placed in developing countries, whereas developed nations also face the hard time to control it as a prevalence of non-curable viral infections, trends in sexual behavior and increased travel opportunities hindrance the management of these diseases. The cost of STDs ranks in top 10 reasons for health care visits in developing countries, making it one of the most costly public health care services to both national budget and household income. (World Health Organization (WHO), 2007).

Chlamydia: Chlamydia is the infection caused by *Chlamydia trachomatis* bacteria. It is a common and curable infection in which the bacteria attack the cells of mucous membranes. The most common way of infection of Chlamydia is from an infected person to a partner through certain sexual activities such as anal or vaginal sex. Oral sex is believed to be less likely for Chlamydia to transmit (American Sexual Health Association, 2016 b). In Vietnam, Chlamydia and Gonorrhea are most popular STDs

among Vietnamese in the northern part of the countries (Nguyen et al., 2008). Chlamydia can be asymptomatic; in case there are symptoms, it can take weeks to appear. The symptoms of Chlamydia can be confused with Gonorrhoea. Even though there can be no symptoms of Chlamydia, the reproductive system still can be damaged as it can lead to infertility in women by causing pelvic infection. The most common symptoms of Chlamydia include abnormal vaginal discharge, burning sensation when urinating, discharge from penis, pain and swelling in one or both testicles, bleeding and rectal pains. A pregnant woman can also transmit Chlamydia to the child (Center of Disease Control and Prevention, 2016 a).

Gonorrhoea: Gonorrhoea is caused by bacteria *Neisseria gonorrhoea* that can be spread from person to person via vaginal, oral and anal sex. Like Chlamydia, Gonorrhoea can be asymptomatic or only show minor symptoms in the initial phase (U.S National Library of Medicine, 2015 a). Gonorrhoea can cause infections in throat, genitals and rectum. It is very popular among people aged from 15-24 years old. Women with Gonorrhoea might suffer from painful or burning sensation while urinating, increase vaginal discharge and vaginal bleed between periods. Untreated Gonorrhoea in women can cause pelvic inflammatory disease, which can later cause complications of infertility, ectopic pregnancy, scar tissues in fallopian tubes and long-term abdominal pain. (Center of Disease Control and Prevention, 2016 b). Among men, symptoms can be yellowish-white discharge from the penis, burning or pain when urinating, urinating more often than usual and pain or swelling of the testicles (American Sexual Health Association, 2016 c). Disseminated Gonococcal Infection (DGI) or so-called gonococcal arthritis is a stage of Gonorrhoea, in which the infections spread to other parts of the body such as blood, skin, heart or joints. (Minneapolis Health Department, 2017). Treatment of Gonorrhoea can be difficult due to high antimicrobial resistance (Center of Disease Control and Prevention, 2015 a).

Condyloma: Condyloma is also known as genital warts, is caused by human papillomavirus (HPV), most often type 6 and 11. Even though is it one of HPV infections, however, the type of HPVs causes Condyloma is not noticeably dangerous

as they are not necessary the same type causing cervical cancer. Sexual contact is the main transmissional method of getting Condyloma. Genital warts can be asymptomatic; however, depends on the size and location of warts that can cause pain and pruritus. Some warts are so tiny that people cannot even detect (Center of Disease Control and Prevention, 2011). Warts can be either raised or flat flesh-colored spots or cauliflower-like, appearing on mouth, tongue, throat or lips. In women, they can be inside or outside the vagina or anus and nearby areas, while in men, warts can be found on the penis, scrotum and groin, thighs, in- and outside the anus or nearby areas. Condoms (both for female and male) and vaccination are reliable prevention for Condyloma (U.S National Library of Medicine, 2014 c).

Syphilis: Syphilis is an STD caused by *treponema pallidum* via infection as it gets into broken skin or mucus membranes, most often from the genitals during sexual contact or other ways (U.S National Library of Medicine, 2014 d). Syphilis is often called as the great imitator since it causes so many symptoms that can be interpreted to other diseases. The disease progresses in different stages: primary, secondary and tertiary in which the most common seen is primary syphilis. Syphilis can either be symptomatic or asymptomatic, making it more difficult to diagnose. People with primary syphilis can have painless syphilis sore, mistaken for ingrown hair, zipper cut or harmless bump while people in the secondary stage may experience non-itchy body rash on palms of hands and soles of feet or over the body, vision change, hair loss, fever, muscle aches, joint pain. In tertiary syphilis, complication to body's organs can be detected such as tumors of skin, bones or liver, heart damage. Untreated syphilis can lead to permanent blindness (Center of Disease Control and Prevention, 2016 c).

Genital herpes: Genital herpes are caused by herpes simplex virus (HSV). While HSV type 1 infection often affects the mouth and lips and can be transmitted to genitals by oral sex, HSV type 2 infection causes genital herpes via fluid and skin contact from mouth or genitals. Herpes can spread by contacting skin, vagina, penis or mouth of someone who has herpes. People who have herpes may develop symptoms like decreased appetite, fever and malaise, muscle aches in lower back, buttocks, thighs,

knees and swollen and tender lymph nodes in the groin in the first stage. Other common symptoms are as pain and burning feeling while urinating and abnormal vaginal discharges in women. After 2-3 weeks, the first outbreak symptoms will vanish and the second outbreak occurs weeks or months later. Genital herpes cannot be completely cured but can only be controlled to reduce pain and discomfort by taking medicine. Pregnant women with genital herpes are often recommended to have C-section to prevent the chance of the infant getting infected during the delivery (U.S National Library of Medicine, 2015 b).

HIV: HIV is short for Human Immunodeficiency Virus, by which can lead to acquired immunodeficiency syndrome or AIDS if not treated. At the moment, there has been no cure for HIV. Despite all myths, HIV is spread through having sexual activities (most often vaginal and anal sex, in extremely rare cases with oral sex) with an HIV partner without using condom or taking medicines to protect getting HIV; blood borne by sharing needles, syringes or sharp objected with infected blood, during delivery and breastfeeding if the mother is HIV-positive. People with HIV positive are 3 times more likely to have STDs compared to other non-carriers; meanwhile, people who have STDs are also 3 times more likely to be infected with HIV if they have unprotected sex with someone HIV positive (Center of Disease Control and Prevention, 2015 b). Even in the case a person is HIV positive, one can still enjoy continue his/ her sexual life and protect the partner by taking the antiretroviral therapy (ART), choosing safer sexual behaviors and using condoms consistently. (Center of Disease Control and Prevention, 2015 c). Compared to other STDs, HIV is the most widely known STDs in Vietnam, estimated 250 000 cases in the whole nation (UNAIDS, 2014).

Hepatitis B: Hepatitis B is the infection of the liver caused by Hepatitis B virus (HBV), which can be life-threatening. Hepatitis B can spread through blood, semen and other body fluid from an infected person to another one. Besides sexual activities, Hepatitis B can also transmit from person to person by sharing needles, syringes or during the delivery. (Centers of Disease Control and Prevention, 2016 d). According to Asia and Pacific Alliance to Eliminate Viral Hepatitis (2013), the total number of Hepatitis B-

positive in Vietnam accounts for 14% of the population. Even though vaccinations have been introduced in 2003, only less than 60% of the whole population has them.

3 Aim, Purpose and Research Questions

The aim of this study was to find out what Vietnamese young people, aged between 18-24 years old, understand about contraception and STDs. The result of the study was meant for educational institutions to understand the current situation of the students' knowledge about the topics thus to plan for extra education and training about it.

Research questions:

- *What is the level of knowledge of contraception among 18-24 years old Vietnamese?*
- *What is the level of knowledge of STDs among 18-24 years old Vietnamese?*

4 Research Process

4.1 Research Methodology

According to the nature of the topic, the author decided to use quantitative method for the thesis work. Compared to other research methods, quantitative research emphasizes on deductive reasoning. It is also an objective and reliable measurement since statistical interpretation of data that can be mathematically manipulated and understood (Patton, 1990). In addition to that, an advantage of quantitative research is that it allows for the study of a large number of cases for certain aspects in a relatively short time frame and its results have a high degree of generalizability (Flick, 2015). And as quantitative research is based on the measurement of quantity or amount thus it is applicable to phenomena that can be expressed in terms of quantity (Kothari, 2004). Flick (2015) also claims that another aim of a quantitative study may

be to describe a state or situation when the state of research and the theoretical literature are not sufficiently developed. By conducting this, the author may develop concepts, explore a field and end up by forming hypotheses based on their exploration of the field. Particularly in the field of health care services, people often have to deal with information of a quantitative nature (WHO Regional Office for the Western Pacific, 2001). The European Public Health recognized the strength of quantitative research in health care field due to its potential to provide results which are objective, to establish causality, high reliability, easiness to reproduce further study, ability to analyze large data sets and involvement of large number of participants as well as possibility to produce substantiated results on hypotheses based on statistic. (European Public Health, n.d.). Since the author wished to gain insights about a certain issue of a particular group, it is more beneficial to use quantitative method to draw generalization on the targeted population.

As the study aims to get an overview of the general level of knowledge about a certain social matter as a group, it is more effective to approach the problem through a number of population in the society. Due to geographic reason, the author decided to approach respondents via web-based self-completion questionnaire circulated by using the internet. Brace (2008) claims that web-based questionnaires to have the same strength as paper self-completion questionnaires due to the flexibility to complete it in a free choice of time. In addition, online surveys are more effective with sensitive issues, meaning that data on “threatening” questions, where respondents feel a need to appear to be socially acceptable, are likely to represent better how the survey population really feels. Web-based questionnaires tend to be done faster than telephone or face-to-face administered versions, which makes it a more pleasurable experience for respondents. The presentation of the questionnaire can also help to make its completion pleasurable. However, like with all self-completion media, a major disadvantage is not having an interviewer on hand to clarify questions or to repair misunderstandings. Nevertheless, it does not necessarily mean that the fault falls on the web-based questionnaire itself but rather on the design of the questionnaire and researchers.

4.2 Data Collection

The data for the research was collected via an online multiple-choice questionnaire. There was also an open-end question at the end of the questionnaire to ask for people's comments and thoughts on the topic which can be more thorough if expressed in words. The questionnaire was designed in electronic form (Webropol) and written in Vietnamese.

The questionnaire was launched on 26th April 2016 at 11h00 GMT+3 through Webropol platform on the schools' websites. The link of the questionnaire was closed on 9th May 2016 at 15h00 GMT+3. The questionnaire included twenty-nine (29) questions; of which twenty-eight (28) of them were multiple choices questions with the last question being an open-ended question. The author formed the questionnaire based on self-studying the topic and studies of Nguyen et al (2006), Hakkarainen et al. (2015) and Edvinsson & Schmidt (2011).

Thirteen (13) questions were about contraception, testing the knowledge of respondents about the uses of different kinds of contraception. Eleven (11) questions were about STDs. Four (4) questions were about the background of the respondents, asking for the gender of the answerers, age and sources they first knew about the topic of STDs and contraception and sources through they would like to be educated about them in future. The last one (1) question was made open-ended to create a space for people sharing their own thoughts and comments on the research. Most of the questions consisted of 5 different options for answer, among which there was one option as "I don't know the answer" to single out guessworks from the participants. When the questionnaire was circulated, the author added a short description on the purpose of the research, citing the permission from the school and promised to take all the data into consideration of confidentiality.

4.3 Participants and Recruitments

The targeted group of the research is Vietnamese adolescents, aged from 18-24 years old. In order to recruit participants for the study, the author sent an email to several universities in Vietnam asking for the permission to do the study among their students. The translated email to university is included in the Appendix part of the study (Appendix 2). Two universities in Hanoi, Vietnam gave the permission to do the research among their students. After getting the permission from the universities, the author was allowed to send the web-based questionnaire to university students via emails. The normal age of starting university in Vietnam is 18 years old, depending on the education that university offers, university education can last from 4-6 years. A small part of university students can be older than this age; hence there was an indication of the age limit of participants in the beginning of the questionnaire. The author aimed to collect at least one hundred (100) participants for this questionnaire. The timeframe for getting this number of participants was two (2) weeks.

4.4 Data Analysis

According to WHO (2004), it is more feasible to analyze quantitative data collected through questionnaires or other methods with a structured set of open and closed questions or observations. Also, before the data is processed, measured variables have to be listed. Unlike qualitative analysis, quantitative analysis is based on describing and interpreting objects statistically and with numbers. It aims to interpret the data collected for the phenomenon through numeric variables and statistics which can be done with computational and statistical methods of analysis (University of Jyväskylä, n.d.).

Data was collected and analyzed by Webropol. Percentage (%) and Total number of objects (N, n) were utilized to present the data. Percentage can emphasize frequency

distribution of the variables in the research and is very functional in order to compare information where the sample sizes or totals are different. (University of Leicester, 2009; Trochim, 2006). Collected data is presented in tables and figures to enhance readability and legibility of the paper. According to JAMK's Project Reporting Instruction (2014), written reports can be enhanced with the aid of visuals i.e. illustrations, tables, figures, and examples as long as they correspond and discussed logically and in accordance with text. Tables are especially appropriate for communicating numeric information while figure is to supplement the text or reduce the amount of it, rather than to simply reiterate concepts expressed in the text. Figures used in this research are bar charts, to present a graphical display of categorical data, for example, comparing the mean number of sessions provided by each counselor (Greasley, 2008).

5 The Results of The Research

The author decided to present summarized statistics in this part. Full tables of results were included in Appendix 3 of this study. During the two weeks period, the author collected 250 answers from students from 2 universities (N=250). Among 250 participants, 198 were females (79.2%) and 52 were males (20.8%).

5.1 Knowledge of Contraception

At the beginning of the questionnaire, participants were asked about the role of contraception and to single male contraception among a list of contraceptions. The public's awareness of these matters was significantly high as shown in Table 1. (See also Appendix 3, Table 10)

Table 1 Amount of correct answer about role of contraception and male contraception in percentage and number

	Male (n=52)	Female (n=198)	Total (N=250)
Role of contraception	100%(52)	97.9%(194)	98%(246)
Male contraception	94.2% (49)	93.9% (186)	94% (235)

In general, up to 98% recognized the main role of contraception i.e. preventing pregnancy and STDs. It was 100% male and 98 % female that chose the right answer. 94.2% male and 93.9% female knew that condom is male contraceptive method. (See Appendix 3, Table 8)

Since there are many different types of contraceptive methods, the author included questions helping answerers to differentiate and categorize these methods (See Appendix 3, Table 11). The percentage of right answers about each type of contraceptions is displayed in Table 2:

Table 2 Amount of correct answers of categorizing contraceptions in percentage and number

	Male (n=52)	Female (n=198)	Total (N=250)
Hormonal methods	25% (13)	31.3% (62)	30% (75)
Barrier methods	23% (12)	33.8% (67)	31.6% (79)
Traditional methods	51.9% (27)	48.5% (96)	49.2% (131)

Only about 30% recognized that hormonal contraceptives include contraceptive pills, patches, injections, vaginal ring and implant. The proportion of females choosing the right answer was 31.2% while there were merely 25% of their counterparts knew the correct answer. Merely 25% male knew condoms and sterilization were barrier methods for contraception while it was 33.8% female. It was chosen by more than half of the participants (n=131), 59.6% men and 50% women. Around 12% admitted not knowing the answer of this question. 51.9% male and 48.5% female knew that traditional contraception includes fertility awareness, withdrawal method and breastfeeding.

The questionnaire includes 3 questions asking about fundamental matters of contraception, included possible side effects of contraceptions, the active substance of hormonal contraceptions and other benefits of contraception (See Appendix 3, Table 12). The amount of correct answer is displayed in number and percentage in Table 3.

Table 3 Amount of correct answer about general knowledge of contraception in percentage and number

	Male (n=52)	Female (n=198)	Total (N=250)
Possible side effects of contraception	59.6% (31)	60.1% (119)	60% (150)
Active substance of hormonal contraception	25% (13)	22.7% (45)	23.2% (58)
Other benefits of contraception	32.7% (17)	55.6% (110)	50.8% (127)

Over half of the participants (60%) understood the possible side effects of contraception (nausea, vomiting, cramps, headache, mood swing and allergy to latex in condoms). Only about 23.8% knew the active substance of contraceptive pills (Progesterone and Estrogen). The numbers were 25% male and 22.7% female. 50.8% people realized the other use of contraceptive pills besides contraception i.e. reducing period pain, acne and regulating period. This number was higher among females (55.6%) than in their counterparts (32.7%).

The questionnaire contains questions asking participants about the use of other hormonal contraceptive methods besides contraceptive pills i.e. contraceptive patch, implant and vaginal ring (See Appendix 3, Table 13). The following table displays the amount of correct answer:

Table 4 Amount of correct answer of right use of other hormonal contraception in percentage and number

	Male (n=52)	Female (n=98)	Total (n=250)
Right use of contraceptive patch	5.8% (3)	11.1% (22)	10% (25)
Right use of implant	11.5% (6)	26.7% (53)	23.6% (59)
Right use of vaginal ring	1.9% (1)	0.5% (1)	0.8% (2)

90% people did not know what the precise use of contraceptive patch was (i.e. 1-week break after 3 weeks of use). Only 5.8% male and 11.1% female answered correctly. More than 11% male and over 26% female realized the proper use implant (i.e. can be effective within 3 years). Less than 2% of the whole population knew how to use vaginal ring properly (i.e. effective within 21 days).

The last 2 questions of this part focused on the use of emergency contraception (See Appendix 3, Table 14). Participants were asked to choose the right use of emergency pills and IUCD. The results are in the following table:

Table 5 Amount of correct answer about the right use of emergency contraceptions in percentage and number

	Male (n=52)	Female (n=198)	Total (N=250)
Right use of emergency pills	7.7% (4)	20.7% (41)	18% (45)
Right use of IUCD	42.3% (22)	50% (99)	48.4% (121)

7.7% male and 20.7% female knew the right use of emergency pills i.e. can be taken within 120 hours after intercourse to prevent pregnancy. Moreover, 42.3% male and 50% female understood that IUCD is a long-term contraception with effectiveness up to 5-10 years.

5.2 Knowledge of Sexually Transmitted Diseases

In the first part of this section, participants were tested on general knowledge about STDs, including causes, ways of transmission, prevention and characters of STDs (See Appendix 3, Table 15). The results are presented in Table 6:

Table 6 Amount of correct answer of general knowledge about STDs in percentage and number

	Male (n=52)	Female (n=198)	Total (N=250)
Causes of STDs	90.4% (47)	89.4% (177)	89.6% (224)
Transmission	75% (39)	81.8% (162)	80.4% (201)
Prevention of STDs	96.2% (50)	94.9% (188)	95.2% (238)
Characters of STDs	80.8% (42)	76.7% (152)	77.6% (194)

89.6% participants of which 90.4% male and 89.4% female knew that bacteria, virus and parasite are the cause of STDs. A majority of respondents (80.4%) knew STDs' ways of transmission i.e. Sex, sharing needle, from mother to child. 95.2% understood that contraception that can prevent STDs is condom. It was acknowledged by 96.2% male and 94.9% female. 80.8% male and 76.7% female knew that STDs can be asymptotic.

A part of the survey contained questions asking participants to identify non-STDs and STDs. One question included list of STDs of non STDs was given, aiming to ask participants to single out STDs, while in the other question they were asked to pick the non-STDs. Almost all of participants (94.3% male and 93.4% female) managed to distinguish STDs in a list of Measles, Tuberculosis, ENT disease and Herpes B and C. 98.1% male and 100% female knew that Rheumatism is not STDs in a list of Chlamydia, HPV, Syphilis and Rheumatism. (See Appendix 3, Table 16)

Participants were given a list of symptoms and asked to identify the ones that most commonly found in STDs patients (See Appendix 3, Table 17). The results are as presented in Table 7.

Table 7 Participants' answer of common symptoms of STDs in percentage and number (correct answer in bold)

	Male (n=52)	Female (n=198)	Total (N=250)
a. Abdominal pain	28.9% (15)	43.4% (86)	40.4% (101)
b. Jaundice	11.5% (6)	3.5% (7)	5.2% (13)
c. Itching and burning feeling when urinate	76.9% (40)	81.8% (162)	80.8% (202)
d. Abnormal vaginal/ penis discharge	84.6% (44)	93.4% (185)	91.6% (229)
e. Tinnitus	0% (0)	0% (0)	0% (0)
f. Genital ulcers and sores	82.9% (43)	89.9% (178)	88.4% (221)
g. Diarrhea	0% (0)	3% (6)	2.4% (6)

h. Nausea	9.6 % (5)	8.1% (16)	8.4% (21)
-----------	-----------	-----------	-----------

Most of them knew the common symptoms of STDs, which includes abdominal pains, itching and burning feeling while urinating, abnormal discharge of vagina and penis and genital ulcers and sores. In most cases, males were behind females in the knowledge of this matter, especially in the notice of abdominal pain (chosen by 28.9% males while the number was 43.4% among their counterparts). There was a slight percentage of female respondents mistook jaundice (3.5%), diarrhea (3%) and nausea (8.1%) as symptoms of STDs. Males thought jaundice (11.5%) and nausea (9.6%) are common among STDs, none of them chose diarrhea as the symptoms of STDs.

The next question tested participants' knowledge on the complications of STDs if left untreated (See Appendix 3, Table 18). The results are as shown in Table 8:

Table 8 Participants' answer of complication of untreated STDs in percentage and number (correct answers in bold)

	Male (n=52)	Female (n=198)	Total (N=250)
a. Infertility	84.6% (44)	93.4% (185)	91.6% (229)
b. Cervical cancer	73.1% (38)	84.5% (168)	82.4% (206)
c. Ectopic pregnancy	34.6% (18)	43.4% (86)	41.6% (104)
d. Loss of limb	3.8% (2)	2% (4)	2.4% (6)
e. Unable to have sex	44.2% (23)	39.4% (78)	40.4% (101)
f. Pelvic inflammatory disease	50% (26)	47.5% (94)	48% (120)
g. Heart diseases	11.5% (6)	4% (8)	5.6% (14)
h. Decrease of eye sight	11.5% (6)	11.1% (22)	11.2% (28)

91.6% (93.4% female and 84.6% in male) realized that untreated STDs can lead to Infertility. A high number recorded (82.4%) in knowing untreated STDs could pose a threat in developing cervical cancer, acknowledged by 84.5% female and 73.1% male. Less than 50% participants in both genders were certain about other possible threats i.e. inability to have intercourse, pelvic inflammatory disease, heart disease and a decline in vision were also caused by STDs. Most respondents knew that loss of limb is not a complication caused by STDs, which only chosen by 2.4% surveyed population in this questionnaire.

Participants were also asked about the treatment of STDs. This part contains 3 questions about identifying the "Stimulator" among STDs, available vaccinations for STDs, and incurable STDs (See Appendix 3, Table 19). Collected answers are shown in Table 9.

Table 9 Amount of correct answers about treatment of STDs in percentage and number

	Male (n=52)	Female (n=198)	Total (N=250)
“Simulator” STDs	17.3% (9)	7.1% (14)	9.2% (23)
Vaccination for STDs	80.8% (42)	83.8% (166)	83.2% (208)
Incurable STDs	96.2% (50)	89.9% (178)	91.2% (228)

Over 83% participants (83.8% female and 80.8% male) knew that so far, vaccinations are only available for HPV, Hepatitis A and B. Additionally, 91% population knew that HIV/AIDS and genital warts cannot be cured. These numbers were 96.2% and 89.9% in males and females, respectively. 80.8% male and 76.7% female knew that STDs can be asymptomatic. Only 9.2% population knew that Syphilis is notorious “simulator” for having so many symptoms that can be mistaken as other diseases. There was a big discrepancy between the number of female’s (7.1%) and male’s (17.3%) correct answers in this question.

5.3 Sources of Knowledge about Contraception and STDs

The author wanted to know from which sources that participants acquired their knowledge of contraception and STDs. Thus, questions regarding about participants’ experiences about gaining the knowledge was included in the questionnaire. Participants were asked about the first time hearing about the information, from which sources the information came from and from which sources they would like to learn more about contraception and STDs.

The author asked participants of the age when they first encounter information about contraception and STDs (See Appendix 3, Table 20). Results are displayed in Figure 1.

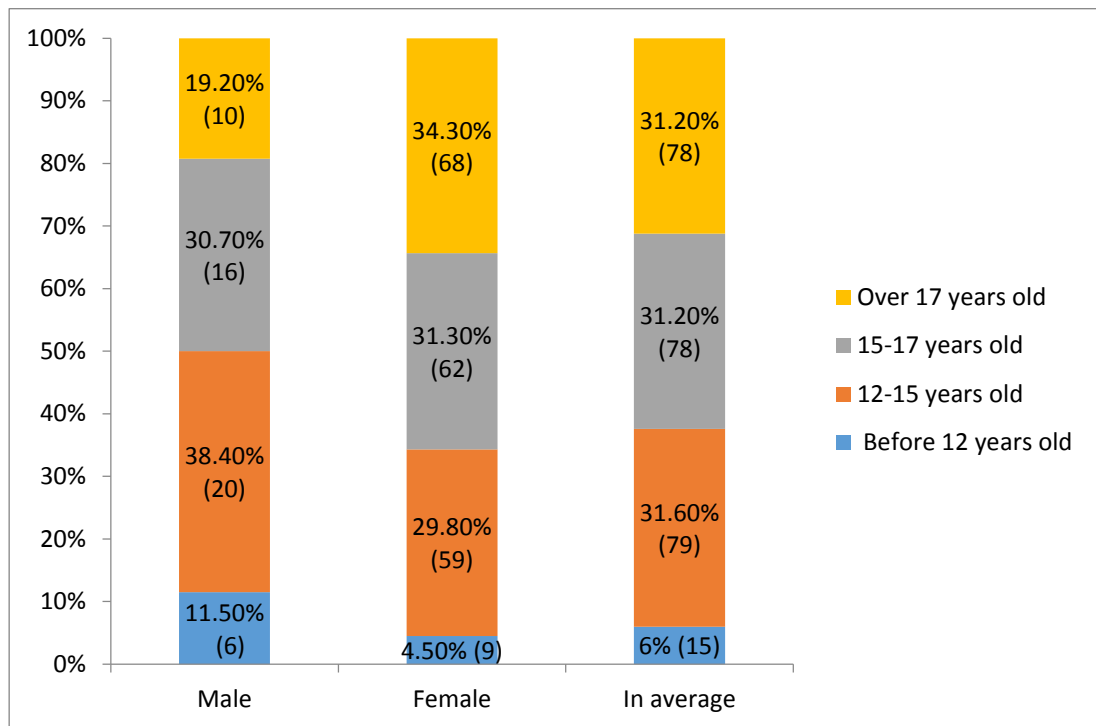


Figure 1 First encounter of information about contraception and STDs in average (in percentage and numbers).

According to the figure, hardly any participants from both genders got access to information about this issue before they were before 12 years old. Most of the surveyed population first encounter of information regarding contraception and STDs when they were around 12-15 years old, these numbers were 38.4% and 29.8% in male and female respectively. Over 38% male knew about this information mostly around this age, while a large group of females (31.3%) first came to know about this only when they are around 15-17 years old. The percentage of women first learned about contraception and STDs after age 17 was 34.3% while it was only 19% among men at the same age.

In the next question, participants were asked about sources of information, from where they learn about contraception and STDs (See Appendix 3, Table 21). More details are shown in Figure 2.

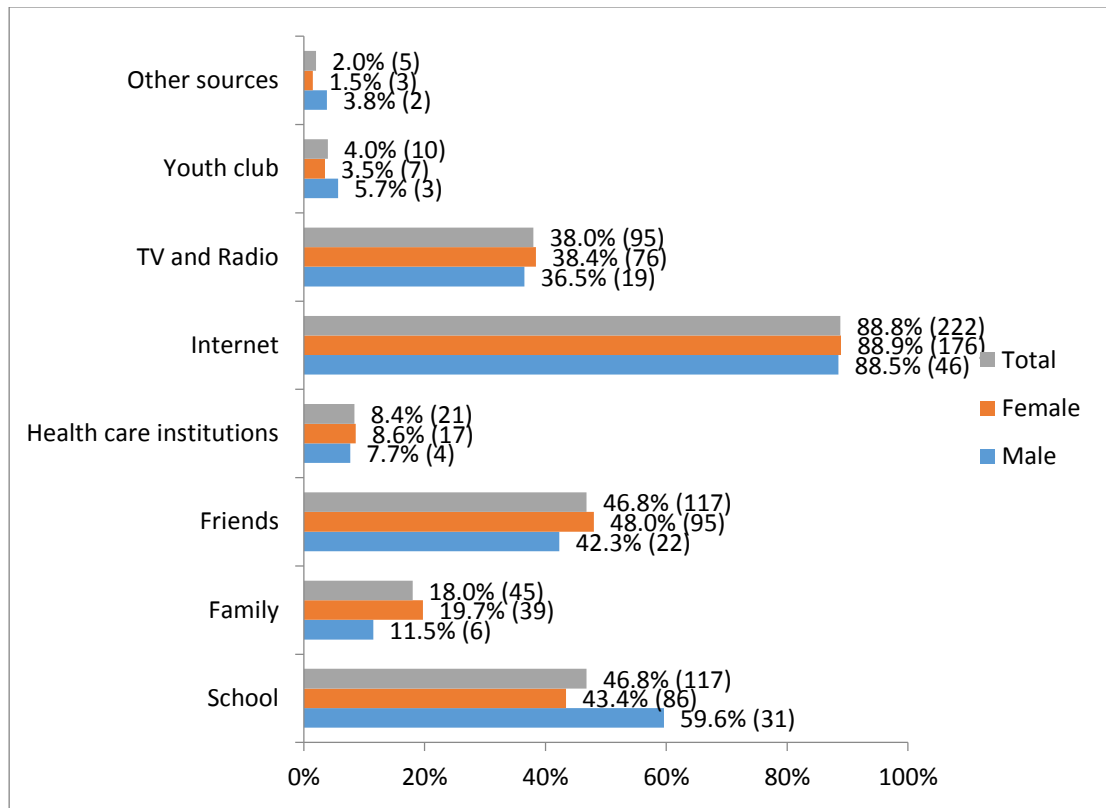


Figure 2 Sources participants acquired information about contraception and STDs from (in percentage and number)

According to the figure, a majority of participants learned about this subject through the internet, friends at school and TV and radio. Nearly 90% of them listed internet as their “educators” (88.9% female followed by 88.5% male). While almost 60% male acknowledged the role of the school in providing education on this matter, only around 43% female recognized the school as the source where they got the knowledge from. Family, health care institution and youth clubs were less favorably chosen as the resource providers for learning about this theme. Indeed, less than 20% of participants regarded family to as “educator” on this, the percentage of this option among males was less than 10%. Less than 10% of the population shared the same thought about health care institution. Some chose “other sources” and mentioned newspaper and magazines.

Participants had a chance to state sources that they wish to learn more about the topic of contraception and STDs (See Appendix 3, Table 22). Figure 3 shows the collected answers.

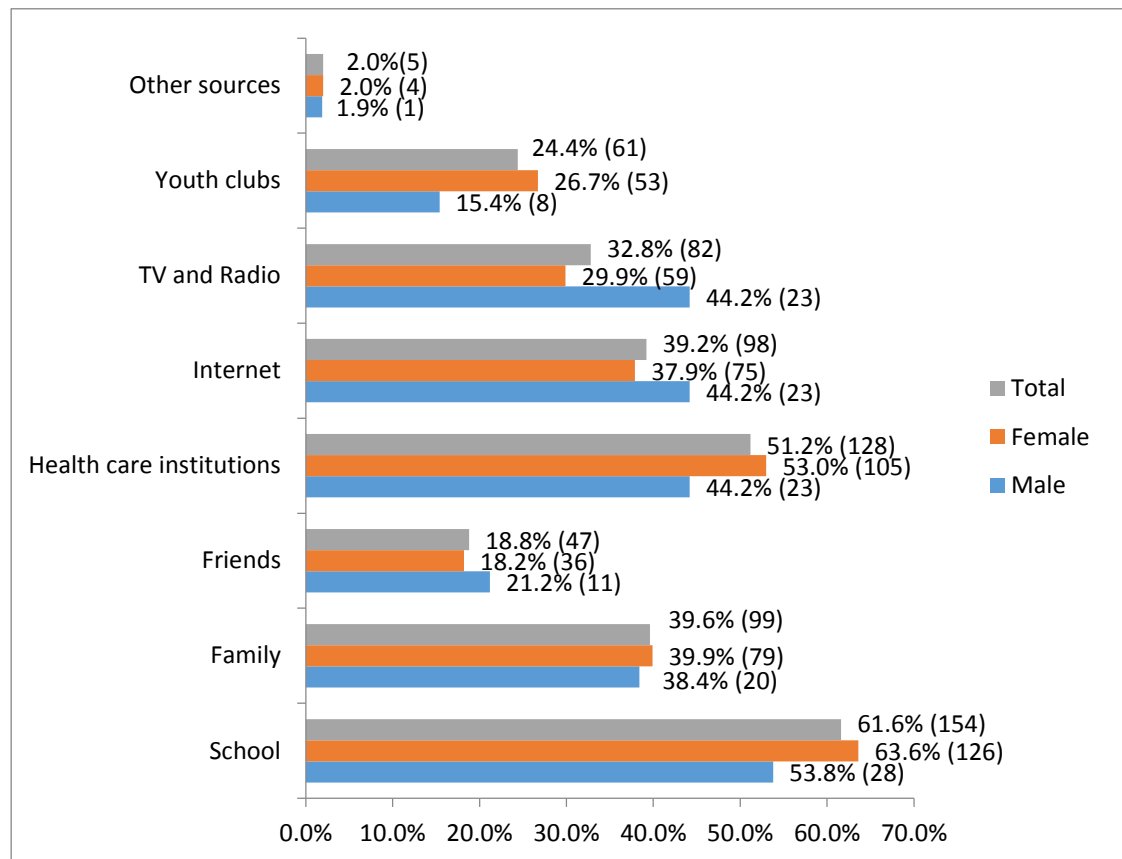


Figure 3 Sources participants wish to get more information about contraception and STDs from (in percentage and number)

Being asked from what sources that they favored gaining more knowledge about this, most people put school (63.6% female and 53.8% male), health care institutions (53% female and 44.2% male) as their first and second options. The amounts of people preferred family and the internet to be sources of education were close with both around 40% of participants. The same amount of males would like Internet, TV and radio to educate more about this subject, while less of their counterparts chose TV

and radio for the same roles. On the other hand, almost 25% women wished youth club to be a place to get more information about this topic, this number reduced to just 15% in men. Friends were the second least chosen one by both genders and had a share of less than 20% of the participants. One participant mentioned sexual partner as “other sources”.

6 Discussions

6.1 Discussions on The Result of The Study

Studies of contraception and STDs are no longer novel in Vietnam. The construction of the questionnaire was based on preceding studies such as Nguyen et al (2006) and Edvinsson & Schmidt (2011); however, these studies neither cover both aspects at the same time nor had the same research group with this study. In the discussion part of the study, the author discussed the issues along with other previous studies to emphasize the on the results and draw relevant comparison if needed.

It is obvious that the studied group had a poor knowledge about the subjects, especially about contraception. Though most forms of contraception are meant for women, hardly were there questions that answered correctly by half of the female participants. In addition, their counterparts even scored much lower in this part of the questionnaire. Participants only knew about very basic concepts regarding contraception. In parts of the questionnaire asking more in depth knowledge about this, they mostly gave inaccurate answers or admitted not knowing the answers. The most concrete thing people learned about contraception was the role of it in gaining safe sexual life, and condom was the only contraception methods protecting against STDs.

Most participants in both genders failed to classify different contraception methods. Among hormonal, barrier and traditional contraception, most people could recognize

methods that belong to traditional contraception, following by hormonal methods; barrier methods are the most unfamiliar ones. Within the hormonal methods, people were most familiar with contraceptive pills, while what they knew about barrier methods were only condoms. Despite the popularity of contraceptive pills, the knowledge of the use of contraceptive pills was low as barely half of respondents possessed accurate knowledge about it. Other hormonal methods such as patches and rings were not so popular in this group. People's knowledge of emergency contraceptive methods was also poor as less than 50% of the people knew the correct answer to the related questions. For emergency contraceptive methods, participants knew about IUCD more than emergency pills. There is a psycho-social explanation on this bias. Despite the fact that there are many options of contraception in Vietnam, IUCD is the most favorable one due to its cost-effectiveness and long lasting usability. IUCD was highly promoted in family planning campaign among the large uneducated population in order to sustain healthy population size in the 1980s. Thus IUCD is popular in rural regions where a constant purchase of short-term, continuously used methods such as condoms or contraceptive pills might cause a financial burden. Since the use of IUCD has been rooted from the parents' generation, it is understandable that even until now people are more familiar with it rather than using birth control pills. (Nguyen, 2012).

Nguyen (2012) finds out in his study that use of contraceptive pills and condoms was more common among people aged 15-19 and 20-24 when people are more sexually active and have less thought of family planning. Commitment to partners among these 2 groups is also less bonding compared to family-aged population hence the short term methods is more favorable. On the other hand, young people nowadays might just stick with these modern methods as they have not gained enough experiences and do not know how to use traditional birth control methods. Certainly, traditional methods are less safe in sexually active age, complete lack of understanding about the former one might cause problems in the future if one enters marriage age then might want to consider more stable and long-lasting effect birth controls.

The awareness of birth control's hormonal methods has been studied by a number of researchers in over the last decade. In all these studies, there was a record of insufficiency counseling about how to use oral pills or adequate information about their immediate and long-term side-effects. (Nguyen & Budiharsana, 2012; Nguyen, 2012; Nguyen & Dang, 2002). Until now, this is still an ongoing problem as this study also found out most women did not successfully know the possible side effects that contraceptive pills can cause to their health.

STDs and related questions were better perceived as most of the questions correctly answered by over half of the population, regardless of their genders. Men showed better understanding about STDs in general level, compared to women i.e. routes of contraction, telling STDs among different diseases. Women outstood men in knowing the common symptoms of STDs while men scored better in identifying possible complications of STDs. More men knew more than women that Syphilis is the great simulator and there is no cure for HIV/AIDS and genital warts, whereas a larger portion of women knew that there are vaccinations for HPV, hepatitis A and B.

The Survey Assessment of Vietnamese Youth conducted by Dao (2009), in which over 10,000 young Vietnamese people aged 14-25 over 63 cities and regions were recruited, tried to have an exploration of the knowledge of youth about STDs. The outcome of the study proved that the general knowledge was poor: 71% of participants had ever heard about Hepatitis, 64% knew about Syphilis and 62% knew about Gonorrhoea. Less than one-third of them had ever heard about names of following STDs: Chlamydia (24%), Genital Warts (27%), Chancroids (7.6%), Granuloma (11%), Herpes (25%) and Trichomonas (28%). The survey pointed out that level of education and gender contributed to the difference in the level of awareness of STDs as participants in cities with better education tended to know more about this subject, and females received better reproductive health education than males. (Dao, 2010). Though carried in a different approach, in comparison with the preceding study, this

study shared the same concern in the lack of knowledge about STDs among recruited participants. However, the difference in genders did not contribute much in the insufficiency of knowledge since both genders had a deficient comprehension of the researched topic.

According to this study, most people admitted first heard about contraception and STDs during the age of 12-15 and 15-17. Watanabe et al. (2014) point out in their work in the same years that among almost 2000 participants of their study with mostly students merely 16 years old, nearly 74% of them thought they have “ever received sex education” (72.5% in boys and 74.8% in girls); over 63% of them “have confidence in my sexual knowledge” (68.8% in boys and 57.5% in girls). This number was quite shocking as most of the people did not answer correctly in questions regarding of contraception and STDs in their study. Despite of the fact that many claimed to be knowledgeable about this subject, only small number of them possessed accurate knowledge. The outcome of this study emphasized on that result.

A majority of people mentioned Internet played an educational role in gaining knowledge about contraception and STDs. This is an absolute contrast to the study of Watanabe et al. (2014), in which most of the participants received this knowledge through TV and magazines and only less than 10% of the knowledge was possessed through the Internet. In spite of the result, they admitted that the data was collected within one high school only; differences could have happened if the scope of their study had changed. According to Ngo et al. (2010), the Internet is acknowledged among youngsters to as a “medium for expressing sexual identities and desires”. However, this poses a threat that even though the Internet serves as a gateway to get access to the unlimited resources of study, it cannot be the only reliable communicational tool due to the lack of emotional and relationship supports. A quick search of information about Contraceptive methods (“Phòng tránh thai” in Vietnamese) in Google-the most popular search engine among Vietnamese showed over 1 million results in less than 0,3 seconds. However, among these most viewed results, only a small number of them were from certified and official websites; the

majorities were from uncertified and uncredited sources. Search results for STDs (“bệnh lây qua đường tình dục” in Vietnamese) were less than 900 000 found results. Yet most of them were from unofficial websites.

In spite of any critics about the lack of sexual health education within educational institutions, schools still play a crucial role in guiding and orientating youngsters. Regarding the matter, males found the school benefited more than girls. That might be explained as males tend to be more open to speak up and ask questions that directly bother them more as the Vietnamese society is still conservative and male-dominant. Contribution from family in providing this information was highly undervalued as less than 20% of participants highlighted the roles of their family in giving consultation. Nevertheless, friends were deemed to be more helpful in giving advice and notes on this topic. Among females, reaching for family and friends' consultation seems to be more doable than among males. Other communal supportive organizations as health institutions and youth clubs were not found helpful in providing guidance and education for sexual health matter. Though it is the role of health institutions to promote public health, it is still a taboo to bring the so-called private matters to the public. Stated by some of the participants in the free-writing question of the questionnaire, though they found the topic worth learning, raising the topic in social contexts is avoided. The society's attitude towards sexual health or sex in general in Vietnam is traditional. Therefore it brings challenges to the younger generations who are caught in between the traditional culture and the western values. While the contraception is too private to be discussed in public, STDs face negative looks from the society as it is often called as one of the social evils. Back to the days when Vietnamese people still had no clues of all the Western medical terms, STDs were mostly found among sex workers hence it brought shame to the people's social values and physical health. The most often mentioned STDs that people heard about is HIV/AIDS, which is closely associated with injected drug users, also is a social evil in Vietnamese society. Rejection towards these people is supported by the government's social evils campaign which seeks to identify, arrest, re-educate, and eliminate these aspects (Rekart, 2002). Consequently, there is not much room for discussion of these topics.

Most people expressed the yearning for getting educated on this topic more in schools, family, health care institutions and youth clubs. Despite the fact that media are effortlessly accessible nowadays, it cannot replace human social contact in education. Counseling and education needed to be delivered with physical interaction, especially when it comes to the intimate topic that requires much sensitivity and space in order to reconnect and resolve individual emotions like sexual health. The role of family is overlooked in providing educating regarding this issue. Unlike the mass media, school teachers and parents have the possibility to provide information in a tailored approach to suit best the need of their students and child. (Watanabe et al., 2014). Trinh et al. (2009) believe that a barrier existed between parent-children when it comes to discussion about sexual life. It might be that parents often feel embarrassed and they believe talks about this sensitive topic will only lead to early sexual experimentation, or just because there is a lack of sexual knowledge or communicative skills. Nevertheless, parents and adolescents should learn to overcome this barrier with an effort to bridge cultural and generational gaps.

6.2 Ethical Consideration

According to Resnik (2015), following to ethical norms in research not only promote the aims of the research such as knowledge, truth and avoidance of error, but it also uplifts the values that are essential to collaborative work, such as trust, accountability, mutual respect, and fairness. These standards also ensure that researchers are accountable to the public and help to gain public's support. They also help to promote a variety of other social values such as social responsibility, human rights, animal welfare, compliance with the law, and public health and safety (Resnik, 2015).

JAMK's ethical guideline (2013) emphasizes the importance of following ethical standards in requiring research students to work and evaluate their projects and results with honest, meticulousness and precision. Students are entitled to apply justified and ethically sustainable data collection, research and evaluation methods;

acquire the necessary research permits that is required for certain fields of research; take due account of the work and achievements of other experts and researchers, respecting their work, citing their publications appropriately and giving due credit and weight to their achievements in their research and when publishing its results; support the research in accordance with the ethically justifiable and sustainable scientific knowledge. Good practice of administration also comes in line with research procedure. (JAMK, 2013).

According to the American's National Institute of Health (2016), since clinical researches aim to advance the understanding of science and promotes human health, it is important for researchers to have precautions in the planning, implementation and follow-up of studies – to protect these participants in research. Thus, following ethical guidelines help clinical research to protect patient volunteers and to preserve the integrity of science. In additions, social and clinical values, scientific validity, fair subject selection, favorable risk-benefit ratio, independent review, informed consent and respect for potential and enrolled subjects during the procedure of the study have to be taken into consideration. (National Institutes of Health, 2016).

During the conduction of this study, the author took consent and confidentiality of the participants in serious consideration. Permission was gained from the institutions where participants were attending as students. The author also stated the purpose of the research, expected duration and procedures in transparency. Participants were given the right to decline to participate and to withdraw from the research once it as well as the anticipated consequences of doing so. Confidentiality of the participants was well-kept and participants knew who to contact if they have any questions. Misconduct of ethical standards included fabrication, falsification, plagiarism and misappropriation was avoided.

6.3 Validity and Reliability

In evidence-based research, the ability to critique findings is very essential. This skill should not only be shown while processing the results but also extends to the rigor of the research. Rigor refers to the extent to which the researchers worked to enhance the quality of the studies that can be enhanced by validity and reliability in quantitative research. (Heale & Twycross, 2015).

Validity expresses the degree to which a measurement that it claims to measure. From a board view, validity is divided into internal and external validity. External validity emphasizes on the possibility to apply the findings of the study to other people and other situations while ensuring the representativeness of the study. (Roberts et al., 2006). There are several varieties used to measure internal validity, including face validity, construct validity, content validity and criterion validity. (Bolarinwa, 2015). Content validity is the weakest level of validity, assessing the extent to which a research instrument accurately measures all aspects of a construct. (Roberts et al., 2006; Heale & Twycross, 2015). Face validity is believed to belong to content validity, where experts' opinions about whether an instrument measures the concept intended are obtained (Heale & Twycross, 2015). Construct validity measures whether the author has succeeded in drawing inferences about results related to the concept being studied. One way to demonstrate construct validity is factor analysis (Roberts et al., 2006). **Criterion-related validity** is a measure of how well questionnaire findings stack up against another instrument or predictor and is often difficult to measure as the predictor might not always available to obtain. (Bolarinwa, 2015). For this study, the author tried to offer a brief but almost as complete as it can be about the most fundamental knowledge of contraception and STDs. The content of the study was composed and revised based on many sources, not only limited to Vietnam society but also from different cultures to offer an up-to-date outlook of the young generation. Previous studies both done in qualitative and quantitative methods were studied to select essential questions and details that should be recognized in the topic. It is not only with the aim of testing the knowledge, the author hoped that by going through this questionnaire, people's interest of learning will be piqued and be

encouraged to obtain more information. The author also encouraged participants' honesty while doing the questionnaire by offering options "I don't know the answer" to help them realizing that accurate knowledge is acquired by learning, neither being made of nor being guessed. Construction of the questionnaire is somewhat considered huge and lengthy according to some participants. However, the topic and sub-topics (contraception and STDs) were well organized. Due to the close relations of these two subsets, some people found questions are relatable. Yet, it highlights the fact that they are two sides of one coin and are equally relevant.

Reliability refers to the consistency of a measure, the degree to which the results obtained by a measurement and procedure can be replicated (Heale & Twycross, 2015; Bolarinwa, 2015). Bolarinwa (2015) suggests that "lack of reliability can be caused by the dissimilarity between observers or instruments of measurement such as a questionnaire or instability of the attribute being measured (Rothman et al., 2008)." Despite precise calculation of reliability is not possible to be conducted; estimation of reliability can be done by considering other measurements i.e. internal consistency, stability and equivalence (Heale & Twycross, 2015; Roberts et al., 2006; Bolarinwa, 2015). For this study, the author originally aimed for minimum 100 participants. In the end, 250 participants from 2 universities participated in answering the questionnaire. The setting of the study was established based on the desired age group. The author made sure to have people in this age group by emphasizing on the required age even on the questionnaire layout. The geographical requirement was also fulfilled as both selected universities were in Vietnam. In the context of Vietnamese universities where often there are several thousands of students in an institution, collecting minimum 100 responses is achievable. Though web-based questionnaire is easily accessible for a large population, there are undeniable limits due to of one-way communication and possibilities of misunderstanding. Nevertheless, the study offered space of discussion in order to clear out non-transparent details and left room for improvement. During the conduction of the study, the author ensured the reliability of the research by describing stages of the thesis, the setting of study and the design of the questionnaire in accuracy. The result of the questionnaire was reported consistently and truthfully, analyzed with other reliable sources.

In spite of all the efforts, all measures possess some residual bias or unreliability or inaccuracy (Punch, 1998). Bias can cause the decline in the validity of study as subjects and data collectors are not blind to the purpose of the research. It can also happen as the researchers went an extra mile to ensure the participants for the experimental group benefit from the intervention. (Jack et al., 2010). Since the study was conducted in quantitative method, the basis of the procedures is mathematical. The accuracy report on the procedures and outcomes of the study demonstrate rigor and usefulness of this work.

7 Conclusion and Recommendation for Further Studies

The study covered a very sensitive topic in Vietnamese society. The conduction of the research was challenging for the author yet it was very interesting to study the results. The knowledge of birth controls and STDs among 18-24 years old Vietnamese was generally inadequate. From the aspect of contraception, women show better understanding than men. However, most people did not have an accurate understanding of different kinds of contraception and are familiar with certain types of contraception. Men, however, have more knowledge about STDs compared to women. Nevertheless, they need to be more aware of how to protect themselves against unwanted pregnancy and STDs. The result of this study was not novel or had any noticeable contradiction with any preceding works, yet, it emphasized on the lack of knowledge of young people in Vietnamese of safe sex.

There is a deficiency of education of sexual health in the young generation and the need of learning about this topic was noticed among this group. People should also be encouraged to learn about these issues. Society's close-mindedness is believed to be a barrier in searching for more information about sexual health. Education both from family and society is highly valued in this matter. A highlight of the study was that even though most people learned about these things from Internet, they have a

yearning to learn more about the topic in more interactive channel. The role of education from health care institution was also emphasized.

The data was collected from 2 universities in a developed region in Vietnam. Limitation of the study lies mainly in the limited scope and number of participants. Since the study was conducted for educational purpose, it might serve as a tool for institutions to study the need for education for young people to promote safe sexual health. Construction of the study might be altered if it aims to study different aspects of this topic or to serve a specific purpose. However, the results might prove to be useful for people living in the particular area of the country but should be conducted in larger scale in order to help to improve the quality of sexual health among young people on a higher level. As the author conducted this study, there were not many studies focusing both on contraception and STDs in this group of young people in Vietnam. Future studies can conduct cross tabulation to draw out possible psycho, social, economic factors that affect the level of knowledge of the participants. Studies that combine the attitude and knowledge of the surveyed group might also show more insights of this topic.

REFERENCES

- American Congress of Obstetricians and Gynecologists, 2014. *Barrier Methods of Birth Control: Diaphragm, Sponge, Cervical Cap, and Condom*. [Online] Available at: <http://www.acog.org/Patients/FAQs/Barrier-Methods-of-Birth-Control-Diaphragm-Sponge-Cervical-Cap-and-Condom> [Accessed 09 May 2015].
- American Sexual Health Association, 2016 a. *STDs/STIs*. [Online] Available at: <http://www.ashsexualhealth.org/stdsstis/> [Accessed 9 March 2016].
- American Sexual Health Association, 2016 b. *Chlamydia*. [Online] Available at: <http://www.ashsexualhealth.org/stdsstis/chlamydia/> [Accessed 9 March 2016].
- American Sexual Health Association, 2016 c. *Gonorrhea*. [Online] Available at: <http://www.ashsexualhealth.org/stdsstis/gonorrhea/> [Accessed 9 March 2016].
- Asia and Pacific Alliance to Eliminate Viral Hepatitis, 2013. *www.apavh.org*. [Online] Asia and Pacific Alliance to Eliminate Viral Hepatitis Available at: http://apavh.org/wp-content/media/Viet_Nam2.pdf [Accessed 9 March 2016].
- Association of Reproductive Health Professionals , 2014. *Cervical Cap*. [Online] Available at: <https://www.arhp.org/Publications-and-Resources/Quick-Reference-Guide-for-Clinicians/choosing/Cervical-Cap> [Accessed 12 May 2015].
- Bedprakas, S., 2017. *India's Journey Towards Sustainable Population*. 1st ed. Springer International Publishing.
- Bolarinwa, O., 2015. Principles and Methods of Validity and Reliability Testing of Questionnaires Used in Social and Health Science Researches. *Nigerian Postgraduate Medical Journal*, 22(4), pp.195-201.
- Bowling, A. & Ebrahim, S., 2005. *Handbook of Health Research Methods : Investigation, Measurement and Analysis*. Berkshire, Great Britain: McGraw-Hill Professional Publishing.
- Brace, I., 2008. *Questionnaire Design : How to Plan, Structure and Write Survey Material for Effective Market Research*. 2nd ed. London: GBR: Kogan Page Ltd.
- Center for Young Women's Health, 2014. *Spermicides*. [Online] Available at: <http://youngwomenshealth.org/2011/06/22/spermicides/> [Accessed 09 May 2015].
- Center of Disease Control and Prevention, 2011. *Genital Warts*. [Online] Available at: <http://www.cdc.gov/std/treatment/2010/genital-warts.htm> [Accessed 9 March 2016].
- Center of Disease Control and Prevention, 2015 a. *Antibiotic-Resistant Gonorrhea*. [Online] Available at: <http://www.cdc.gov/std/gonorrhea/arg/> [Accessed 9 March 2016].

Center of Disease Control and Prevention, 2015 b. *HIV Transmission*. [Online] Available at: <http://www.cdc.gov/hiv/basics/transmission.html> [Accessed 9 March 2016].

Center of Disease Control and Prevention, 2015 c. *STDs and HIV – CDC Fact Sheet*. [Online] Available at: <http://www.cdc.gov/std/hiv/STDFact-STD-HIV.htm> [Accessed 9 March 2016].

Center of Disease Control and Prevention, 2016 a. *Chlamydia - CDC Fact Sheet*. [Online] Available at: <http://www.cdc.gov/std/chlamydia/stdfact-chlamydia.htm> [Accessed 9 March 2016].

Center of Disease Control and Prevention, 2016 b. *Gonorrhea - CDC Fact Sheet*. [Online] Available at: <http://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea.htm> [Accessed 9 March 2016].

Center of Disease Control and Prevention, 2016 c. *Syphilis - CDC Fact Sheet*. [Online] Available at: <http://www.cdc.gov/std/syphilis/stdfact-syphilis.htm> [Accessed 9 March 2016].

Centers of Disease Control and Prevention, 2016 d. *Hepatitis B FAQs for the Public*. [Online] Available at: <https://www.cdc.gov/hepatitis/hbv/bfaq.htm> [Accessed 29 March 2017].

Committee for population, family and children, 2003. *Adolescents and Youth in Vietnam*. Hanoi: Population Reference Bureau Center for population studies and information.

Committee for Population, Family and Children, 2003. *Adolescents and Youth in Vietnam*. Hanoi: Committee for Population, family and children.

Curtis, A.C., 2015. Defining Adolescence. *Journal of Adolescent and Family Health*, 7(2), pp.1-39.

Dang, T.N. & Nguyen, D.K., 2001. *Country Report: Vietnam Abortion situation*. Hanoi, Vietnam: Ministry of Health Ministry of Health.

Dao, D., 2010. *Puberty Reproductive and Sexual Health of Vietnamese Young People*. Thematic Report. Hanoi: Asian Development Bank Asian Development Bank.

Duong, D.V., Lee, A.H. & Binns, C.W., 2005. Measuring preferences for delivery services in rural Vietnam. *Births*, 32(3), pp.194-202.

Edvinsson, A. & Schmidt, A., 2011. *Sexually transmitted diseases in Vietnam: Knowledge, attitudes and beliefs among vocational students*. Uppsala Universitet.

European Public Health, n.d. *Quantitative Research*. [Online] Available at: <http://www.europeanpublichealth.com/research-methods/quantitative-or-qualitative-research/quantitative-research/> [Accessed 25 January 2017].

Faculty of sexual and reproductive Healthcare , 2008. *Progestogen only pills*. [Online] Available at: <http://www.fsrh.org/pdfs/CEUGuidanceProgestogenOnlyPill09.pdf> [Accessed 07 May 2015].

Family Planning Association, 2014 a. *The progestogen-only pill (POP)*. [Online] Available at: <http://www.fpa.org.uk/contraception-help/progestogen-only-pill-pop> [Accessed 10 May 2015].

Family Planning Association, 2014 b. *Contraceptive vaginal ring*. [Online] Available at: <http://www.fpa.org.uk/contraception-help/contraceptive-vaginal-ring> [Accessed 09 May 2015].

Feminist Women's health center, n.d. *Tubal Ligation (Female Sterilization)*. [Online] Available at: <http://www.nlm.nih.gov/medlineplus/ency/article/002913.htm> [Accessed 11 May 2015].

Flick, U., 2015. *Introducing research methodology*. 2nd ed. Hamburg: Sage Publications Ltd.

General Office for Population Family Planning, 2013. *Number of use of contraception in Vietnam 1996-2013*. General Office for Population Family Planning.

Gorard, S. & Taylor, C., 2004. *Combining Methods in Educational and Social Research*. 1st ed. McGraw-Hill Education.

Greasley, P., 2008. *Quantitative Data Analysis: Using SPSS An Introduction for Health & Social Science*. 1st ed. Berkshire, England: Open University Press.

Hakkarainen, S., Johansson, S. & Kiiskilä, K., 2015. *The knowledge of 9th graders about sexually transmitted diseases and contraceptive methods in Jyväskylä*. Bachelor Thesis. Jyväskylä: Jyväskylän ammattikorkeakoulu Jyväskylän ammattikorkeakoulu.

Hanoi's Health Center of Mother and Child, 2013. <http://phu-khoa.com/bien-chung-benh-lay-truyen-qua-duong-tinh-duc.html>. [Online] Available at: <http://phu-khoa.com/bien-chung-benh-lay-truyen-qua-duong-tinh-duc.html> [Accessed 29 November 2015].

Hassan, E. & El-Gibaly, O., 2009. *Combination injectable contraceptives for contraception: RHL commentary*. Geneva: WHO Reproductive Health Library WHO.

Heale, R. & Twycross, A., 2015. Validity and reliability in quantitative studies. *Evid Based Nurs*, 18(3), pp.66-67.

Indexmundi, 2016. *Vietnam Demographics Profile 2016*. [Online] Available at: http://www.indexmundi.com/vietnam/demographics_profile.html [Accessed 24 January 2017].

Institution of Reproductive Health, 2015. *Lactational Amenorrhea Method*. [Online] Available at: http://irh.org/projects/fam_project/lactational-amenorrhea-method-lam/ [Accessed 11 May 2015].

- Jack, L. et al., 2010. Appraising Quantitative Research in Health Education: Guidelines for Public Health Educators. *Health Promot Pract*, 11(2), pp.161-65.
- JAMK University of Applied Sciences, 2014. *Project Reporting Instructions-Visual Aids*. [Online] Available at: <http://oppimateriaalit.jamk.fi/projectreportinginstructions/> [Accessed 25 March 2017].
- JAMK, 2013. *Ethical principles for JAMK University of Applied Sciences*. Guideline. Jyväskylä: JAMK University of Applied Sciences JAMK University of Applied Sciences.
- Jankowicz, A.D., 2005. *Business research projects*. 4th ed. Cengage Learning EMEA.
- Kananen, J., 2011. *Rafting Though the Thesis Process: Step by Step Guide to Thesis Research*. Tampere: JAMK University of Applied Sciences.
- Kananen, J., 2013. *Design Research (Applied Action Research) as Thesis Research: A Practical Guide for Thesis Research*. Jyväskylä: JAMK University of Applied Sciences Library.
- Kavanaugh, M.L. & Anderson, R.M., 2013. *Contraception and Beyond: The Health Benefits of Services Provided at Family Planning Centers*. New York: Guttmacher Institute.
- Khe, D. et al., 2002. Primary health concept revisited: Where do people seek health care in a rural area of Vietnam. *Health Policy*, 61, pp.95-109.
- Khuat, T., 2003. *Adolescents reproductive Health in Vietnam: Status, Policies, Programs and Issues*. Washington, DC.: The Futures Group International The Futures Group International.
- Kiefer, C.W., 2006. *Doing Health Anthropology : Research Methods for Community Assessment and Change*. New York, NY, USA: Springer Publishing Company.
- Klingberg-Allvin, M., 2007. *Pregnant Adolescents in Vietnam: Social context and health care needs*. Stockholm: Karolinska Institutet Karolinska Institutet.
- Koenig, H.G., 2011. *Spirituality and Health Research : Methods, Measurements, Statistics, and Resources*. Radnor , PA, USA: Templeton Press.
- Koenig, H.G., 2011. *Spirituality and Health Research : Methods, Measurements, Statistics, and Resources*. Radnor, PA, USA: Templeton Press.
- Kothari, C.R., 2004. *Research Methodology : Methods and Techniques*. Daryaganj, Delhi: IND: New Age International.
- Le, Q.N., 2000. *Case study, Vietnam: communication and advocacy strategies adolescent reproductive and sexual health*. Bangkok: UNESCO PROAP UNESCO PROAP.

Mayo Clinic, 2015. *Withdrawal method-Definition*. [Online] Available at: <http://www.mayoclinic.org/tests-procedures/withdrawal-method/basics/definition/prc-20020661> [Accessed 29 March 2017].

Medical News Today, 2009. *What is contraception? What is birth control?* [Online] Available at: <http://www.medicalnewstoday.com/articles/162762.php> [Accessed 10 May 2015].

Mensch, B., Clark, W.H. & Dang, N.A., 2003. Adolescents in Vietnam: Looking beyond reproductive health. *Study Family Planning*, 34, pp.249-62.

Merck Sharp & Dohme Corp., 2014. *Guide to contraception: Information about methods of contraception*. New Jersey: MSD MSD.

Minneapolis Health Department, 2017. *Occupational exposure to sexually transmitted infections*. Minneapolis: Minneapolis Health Department Minneapolis Health Department.

MOH and WHO, 2007. *Policy options for the renovation and improvement of the health system towards equity, efficiency and development*. Hanoi.

National Collaborating Centre for Women's and Children's Health, 2005. *Long-acting Reversible Contraception: The Effective and Appropriate Use of Long-Acting Reversible Contraception*. London: RCOG Press National Collaborating Centre for Women's and Children's Health.

National Health System UK, 2014 c. *Condoms*. [Online] Available at: <http://www.nhs.uk/conditions/contraception-guide/pages/male-condoms.aspx> [Accessed 10 May 2015].

National Health System UK, 2014b. *Contraceptive implant*. [Online] Available at: <http://www.nhs.uk/Conditions/contraception-guide/Pages/contraceptive-implant.aspx> [Accessed 09 June 2015].

National Health System, 2014a. *Vaginal ring*. [Online] Available at: <http://www.nhs.uk/conditions/contraception-guide/pages/vaginal-ring.aspx> [Accessed 10 May 2015].

National Institutes of Health, 2016. *Guiding Principles for Ethical Research*. [Online] Available at: <https://www.nih.gov/health-information/nih-clinical-research-trials-you/guiding-principles-ethical-research> [Accessed 24 January 2017].

Ngo, D.A., Alden, L.A., Pham, V. & Phan, H., 2010. The impact of social franchising on the use of reproductive health and family planning services at public commune health stations in Vietnam. *BMC Health Services Research*, 10(54).

Ngo, D.A., Ross, W.M. & Ratliff, A.E., 2008. Internet influences on sexual practices among young people in Hanoi, Vietnam. *Culture, Health and Sexuality*, 10, pp.201-13.

Nguyen, A.C., 2009. *Public Opinion in Vietnam about Adolescent Sexuality, Sex Education and Abortion*. Bangkok: Asia Research Institute.

Nguyen, B.T., 2012. Contraceptive Use in Vietnamese Families during the Period 2002 - 2008. *International Journal of Humanities and Social Science* , 2(1), pp.206-13.

Nguyen & Budiharsana, 2012. Receiving voluntary family planning services has no relationship with the paradoxical situation of high use of contraceptives and abortion in Vietnam: a cross-sectional study. *BMC Women's Health*, 12(14), pp.1-9.

Nguyen & Dang, 2002. Accessibility and Use of Contraceptives in Vietnam. *International Family Planning Perspectives*, 28(4), pp.214-19.

Nguyen, H.N., Liamputtong, P. & Gregory, M., 2006. Knowledge of Contraceptives and Sexually Transmitted Diseases and Contraceptive Practices Amongst Young People in Ho Chi Ming City, Vietnam. *Health Care for Women International*, 27(5), pp.399-417.

Nguyen, T.V. et al., 2008. Sexually Transmitted Infections and Risk Factors for Gonorrhoea and Chlamydia in Female Sex Workers in Soc Trang, Vietnam. *Sexually Transmitted Diseases*, 35(11), pp.935-40.

NICHHD, 2013. *What are the different types of contraception?* [Online] Available at: <https://www.nichd.nih.gov/health/topics/contraception/conditioninfo/Pages/types.aspx> [Accessed 09 May 2015].

PATH, n.d. *Sustainable access to family planning in Vietnam*. [Online] PATH Available at: http://www.path.org/publications/files/RH_viet_sustain_access_fp_fs.pdf. [Accessed 09 May 2015].

Patton, M.Q., 1990. *Qualitative evaluation and research methods*. 2nd ed. Thousand Oaks, CA, US: Sage Publications.

Pelham, A. & Sills, E., 2010. *Service Learning for Civic Engagement : Promoting Health and Wellness in Underserved Communities : Multidisciplinary Perspectives Through Service Learning*. Sterling, VA, USA: Stylus Publishing.

Planned Parenthood Organization, 2014 a. *IUD*. [Online] Available at: <http://www.plannedparenthood.org/learn/birth-control/iud> [Accessed 11 May 2015].

Planned Parenthood Organization, 2014 b. *Morning-After Pill (Emergency Contraception)*. [Online] Available at: <http://www.plannedparenthood.org/learn/birth-control/morning-after-pill-emergency-contraception> [Accessed 09 May 2015].

Planned Parenthood Organization, 2014. *IUD*. [Online] Available at: <http://www.plannedparenthood.org/learn/birth-control/iud> [Accessed 11 May 2015].

Punch, K.F., 1998. *Introduction to social research*. London: Sage.

Rekart, L.M., 2002. Sex in the city: sexual behaviour, societal change, and STDs in Saigon. *Sexually Transmitted Infections*, 78(1), pp.47-54.

- Resnik, B.D., 2015. *What is Ethics in Research & Why is it Important?* [Online] Available at: <https://www.niehs.nih.gov/research/resources/bioethics/whatis/> [Accessed 26 January 2017].
- Rivera, R., Yacobson, I. & Grimes, D., 1999. The mechanism of action of hormonal contraceptives and intrauterine contraceptive devices. *Am J Obstet Gynecol*, 181(5), pp.1263-9.
- Roberts, P., Priest, H. & Traynor, M., 2006. Reliability and validity in research.. *Nursing Standard*, 20(44), pp.41-45.
- Rothman, K.J., Greenland, S. & Lash, T.L., 2008. *Modern Epidemiology*. Philadelphia, USA: Lippincott William and Wilkins.
- Saunders, M., Lewis, P. & Thornhill, A., 2009. *Research Methods for Business Students*. Pearson Education Limited.
- Sharp, J.A., Peters, J. & Howard, K., 2002. *Management of a Student Research Project*. Abingdon, Oxon: GBR: Ashgate Publishing Group.
- Sieving, R.E., McNeely, C.S. & Blum, R.W., 2000. Maternal expectations, mother-child connectedness, and adolescent sexual debut. *Arch Pediatr Adolesc Med*, 154(8), pp.809-16.
- Steinberg, L., 2014. *Age of opportunity: Lessons from the new science of adolescence*. Boston, MA: Houghton Mifflin Harcourt.
- The Society of Obstetricians and Gynaecologists of Canada (SOGC), 2012. *Types of STIs-STDs*. [Online] Available at: <http://www.sexualityandu.ca/stis-stds/types-of-stis-stds> [Accessed 9 March 2016].
- Topozada, M., 1994. Existing once-a-month combined injectable contraceptives. *Contraception*, 49(4), pp.293-301.
- Trinh, T., Steckler, A., Ngo, A. & Ratliff, E., 2009. Parent Communication about Sexual Issues with Adolescents in Vietnam: Content, Contexts, and Barriers. *Sex education: Sexuality, Society and Learning*, 9(4), pp.371-80.
- Trochim, W., 2006. *Descriptive Statistics*. [Online] Available at: <https://www.socialresearchmethods.net/kb/statdesc.php> [Accessed 25 March 2017].
- Tuoi Tre News, 2013. *Tuoi Tre News*. [Online] Available at: <http://tuoitrenews.vn/society/11574/vietnam-tops-southeast-asia-in-abortion-among-minors> [Accessed 09 May 2015].
- U.S National Library of Medicine, 2014 a. *Female condoms*. [Online] Available at: <http://www.nlm.nih.gov/medlineplus/ency/article/004002.htm> [Accessed 09 May 2015].

U.S National Library of Medicine, 2014 c. *Genital Warts*. [Online] Available at: <https://www.nlm.nih.gov/medlineplus/ency/article/000886.htm> [Accessed 9 March 2016].

U.S National Library of Medicine, 2014 d. *Syphilis-Primary*. [Online] Available at: <https://www.nlm.nih.gov/medlineplus/ency/article/000861.htm> [Accessed 9 March 2016].

U.S National Library of Medicine, 2015 a. *Gonorrhea*. [Online] Available at: <https://www.nlm.nih.gov/medlineplus/ency/article/007267.htm> [Accessed 9 March 2016].

U.S National Library of Medicine, 2015 b. *Genital herpes*. [Online] Available at: <https://www.nlm.nih.gov/medlineplus/ency/article/000857.htm> [Accessed 9 March 2016].

U.S. Department of Health & Human Services, 2014. *Male Sterilization Fact Sheet*. [Online] Available at: <http://www.hhs.gov/opa/reproductive-health/contraception/male-sterilization/> [Accessed 11 May 2015].

U.S. National Library of Medicine, 2014 b. *Tubal ligation*. [Online] Available at: <http://www.nlm.nih.gov/medlineplus/ency/article/002913.htm> [Accessed 11 May 2015].

UNAIDS, 2014. *Country-Vietnam*. [Online] Available at: <http://www.unaids.org/en/regionscountries/countries/vietnam> [Accessed 9 March 2016].

University of Jyväskylä, n.d. *Quantitative Analysis*. [Online] Available at: <https://koppa.iyu.fi/avoimet/hum/menetelmapolkuja/en/methodmap/data-analysis/quantitative-analysis> [Accessed 22 October 2015].

University of Leicester, 2009. *Working with percentages*. [Online] University of Leicester Available at: <http://www2.le.ac.uk/offices/ld/resources/numerical-data/percentages> [Accessed 25 March 2017].

Watanabe, K., Saruta, R. & Kato, N., 2014. Sources of Sexual Knowledge among Vietnamese High School Students. *Advances in Reproductive Sciences*, 2, pp.83-87.

WHO Regional Office for the Western Pacific, 2001. *Health Research Methodology : A Guide for Training in Research Methods (2nd Edition) : WHO Pacific Regional Office, Education in Action Series, Number 5*. 2nd ed. Albany, NY, USA: WHO Regional Office for the Western Pacific.

World Health Organization (WHO), 1975. *Education and treatment in human sexuality: the training of health professionals*. Technical Report Series, No. 572. Geneva: World Health Organization World Health Organization.

World Health Organization (WHO), 2002. *Defining sexual health: Report of a technical consultation on sexual health*. Geneva: World Health Organization World Health Organization.

World Health Organization (WHO), 2004. *How to Investigate the Use of Medicines by Consumers*. Switzerland: WHO WHO.

World Health Organization (WHO), 2007. *Global strategy for the prevention and control of sexually transmitted infections: 2006 - 2015*. World Health Organization.

World Health Organization (WHO), 2009. *Medical eligibility criteria for contraceptive use*. Geneva: World Health Organization World Health Organization.

World Health Organization (WHO), 2010 a. *Developing sexual health programmes: A framework for action*. Geneva: World Health Organization, Department of Reproductive Health and Research World Health Organization.

World Health Organization (WHO), 2010 b.
http://www.who.int/topics/sexually_transmitted_infections/en/. [Online] Available at: http://www.who.int/topics/sexually_transmitted_infections/en/ [Accessed 27 November 2015].

World Health Organization (WHO), 2013. *Family Planning*. [Online] Available at: <http://www.who.int/mediacentre/factsheets/fs351/en/> [Accessed 09 May 2015].

World Health Organization (WHO), n.d. *Adolescent development*. [Online] Available at: http://www.who.int/maternal_child_adolescent/topics/adolescence/dev/en/ [Accessed 09 May 2015].

World Youth News, 2007. *Teenagers Criticize Lack of Sex Education in Vietnam*. [Online] Available at: <http://worldyouthnews.org/news/detail/teenagers-criticize-lack-of-sex-education-in-vietnam> [Accessed 09 May 2015].

Xinh, T.T., Binh, P.T., Phuong, V.H. & Goto, A., 2004. Counseling about contraception among repeated aborters in Ho Chi Minh city, Vietnam. *Health Care Women Internation*, 25, pp.20-39.

APPENDICES

APPENDIX 1 –The Questionnaire (Translated into English from Vietnamese)

Questionnaire of Knowledge of Contraception and Sexually Transmitted Diseases among 18-24 years old Vietnamese youngsters.

My name is Thao Nguyen, 3rd year Nursing student in JAMK University of Applied Sciences, Finland. I am doing my bachelor thesis on Knowledge of contraception and Sexually Transmitted Diseases among young people from 18-24 years old. I gain permission from your university to conduct the questionnaire among students. All students have free will to decide taking part in this questionnaire. This study will not record any personal details and only serves educational purpose. If you have any questions regarding this study, please reach me at h7339@student.jamk.fi, I would be happy to answer your questions.

1. Gender?
 - a. Male
 - b. Female

Knowledge of Contraception

2. What is the main purpose of contraception?
 - a. Preventing pregnancy against STDs
 - b. Reduce acnes
 - c. Preventing cancers
 - d. Reduce period pains
 - e. I don't know the answer
3. Which of the following contraception are for males?
 - a. Male condoms and contraceptive pills
 - b. Male condoms and contraceptive patches
 - c. Males condoms and vaginal rings
 - d. Males condoms and sterilization
4. Which of the following contraception is hormonal?
 - a. Contraceptive pills

- b. Contraceptive patches and injections
 - c. Vaginal rings and implants
 - d. All of above
 - e. I don't know the answer
5. Which of the following contraception are barrier methods?
- a. Vaginal rings
 - b. Tubal ligation
 - c. Implants
 - d. Condom and withdrawal method
 - e. All are correct
6. Which of the following contraceptions are traditional contraceptives?
- a. Fertility awareness methods
 - b. Withdrawal method
 - c. Lactation amenorrhea method (LAM)
 - d. All of them are correct
 - e. Only A and B are correct
7. What is the containment of the Hormonal contraceptive?
- a. Adrenaline
 - b. Testosterone
 - c. Progesterone and Estrogen
 - d. None of them
 - e. I don't know the answer
8. What are the other positive benefits of contraceptive pills?
- a. Only regulating period
 - b. Only reduce acnes
 - c. Only reduce period pain and bleeding
 - d. All of above
 - e. I don't know the answer
9. What are the side effects of contraceptive methods
- a. Nausea, vomiting, cramps
 - b. Allergy to latex in condoms
 - c. Headache, mood swings
 - d. All of above
 - e. I don't know the answer
10. What is TRUE about Contraceptive patches?
- a. There has to be 1 week break after 3 weeks of use
 - b. Has to be placed near the vagina
 - c. 1 patch can be used up to 2 weeks
 - d. Cannot use during period
 - e. I don't know the answer
11. What is TRUE about Implant?
- a. Effective within 3 years
 - b. It is for short term contraception
 - c. Can be done by yourself

- d. Reduce pain and bleeding during the period
 - e. I don't know the answer
12. What is CORRECT about Vaginal ring?
- a. Can take off if it hurts during sex
 - b. Effective in 21 days
 - c. Suitable for people who can't take hormonal pills
 - d. Have to be placed by a doctor
 - e. I don't know the answer
13. What is true about emergency contraceptive pills?
- a. Can be taken any time of the day after intercourse.
 - b. Have to be taken within maximum 24 hours after intercourse.
 - c. Have to be taken within maximum 120 hours after intercourse.
 - d. Can be taken daily
 - e. I don't know the answer
14. What is true about intrauterine contraceptive devices (IUCD)?
- a. Can be placed by yourself
 - b. Can be effective for 5-10 years
 - c. Can be taken even if there is suspected pregnancy
 - d. Have to change every sexual intercourse
 - e. I don't know the answer

Knowledge of Sexually transmitted diseases (STDs)

15. What can cause STDs?
- a. Bacteria, fungus, virus
 - b. Parasite
 - c. Infected swimming pool water
 - d. Bad mouth hygiene
 - e. I don't know the answer
16. How can STDs spread?
- a. Only through vaginal sex, not oral sex
 - b. Using STDs patients' clothes
 - c. Only through C-section during delivery
 - d. Sex, sharing needle, from mother to child
 - e. I don't know the answer
17. What kind of contraception can protect against STDs
- a. Condom
 - b. Contraceptive pills
 - c. Vaginal ring
 - d. Sterilization
 - e. I don't know the answer
18. What is true about STDs?
- a. Can be prevented by sterilization
 - b. Can be asymptotic
 - c. Everyone who has STDs is infertile
 - d. Can always be treated by using antibiotics

- e. I don't know the answer
19. Which STD is often misdiagnosed?
- a. Chlamydia
 - b. Gonorrhea
 - c. Syphilis
 - d. Hepatitis B
 - e. I don't know the answer
20. Which of the following are STDs?
- a. Measles
 - b. Tuberculosis
 - c. ENT diseases
 - d. Herpes, Hepatitis B
 - e. I don't know the answer
21. Which of the following are not STDs?
- a. Chlamydia
 - b. HPV
 - c. Syphilis
 - d. Rheumatoid
 - e. I don't know the answer
22. What are the common signs/ symptoms of STDs?
- a. Abdominal pain
 - b. Jaundice
 - c. Itching and burning feeling while urinating
 - d. Abnormal discharge in penis/ vagina
 - e. Tinnitus
 - f. Genital ulcers and sore, swelling
 - g. Diarrhea
 - h. Nausea
23. What are complications with untreated STDs?
- a. Infertility
 - b. Cervix cancer
 - c. Ectopic pregnancy
 - d. Loss of limb
 - e. Unable to have sex
 - f. Pelvic pain and inflammation
 - g. Heart diseases
 - h. Eye sight decrease
24. Which STDs have vaccination?
- a. HIV/AIDS
 - b. Chlamydia
 - c. HPV, Hepatitis A and B
 - d. Syphilis
 - e. I don't know the answer
25. Which STDs cannot be completely cured?
- a. HIV/ AIDS and Genital herpes
 - b. Chlamydia

- c. Syphilis
 - d. Gonorrhea
 - e. I don't know the answer
26. At what age did you first hear about Contraception and STDs?
- a. Before 12
 - b. 12-15
 - c. 15-17
 - d. Over 17
27. From what sources do you gain knowledge about contraception and STDS?
- a. School (Teachers, official educational materials)
 - b. Family
 - c. Friends
 - d. Health care centers
 - e. Internet
 - f. TV and Radio
 - g. Youth clubs
 - h. Others, please indicates
28. From what sources do you WISH to have more education on the topic of contraception:
- a. School (Teachers, official educational materials)
 - b. Family
 - c. Friends
 - d. Health care centers
 - e. Internet
 - f. TV and Radio
 - g. Youth clubs
 - h. Others, please indicates
29. Please share your thoughts on the topic:

APPENDIX 2 – Email asking for universities' permission to launch the questionnaire (translated into English)

Dear Sir/ Madam

My name is Thao Thu Nguyen, 3rd year Nursing student in Jyväskylä University of Applied Science (JAMK), Finland.

I am working on my bachelor thesis on the topic of 18-24 years old young people's knowledge about contraception and STDs. I would like to ask for your permission to have students of your schools to be the target group of this study.

My thesis will be archived in JAMK's database. If the school would like to use the thesis for reference and educational purpose in the future, it would be a pleasure for me.

If you have any concerns regarding of the study, you can reach me via this email or my thesis mentors at

- william.garbrah@jamk.fi
- leena.seriola@jamk.fi

Thank you very much for your time and consideration!

Yours,

Thao Nguyen

APPENDIX 3 – Collected results of the questionnaire

*Correct answers in bold

Table 10 Answers about the role of contraception and categorizing contraception based on genders in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
What is the main role of contraception?			
a. Preventing pregnancy and against STDs	100%(52)	97.9%(194)	98%(246)
b. Reducing acnes	0% (0)	1.5 % (3)	1.2% (3)
c. Preventing cancer	0% (0)	0% (0)	0% (0)
d. Reducing period pain	0% (0)	0% (0)	0% (0)
e. I don't know the answer	0% (0)	0.5% (1)	0.4% (1)
Which contraceptive method is for male?			
a. Male condoms and contraceptive pills	3.8% (2)	2% (4)	2.4% (6)
b. Male condoms and contraceptive patches	1.9%(1)	0.05% (1)	0.8% (2)
c. Male condoms and vaginal rings	0% (0)	2.5% (5)	2% (5)
d. Male condoms and sterilization	94.2% (49)	93.9% (186)	94% (235)
e. I don't know the answer	0% (0)	1% (2)	0.8% (2)

Table 11 Answers about categorizing contraception in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
Which of the following contraception is hormonal?			
a. Contraceptive pills	59.6% (31)	48.5% (96)	50.8% (127)
b. Contraceptive patches and injections	5.7% (3)	8.6% (17)	8% (20)
c. Vaginal rings and Implants	0% (0)	1.5% (3)	1.2% (3)
d. All of above	25% (13)	31.3% (62)	30% (75)
e. I don't know the answer	9.6% (5)	10.1% (20)	10% (25)
Which of the following contraception is barrier?			
a. Vaginal ring	59.6% (32)	50% (99)	52.4% (131)
b. Tubal ligation	0% (0)	15.2% (3)	1.2% (3)
c. Implants	3.8% (2)	15.2% (3)	2.5% (5)
d. Condoms and withdrawal method	23% (12)	33.8% (67)	31.6% (79)
e. I don't know the answer	11.5% (6)	13.1% (26)	12.8% (32)
Which of the following contraception is traditional?			
a. Only by fertility awareness	21.1%(11)	27.2%(54)	26% (65)
b. Only withdrawal method	17.3% (9)	19.2% (38)	18.8% (47)
c. Only by breast feeding	0% (0)	15.2% (3)	1.2% (3)
d. All of above	51.9% (27)	48.5% (96)	49.2% (123)
e. I don't know the answer	9.6% (5)	35.4% (7)	4.8% (12)

Table 12 Answers about side effects and other benefits of contraception in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
What are the side effects of contraception?			
a. Nausea, vomiting, cramps	3.8% (2)	11.6% (23)	10% (25)
b. Allergy to latex in condoms	1.9% (1)	5.6% (11)	4.8% (12)
c. Headache, mood swings	11.6% (6)	7.6% (15)	8.4% (21)
d. All of above	59.6% (31)	60.1% (119)	60% (150)
e. I don't know the answer	23.1% (12)	15.6% (30)	16.8% (42)
What is the hormone used for contraception			
a. Adrenaline	17.3% (9)	10.1% (20)	11.6% (29)
b. Testosterone	9.6% (5)	9.6% (19)	9.6% (24)
c. Progesterone and Estrogen	25% (13)	22.7% (45)	23.2% (58)
d. None of above	5.8% (3)	11.6% (23)	10.4% (26)
e. I don't know the answer	42.3% (22)	45.9% (91)	45.2% (113)
What are the other benefits of contraceptive pills?			
a. Only regulating period	36.5% (19)	25.8% (51)	28% (70)
b. Only reduce acnes	7.7% (4)	13.1% (26)	12% (30)
c. Only reduce period pain	5.7% (3)	2.5% (5)	3.2% (8)
d. All of above	32.7% (17)	55.6% (110)	50.8% (127)
e. I don't know the answer	17.3% (9)	3% (6)	6% (15)

Table 13 Answers about right use of other hormonal methods in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
What is true about contraceptive patches			
a. 1 week break after 3 weeks of use	5.8% (3)	11.1% (22)	10% (25)
b. Have to put near vagina	0% (0)	1% (2)	0.8% (2)
c. 1 patch can use for 2 weeks	9.6% (5)	1.5% (3)	3.2% (8)
d. Cannot use during period	3.8% (2)	5.6% (11)	5.2% (13)
e. I don't know the answer	80.8% (42)	80.8% (160)	80.8% (202)
What is true about Implant?			
a. Effective within 3 years	11.5% (6)	26.7% (53)	23.6% (59)
b. Used for short term contraception	7.7% (4)	7.1% (14)	7.2% (18)
c. Can be done by yourself	1.9% (1)	0.5% (1)	0.8% (2)
d. Reduce period pain and bleeding	0% (0)	1.5% (3)	1.2% (3)
e. I don't know the answer	78.8% (41)	64.1% (127)	67.2% (168)
What is true about Vaginal Ring			
a. Can take off if hurts during sex	5.7% (3)	3.5% (7)	4% (10)
b. Effective in 21 days	1.9% (1)	0.5% (1)	0.8% (2)
c. Suitable for people who can't take hormonal pills	5.7% (3)	16.2% (32)	14% (35)
d. Have to be placed by doctor	26.9% (14)	40.4% (80)	37.6% (94)
e. I don't know the answer	59.6% (31)	39.4% (78)	43.6% (109)

Table 14 Answers about right use of Emergency contraception in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
What is true about Emergency pills?			
a. Have to take right after having sex	5.7% (3)	3% (6)	3.6% (9)
b. Have to take within 24hs after having sex	80.8% (42)	67.7% (134)	70.4% (176)
c. Have to take within 120hs after having sex	7.7% (4)	20.7% (41)	18% (45)
d. Can be taking daily	0% (0)	0.5% (1)	0.4% (1)
e. I don't know the answer	5.7% (3)	8.1% (16)	7.6% (19)
What is true about IUCD?			
a. Can be placed by yourself	0% (0)	2.5% (5)	2% (5)
b. Effective from 5-10 years	42.3% (22)	50% (99)	48.4% (121)
c. Can be used even if there is a suspected pregnancy	1.9% (1)	3.5% (7)	3.2% (8)
d. Have to change every time having sex	3.8% (2)	3.5% (7)	3.6% (9)
e. I don't know the answer	51.9% (27)	40.4% (80)	42.8% (107)

Table 15 Answers about knowledge of causes, ways of transmission and protection of STDs in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
What causes STDs?			
a. Bacteria, Virus, Parasite	90.4% (47)	89.4% (177)	89.6% (224)
b. Fungus	3.8% (2)	8.6% (17)	7.6% (19)
c. Polluted swimming pool water	0% (0)	0% (0)	0% (0)
d. Bad mouth hygiene	0% (0)	0.5% (1)	0.4% (1)
e. I don't know the answer	5.7% (3)	1.5% (3)	2.4% (6)
How can STDs spread?			
a. Only through vaginal sex, not oral sex	23.1% (12)	15.2% (30)	16.8% (42)
b. Using STDs patients' clothes	0% (0)	0.5% (1)	0.4% (1)
c. Only through C-section during delivery	0% (0)	0% (0)	0% (0)
d. Sex, sharing needle, from mother to child	75% (39)	81.8% (162)	80.4% (201)
e. I don't know the answer	1.9% (1)	2.5% (5)	2.4% (6)
What kind of contraception can protect against STDs?			
a. Condom	96.2% (50)	94.9% (188)	95.2% (238)
b. Contraceptive pills	0% (0)	0.5% (1)	0.4% (1)
c. Vaginal ring	0% (0)	0.5% (1)	0.4% (1)
d. Sterilization	0% (0)	2.5% (5)	2% (5)
e. I don't know the answer	3.8% (2)	1.5% (3)	2% (5)
What is true about STDs			
a. Can be prevent by sterilization	0% (0)	3% (6)	2.4% (6)
b. Can be asymptotic	80.8% (42)	76.7% (152)	77.6% (194)
c. Everyone who has STDs is infertile	0% (0)	1.5% (3)	1.2% (3)
d. Can always be cured by antibiotics	5.7% (3)	3% (6)	3.6% (9)
e. I don't know the answer	13.4% (7)	15.7% (31)	15.2% (38)

Table 16 Answers about knowledge of identifying non-STDs and STDs in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
Which disease is STDs			
a. Measles	1.9% (1)	1.5% (3)	1.6% (4)
b. Tuberculosis	0% (0)	0% (0)	0% (0)
c. ENT diseases	0% (0)	0.5% (1)	0.4% (1)
d. Herpes, Hepatitis B	94.3% (49)	93.4% (185)	95.2% (234)
e. I don't know the answer	3.8% (2)	4.5% (9)	4.4% (11)
Which disease is NOT STDs			
a. Chlamydia	0% (0)	0% (0)	0% (0)
b. HPV	0% (0)	0% (0)	0% (0)
c. Syphilis	0% (0)	0% (0)	0% (0)
d. Rheumatism	98.1% (51)	100% (198)	99.6% (249)
e. I don't know the answer	1.9% (1)	0% (0)	0.4% (1)

Table 17 Answers about knowledge of common symptoms of STDs in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
Common symptoms of STDs?			
a. Abdominal pain	28.9% (15)	43.4% (86)	40.4% (101)
b. Jaundice	11.5% (6)	3.5% (7)	5.2% (13)
c. Itching and burning feeling when urinate	76.9% (40)	81.8% (162)	80.8% (202)
d. Abnormal vaginal/ penis discharge	84.6% (44)	93.4% (185)	91.6% (229)
e. Tinnitus	0% (0)	0% (0)	0% (0)
f. Genital ulcers and sores	82.9% (43)	89.9% (178)	88.4% (221)
g. Diarrhea	0% (0)	3% (6)	2.4% (6)
h. Nausea	9.6% (5)	8.1% (16)	8.4% (21)

Table 18 Answers about knowledge of complication of untreated STDs in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
Complication of untreated STDs			
i. Infertility	84.6% (44)	93.4% (185)	91.6% (229)
j. Cervical cancer	73.1% (38)	84.5% (168)	82.4% (206)
k. Ectopic pregnancy	34.6% (18)	43.4% (86)	41.6% (104)
l. Loss of limb	3.8% (2)	2% (4)	2.4% (6)
m. Unable to have sex	44.2% (23)	39.4% (78)	40.4% (101)
n. Pelvic inflammatory disease	50% (26)	47.5% (94)	48% (120)
o. Heart diseases	11.5% (6)	4% (8)	5.6% (14)
p. Decrease of eye sight	11.5% (6)	11.1% (22)	11.2% (28)

Table 19 Answers about knowledge of treatment of STDs in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
Which STD has symptoms that can be mistaken as other diseases?			
a. Chlamydia	9.6% (5)	12.1% (24)	11.6% (29)
b. Gonorrhea	3.8% (2)	5% (10)	4.8% (12)
c. Syphilis	17.3% (9)	7.1% (14)	9.2% (23)
d. Hepatitis B	15.4% (8)	14.6% (29)	14.8% (37)
e. I don't know the answer	53.8% (28)	61% (121)	56% (139)
Which STDs have vaccination?			
a. HIV/ AIDS	0% (0)	1% (2)	0.8% (2)
b. Chlamydia	5.7% (3)	2.5% (5)	3.2% (8)
c. HPV, Hepatitis A and B	80.8% (42)	83.8% (166)	83.2% (208)
d. Syphilis	3.8% (2)	1.5% (3)	2% (5)
e. I don't know the answer	9.6% (5)	11.1% (22)	10.8% (27)
Which STD cannot be cured?			
a. HIV/ AIDS and genital warts	96.2% (50)	89.9% (178)	91.2% (228)
b. Chlamydia	0% (0)	0% (0)	0% (0)
c. Syphilis	0% (0)	0.5% (1)	0.4% (1)
d. Gonorrhea	1.9% (1)	1.5% (3)	1.6% (4)
e. I don't know the answer	1.9% (1)	8.1% (16)	6.8% (17)

Table 20 Answers about first encounter of information about contraception and STDs in average in percentage and numbers

	Male	Female	In average
At what age did you first heard about contraception and STDs?			
a. Before 12 years old	11.5% (6)	4.5% (9)	6% (15)
b. 12-15 years old	38.4% (20)	29.8% (59)	31.6% (79)
c. 15-17 years old	30.7% (16)	31.3% (62)	31.2% (78)
d. Over 17 years old	19.2% (10)	34.3% (68)	31.2% (78)

Table 21 Sources participants acquired information about contraception and STDs from in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
From what sources did you learn contraception and STDs?			
a. School	59.6% (31)	43.4% (86)	46.8% (117)
b. Family	11.5% (6)	19.7% (39)	18% (45)
c. Friends	42.3% (22)	48% (95)	46.8% (117)
d. Health care institutions	7.7% (4)	8.6% (17)	8.4% (21)
e. Internet	88.5% (46)	88.9% (176)	88.8% (222)
f. TV and Radio	36.5% (19)	38.4% (76)	38% (95)
g. Youth club	5.7% (3)	3.5% (7)	4% (10)
h. Other sources	3.8% (2)	1.5% (3)	2% (5)

Table 22 Sources participants wish to gain more information about contraception and STDs from in percentage and numbers

	Male (n=52)	Female (n=198)	Total (N=250)
From what sources do you wish to learn more about contraception and STDs?			
a. School	53.8% (28)	63.6% (126)	61.6% (154)
b. Family	38.4% (20)	39.9% (79)	39.6% (99)
c. Friends	21.2% (11)	18.2% (36)	18.8% (47)
d. Health care institutions	44.2% (23)	53% (105)	51.2% (128)
e. Internet	44.2% (23)	37.9% (75)	39.2% (98)
f. TV and Radio	44.2% (23)	29.9% (59)	32.8% (82)
g. Youth clubs	15.4% (8)	26.7% (53)	24.4% (61)
h. Other sources	1.9% (1)	2% (4)	2% (5)