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**HACETTEPE UNIVERSITY
HEALTH SCIENCE INSTITUTE**

**EMPOWERING OF OROMIEH UNIVERSITY FEMALE
STUDENTS IN RELATED TO THEIR SEXUAL AND
REPRODUCTIVE HEALTH BY PEER EDUCATION METHOD**

SOHEILA RABIEIPOOR

**Obstetrics and Gynecology Nursing Program
PhD Thesis**

**ANKARA
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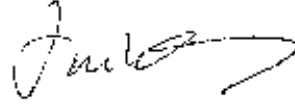
Sağlık Bilimleri Enstitüsü Müdürlüğü'ne;

Bu çalışma jürimiz tarafından Doğum ve Kadın Hastalıkları Hemşireliği programında doktora tezi olarak kabul edilmiştir.

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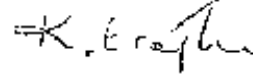
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Bu tez Hacettepe Üniversitesi Lisans üstü Eğitim-Öğretim ve Sınav yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri üyeleri tarafından uygun görülmüştür ve Enstitü Yönetim Kurulu kararıyla kabul edilmiştir.



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ABSTRACT

RABIEIPOOR, S. Empowering of Oromieh University Female Students in Related to Their Sexual and Reproductive Health by Peer Education Method. Haccetepe University Health Science Institute, Obstetrics and Gynecology Nursing program, Phd Thesis, Ankara, 2011. This interventional study aimed to empower of a group of university female students in relation to their sexual and reproductive health by peer education method. Study was carried of in Oromieh University that be comforted in Oromieh city on west south of IRAN. First of all, sexual and reproductive health knowledge level and needs of students were detected and based on these findings, were designed an educational and counseling model. Then students empowered in sexual and reproductive health matters by peer education method and the effectiveness of this method was assessed. A total of 381 female students who entered to university at 2006-2007, are taken in to the study. The data were obtained through a pretest and a post test questionnaire. For assessing of data in this study t-test, One-way Anova and Mcnemar test were used. The average score of students in questions about sexual and reproductive health concept and sexual and reproductive health problem in youth, Sexual organs and their structure and function, menstruation and pregnancy, Family planning concept and contraception methods and Genital tract infections, sexual transmitted disease, AIDS and preventive behavior was 13.66 ± 8.84 before intervention and arrived to 24.29 ± 9.12 after intervention ($P < 0.05$). Most of students (72.8%) assessed the peer education methods as effective on their reproductive health enablement. It means that this educational method increased the knowledge level and empowered the university female students in related to their sexual and reproductive health. Based on these finding, educating and counseling of university students in sexual and reproductive health matters via peer education method by health workers and teachers were proposed.

Key word: Sexual Health, Reproductive Health, Peer Education Method, University Students, Iran.

ÖZET

RABIEIPOOR, S. Urumiye Üniversitesi'nde Kız Öğrencileri Akran Eğitimi Yöntemiyle Cinsel ve Üreme Sağlığı Konusunda Güçlendirme. Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü, Doğum ve Kadın Hastalıkları Hemşireliği Programı Doktora Tezi, Ankara, 2011. Araştırma İran'ın kuzey batısında yer alan Urumiye şehrinde Urumiye Üniversitesinde bir grup üniversiteli kız öğrencilerin cinsel ve üreme sağlığı konusunda güçlendirilmesi amacıyla, akran eğitimi modeli uygulanarak müdahale çalışması olarak yapılmıştır. Araştırmada öncelikle öğrencilerin cinsel ve üreme sağlığı konusunda bilgileri ve ihtiyaçları belirlenmiş, bunlara yönelik eğitim ve danışmanlık modeli planlanmış, sonra akran eğitimi yapılarak cinsel ve üreme sağlığı konularında güçlenmeleri sağlanmıştır. Aynı zamanda akran eğitimi modelinin etkinliği de değerlendirilmiştir. Araştırmanın örneklemini 2006-2007 yılı eğitim döneminde giriş yapan 381 kız öğrenci oluşturmuştur. Veriler müdahale öncesi ve sonrası veri formları aracılığı ile toplanmıştır. Verilerin değerlendirilmesinde, t-test, tek yönlü varyans analizi ve McNemar Testi kullanılmıştır. Araştırmada, öğrencilerin cinsel ve üreme sağlığı kavramı ve gençlerde cinsel ve üreme sağlığı sorunları, cinsel organların yapısı ve fonksiyonları, menstruasyon ve gebelik, aile planlaması kavramı ve yöntemleri, üreme sistemi enfeksiyonları ve cinsel yolla bulaşan hastalıklar, AIDS ve koruyucu davranışlar konularında müdahale öncesi bilgi puan ortalamalarının 13.66 ± 8.84 olduğu, müdahale sonrası bilgi puan ortalamalarının ise 24.29 ± 9.12 olduğu bulunmuştur. Yapılan istatistiksel değerlendirmelerde bilgi puan ortalamaları müdahale öncesi ve sonrası arasındaki fark önemli bulunmuştur. Öğrencilerin büyük çoğunluğu (%72.8) akran eğitim modelinin cinsel ve üreme sağlığı konusunda güçlendirmede etkili bir yöntem olduğunu ifade etmişlerdir. Bu sonuçlar doğrultusunda, sağlık personeli ve eğitimcilerin öğrencileri cinsel ve üreme sağlığı konularında bilgilendirmeleri ve danışmanlık yapmaları, eğitimlerde akran eğitim modeli gibi öğrenciler üzerinde etkili olabilecek yöntemleri kullanmaları önerilmiştir.

Anahtar kelimeler: Cinsel sağlık, üreme sağlığı, akran eğitim modeli, üniversite gençleri, İran.

CONTENTS

CONFIRMATION FORM.....	iii
ACKNOWLEDGEMENTS.....	iv
ABSTRACT.....	v
ÖZET.....	vi
CONTENTS.....	vii
ABBREVIATIONS.....	x
FIGURES.....	xi
TABLES.....	xii
1. INTRODUCTION.....	1
1.1. Introduction.....	1
1.2. Objective.....	4
1.3. Hypothesis.....	4
1.3.1. Main Hypothesis.....	4
1.3.2. Sub Hypotheses.....	4
2. REVIEW OF THE LITERATURE.....	6
2.1. Reproductive Health.....	6
2.2. Reproductive Health in Youth.....	6
2.3. Reproductive Health of Youth in IRAN.....	8
2.4. Enabling of Youth in Reproductive Health.....	9
2.5. Peer Education Method.....	11
2.6. Why peer education?.....	12
2.7. The theoretical base for peer education.....	13
2.8. Peer Education and Youth.....	15

3. METHODOLOGY.....	21
3.1. Type of study	21
3.2. Place of study	21
3.3. Study Population and sampling.....	22
3.4. Preparing of Data Collections Questionnaire.....	23
3.5. Implementation of study	24
3.6. Ethics.....	27
3.7. Assessment of data.....	27
3.7.1. The computation of score in the study	27
3.7.2. Variables	27
3.7.3. Statistical methods	28
3.8. Relations of Interest	28
3.9. Peer Educators Training.....	28
3.10. Limitations of the study	33
3.11. The difficulties of study	33
4. RESULTS	35
4.1. Socio demographic characteristic of study samples.....	36
4.2. Baseline data from study population.....	38
4.3. Some data about evaluation of peer education method.....	46
4.4. Reproductive health knowledge of study population, before and after intervention.	49
4.5. Comparison of study sample's score to reproductive health questions based on independent factors.	57
5. DISCUSSION	65
5.1. Baseline data from study samples.....	66
5.2. Some data about evaluation of peer education method.....	70

5.3. Reproductive health knowledge of study samples, before and after intervention.	71
5.4. Comparison of study population's score to reproductive health questions based on independent factors.	78
6. CONCLUSION and PROPOSALS	83
6.1. Conclusion	83
6.2. Proposals	88
REFERENCES.....	91

APPENDIX

Appendix.1	Pre test
Appendix.2	Post test
Appendix.3	Educational plan of reproductive health for students
Appendix.4	Summary of statistically significancy of female students knowledge scores to reproductive health questions based on independent factors

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
ICW	International Conference on Women
IMBR	Information, Motivation, Behavioral Skills, and Resources
RTI	Reproductive Tract Infections
STD	Sexual Transmitted Disease
SRH	Sexual and Reproductive Health
WHO	World Health Organization

FIGURES

Figure		Page
3.5.1	Flow chart of survey's stages	25

TABLES

Table	Page
3.2.1 Distribution of students in faculties of Oromieh University (IRAN 2008-2009)	20
3.3.2 Distribution of students in selected departments in faculty of letter at Oromieh University (IRAN 2008-2009)	21
3.5.3 Accessibility rate to population of study in every phase (IRAN 2008-2009)	24
3.9.4 Time table of thesis	30
4.1.5 Socio demographic characteristic of female students (Oromieh University-IRAN 2008-2009)	34
4.2.6 Distribution of female student's answers due to the person in their family /relatives that they can comfortably talk about reproductive health-related matters with him/her (Oromieh University-IRAN 2008-2009)	36
4.2.7 Distribution of self assessment knowledge of reproductive health of female students (Oromieh University-IRAN 2008-2009).	37
4.2.8 Distribution of female student's answers due to receiving any information about reproductive and sexual health issues up to now and the four most important source of these informations (Oromieh University-IRAN 2008-2009)	38
4.2.9 Distribution of female student's answers due to their interesting in learning about reproductive health and the four most preferred source of information about them. (Oromieh University-IRAN 2008-2009)	40

- 4.2.10 Distribution of female student's answers due to the best time for starting reproductive health education in their opinion, their interesting in having a formal course about it and the topics that they interested learning in this course (Oromieh University-IRAN 2008-2009) 42
- 4.2.11 Distribution of female student's answers due to taking the demography and family planning course at the university and adequacy of this course content's for their reproductive health related knowledge needs (Oromieh University-IRAN 2008-2009) 43
- 4.3.12 Distribution of female student's answers due to receiving educational text that prepare for this research and to having consulate by researcher during this research (Oromieh University-IRAN 2008-2009) 44
- 4.3.13 Distribution of female student's answers due to receiving any information about reproductive health from peer educator and Where or when are they received this information from peer educator (Oromieh University-IRAN 2008-2009) 45
- 4.3.14 Distribution of female student's self assessment about this research on your reproductive health enablement (Oromieh University-IRAN 2008-2009) 46
- 4.4.15 Distribution of female student's right answers due to the question about reproductive health and reproductive health problem in youth (Oromieh University-IRAN 2008-2009) 47

4.4.16	Distribution of female student's right answers due to the question about Sexual organs and their structure and function, menstruation and pregnancy (Oromieh University-IRAN 2008-2009)	48
4.4.17	Distribution of female student's right answers due to the question about Family planning concept and contraception methods (Oromieh University-IRAN 2008-2009)	50
4.4.18	Distribution of female student's right answers due to the question about Genital tract infections, sexual transmitted disease, AIDS and preventive behavior (Oromieh University-IRAN 2008-2009)	52
4.4.19	The average score of female students in question about reproductive health (Oromieh University-IRAN 2008-2009)	53
4.5.20	Effect of some student's demographics characteristics on the average score of female students in Reproductive health knowledge	55
4.5.21	Effect of educational and job status of student's mother and father on the average score of female students in question about Reproductive health	57
4.5.22	Effect of self assessment knowledge of reproductive health subjects by students on the average score of question about Reproductive health	59
4.5.23	Effect of receiving any information about reproductive health issues up to now, and taking the demography and family planning course by students on the average score of question about Reproductive health	61

4.5.24 Effect of receiving educational text that prepare for this research and receiving any information about reproductive health from peer educator by students on the average score of question about Reproductive health

1. INTRODUCTION

1.1. Introduction

With the Cairo Program of Action at the International Conference on Population and Development (ICPD) and again with the Beijing Platform at the Fourth International Conference on Women (ICW), the global community resolved to “Protect and promote the rights of young people to sexual and reproductive health(SRH) information and services”. Delegates more than 180 countries at the Cairo conference agreed to a comprehensive definition of reproductive health, specifically, a state of “complete physical, mental and social well-being, and not merely the absence of disease or infirmity in all matters relating to the reproductive health system and to its functions and processes”. There is an urgent need for the global community to act on the preceding principles and recommendations. Currently comprising more than 1.5 billion people, young adults, defined by the World Health Organization (WHO) as those individuals aged 10 to 24, face considerable threats to their reproductive health. Adolescents, 83 percent of whom live in developing countries, are vulnerable to sexual assault, rape and prostitution, too-early pregnancy and childbearing, infertility, anemia, genital mutilation, malnutrition, unsafe abortion, and reproductive tract infections (RTI) including sexual transmitted disease (STD) and human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) (1).

Young people themselves have brought attention to the realities that threaten their reproductive health daily. Despite the concerns voiced by the United Nations, 180 member countries, international organizations, and individual adolescents everywhere, the RH concerns of young people are too often neglected. Young people constitute a significant proportion of the Iranian population. In the most recent national census (2006), there were approximately 25 million young people aged 10–24, accounting for more than one third of the population and 18 million young people aged 15–24, accounting for 25% of the Iranian population and from this population approximately 12% (more than 2 million) are studying in university and more than half of them (51.12%) are girls (2).

Due to such factors as a rapid increase in age at first marriage, there has been a sharp decline in the proportion of post pubescent young people who are married. Between 1986 and 2006, mean age at first marriage rose from 19.8 to 23.3 among females and from 23.6 to 26.2 among males; as a result, the proportion of adolescent females aged 15–19 who had ever been married fell from 33% to 12.38%. These data suggest a widening window during which young people may engage in potentially risky premarital sexual activities (2, 3).

Despite this trend, little is known about the reproductive health needs of young people in Iran. Cultural sensitivities may also be a factor in young people's poor knowledge about reproductive health. While religious teaching and cultural norms in the Islamic Republic of Iran emphasize abstinence from sexual activity until permanent marriage, in reality sexual activity before, and outside, marriage occurs in Islamic societies as well as non-Islamic ones. Unfortunately, little is known about this aspect of our community (4).

The few studies of the knowledge, attitude, beliefs and behaviors about sexual reproductive health of Iranian youth have demonstrated poor knowledge about reproductive health (3-11). It is the task of health researchers to identify the needs for reproductive health promotion and to plan and implement the necessary educational programs that might include prevention of STIs/HIV/AIDS and unwanted pregnancies.

Since the 1994 International Conference on Population and Development, the effect of an “enabling environment” on individuals’ capacity to make healthful decisions has been more clearly understood. Reproductive health interventions for adults generally focus on supplying services, but for young people even more than adults, social constraints affect their ability to access services and other supports. We now appreciate that policies play an important role in stimulating use of information and services by removing the social, legal and programmatic obstacles to youth reproductive health (1).

Sexuality and reproductive health education is an area that generate misconceptions, confusion, fear and unwarranted caution, to say the least. These can

be ascribed by many factors. First, policy makers, community members, parents and teachers are reluctant to confront issues of sexual and reproductive health. Teenagers often get their information from their peers who may be ignorant of the topic which may provide sensational and inaccurate information (6-11). In the result of a research as Reproductive Knowledge, Attitudes and behaviour among Adolescent Males in Tehran, Iran, only 27% of respondents reported that their mother or father was their primary source of information about the physical and psychological changes of puberty; nearly identical proportions of participants cited friends and classmates (26%) or teachers and school counsellors (25%) as their main source (3).

Research suggests that people are more likely to hear and personalize messages, and thus to change their attitudes and behaviors, if they believe the messenger is similar to them and faces the same concerns and pressures (12,13). Numerous studies have demonstrated that their peers influence youth's health behaviors—not only in regard to sexuality but also in regard to violence and substance use. Peer education draws on the credibility that young people have with their peers, leverages the power of role modeling, and provides flexibility in meeting the diverse needs of today's youth (12, 14). Peer education can support young people in developing positive group norms and in making healthy decisions about sex (14, 15).

Peer education method may be an effective method for training of young people. Peer education method implies that youth themselves be involved in defining the problem, developing the programs, developing the materials, and implementing activities and the youth should also be involved in monitoring, evaluating and documenting results(16).

There have been very few evaluations of peer education programs. It is thus difficult to determine their effectiveness. Qualitative information indicates, however, that peer education and peer counseling are valuable assets to school health programs in countries all over the world. This is likely because peer groups increase in importance during adolescence; peer education allows youth to exchange information in colloquial language and can take advantage of any moment and place for teaching or counseling (17).

Nursing and other leadership positions could also play an important role in encouraging wider social discussion of SRH matters. This would create an environment that is more tolerant of adolescent sexuality and that recognizes the beneficial public health effect for adolescents of greater access to youth-friendly sexual and reproductive health services. Public health services may be available, but under-utilized by adolescents for various reasons. Confidentiality as well as health providers' attitudes are two important issues affecting whether or not young people will use health facilities. Then it seems that in these situations, a peer education method is better than direct education. It is clear that the nurses and midwives have important role in educating of peers.

1.2. Objective

This interventional study aimed to empower of a group of university female students in relation to their sexual and reproductive health, in order to identify the sexual and reproductive health needs of students, to design an educational and counseling model for them by peer education method in university.

1.3. Hypothesis

1.3.1. Main Hypothesis

H0: Female students' knowledge score in relating to their sexual and reproductive health after intervention will not be increased.

H1: Female students' knowledge score in relating to their sexual and reproductive health after intervention will be increased.

1.3.2. Sub Hypotheses

H2: Female students' knowledge score in relating to sexual and reproductive health concept and reproductive health problem in young people after intervention will be increased.

H3: Female students' knowledge score in relating to their sexual organs and their structure and function, menstruation and pregnancy after intervention will be increased.

H4: Female students' knowledge in relating to family planning concept and contraception methods after intervention will be increased.

H5: Female students' knowledge in relating to genital tract infections, sexual transmitted disease, AIDS and preventive behavior about them after intervention will be increased.

2. REVIEW OF THE LITERATURE

2.1. Reproductive Health

With the Cairo Program of Action at the ICPD and again with the Beijing Platform at the Fourth International Conference on Women, the global community resolved to “Protect and promote the rights of young people to sexual and reproductive health information and services”. Delegates more than 180 countries at the Cairo conference agreed to a comprehensive definition of reproductive health, specifically, a state of “complete physical, mental and social well-being, and not merely the absence of disease or infirmity in all matters relating to the reproductive health system and to its functions and processes” (1).

2.2. Reproductive Health in Youth

There is an urgent need for the global community to act on the preceding principles and recommendations. Currently comprising more than 1.5 billion people, young adults, defined by the WHO as those individuals aged 10 to 24, face considerable threats to their reproductive health. Adolescents, 83 percent of whom live in developing countries, are vulnerable to sexual assault, rape and prostitution, too-early pregnancy and childbearing, infertility, anemia, genital mutilation, malnutrition, unsafe abortion, and RTI including sexual transmitted disease and human immunodeficiency virus. Young people themselves have brought attention to the realities that threaten their reproductive health daily. Despite the concerns voiced by the United Nations, 180 member countries, international organizations, and individual adolescents everywhere, the RH concerns of young people are too often neglected (1).

- Young people have a human right to receive the information they need to be able to make healthful decisions about their lives.
- Health is an important part of human development but, due to taboos related to sex, the SRH of young people is usually overlooked or treated as problematic.
- Young people between the ages of 15 and 24 have the highest rates of STIs worldwide, representing over two-thirds of all cases in the developing countries. But because young people tend not to receive the explicit

information or skills they need to deal with their sexuality and reproductive health, they are often unprepared for sexual relations.

- The social and developmental consequences of sexual and reproductive decisions are often further reaching than the health consequences. An unintended pregnancy can irrevocably disrupt a young girl's life by standing in the way of further schooling and training. Contracting HIV in an unprotected sexual encounter can bring a young person's prospects for a healthy and productive future to an end.
- Governments must face the reality that there are greater numbers of young people alive now than ever before. The long-neglected reproductive health needs of young people must urgently be addressed.
- Around the world, most adolescent childbearing occurs within marriage. While sexual and reproductive experience within marriage is socially sanctioned, it exposes girls to health risks such as STIs, HIV, and pregnancy or abortion.
- Early childbearing has lifelong consequences for women and often for men as well, regardless of whether the child is welcomed or considered a liability to young mothers and fathers.
- Young parents, especially girls, are often compelled to leave school, resulting in social and economic challenges that negatively affect their wellbeing and that of their children.
- Social norms defining appropriate sexual and reproductive activity often limit the information, guidance and services to which young people have access.
- Girls are vulnerable to more reproductive health problems than boys for both biological and social reasons, and often have little say over the conditions of sexual relations and childbearing.
- Communities generally hold young women—but not young men—responsible for the consequences of unprotected sex.
- Because premarital unintended pregnancy can be disastrous for young women's educational and other prospects, they are particularly likely to seek abortions.

- Worldwide, over ten million young people between the ages of 15 and 24 have HIV or AIDS. With almost half of all new HIV infections and at least one-third of all new sexually transmitted infections occurring to people younger than 25 years.
- Worldwide, nearly 12 million youth live with HIV/AIDS; youth under age 25 account for 28 percent of the 42 million people living with HIV/AIDS. Sixty-two percent of infected youth are female (18).

2.3. Reproductive Health of Youth in IRAN

Young people constitute a significant proportion of the Iranian population. In the most recent national census (2006), there were approximately 25 million young people aged 10–24, accounting for more than one third of the population and 18 million young people aged 15–24, accounting for 25% of the Iranian population and from this population approximately 12% (more than 2 million) are studying in university and more than half of them (51.12%) are girl (2).

Due to such factors as a rapid increase in age at first marriage, there has been a sharp decline in the proportion of post pubescent young people who are married. Between 1986 and 2006, mean age at first marriage rose from 19.8 to 23.3 among females and from 23.6 to 26.2 among males; as a result, the proportion of adolescent females aged 15–19 who had ever been married fell from 33% to 12.38%. These data suggest a widening window during which young people may engage in potentially risky premarital sexual activities (2, 3).

Despite this trend, little is known about the reproductive health needs of young people in Iran. Cultural sensitivities may also be a factor in young people's poor knowledge about reproductive health. While religious teaching and cultural norms in the Islamic Republic of Iran emphasize abstinence from sexual activity until permanent marriage, in reality sexual activity before, and outside, marriage occurs in Islamic societies as well as non-Islamic ones (4). Unfortunately, little is known about this aspect of our community. The few studies of the knowledge, attitude, beliefs and behaviors about sexual reproductive health of Iranian youth have demonstrated poor knowledge about reproductive health (3-11). It is the task of

health researchers to identify the needs for reproductive health promotion and to plan and implement the necessary educational programs that might include prevention of STIs/HIV/AIDS and unwanted pregnancies.

2.4. Enabling of Youth in Reproductive Health

Since the 1994 International Conference on Population and Development, the effect of an “enabling environment” on individuals’ capacity to make healthful decisions has been more clearly understood (3). Reproductive health interventions for adults generally focus on supplying services, but for young people even more than adults, social constraints affect their ability to access services and other supports. We now appreciate that policies play an important role in stimulating use of information and services by removing the social, legal and programmatic obstacles to youth reproductive health (1).

Sexuality and reproductive health education is an area that generate misconceptions, confusion, fear and unwarranted caution, to say the least. These can be ascribed by many factors. First, policy makers, community members, parents and teachers are reluctant to confront issues of sexual and reproductive health. Teenagers often get their information from their peers who may be ignorant of the topic which may provide sensational and inaccurate information(6-11). In the result of a research as Reproductive Knowledge, Attitudes and behaviour among Adolescent Males in Tehran, Iran, only 27% of respondents reported that their mother or father was their primary source of information about the physical and psychological changes of puberty; nearly identical proportions of participants cited friends and classmates (26%) or teachers and school counsellors (25%) as their main source(3).

In AIDS Knowledge, Attitude and Practice’s interviews with 22 project managers, 80 peer educators, and 121 target audience members in 10 countries in Africa, Asia, Latin America, and the Caribbean that carried of by Williams (1996), almost all target audience members agreed that they were comfortable talking to peer educators about HIV and AIDS and found it a good way to obtain important information, including how to use a condom, how not to rush into sexual activity, fidelity, and negotiation skills. More than nine out of ten of the audience members reported that they had shared the information and skills they had learned from the

peer educators with their families, partners, friends, or colleagues. Ninety-five percent of the educators themselves said that they had changed their own behavior since becoming a peer educator (19).

The following are demonstrated increases in acceptability and accessibility associated with peer education/promotion in school-based RH programs:

- Peer education allows participating youth to develop their leadership skills and improve their sense of self-worth (20).
- RH peer educators often become respected by students as a source of credible information. Researchers in Chiang Mai, Thailand found that being a peer educator gave girls social legitimacy to talk about sex without the risk of being stigmatized as someone who is sexually promiscuous. The peer educators were successful in facilitating group discussions about sex, educating their peers about their bodies, helping them to develop communication and assertiveness skills, and changing social norms (21).
- Peer promoters can provide a valuable link to health services. The peer promoter program makes services more acceptable and accessible than health centers, which are located away from the easy reach of students and, in most cases, manned by adults (17).

Peer educators also need SRH training, motivation, and continued support. Training of peer educators to work with other students in educational and counseling activities should focus on providing accurate SRH information and practicing techniques of problem solving, listening, nonjudgmental communication, giving feedback, conflict resolution, decision making, counseling, and basic education. Peer promoters should also be aware of sources of support for students who need information, counseling or health services. Training methods and resources that are practical, interactive, and can be replicated in the classroom should be used. As there is often a high turnover of peer educators, some recommend regular retraining of peer educators each year (17).

2.5. Peer Education Method

Peer education is a popular concept that implies an approach, a communication channel, a methodology, a philosophy, and a strategy. In the olden days of kings and queens (in England), peers were nobleman, aristocrats, lords, titled men and patricians. The English term “peer” refers to "one that is of equal standing with another; one belonging to the same societal group especially based on age, grade or status". In modern times, the term has come to mean fellow, equal, like, co-equal or match according to the dictionary of synonyms (Oxford Thesaurus). Recently the term is used in reference to education and training (22).

Peer education is now viewed as an effective behavioral change strategy, and it draws on several well-known behavioral theories – Social Learning Theory, Theory of Reasoned Action and Diffusion of Innovation Theory (23).

In the context of this thesis, peer education is the process whereby well-trained and motivated young people undertake informal or organized educational activities with their peers (those similar to themselves in age, background, or interests). These activities, occurring over an extended period of time, are aimed at developing young people’s knowledge, attitudes, beliefs, and skills and at enabling them to be responsible for and to protect their own health. Peer education can take place in small groups or through individual contact and in a variety of settings: schools, universities, clubs, churches, workplaces, street settings, shelters, or wherever young people gather. Peer education can be used with many populations and age groups for various goals. Recently, peer education has been used extensively in HIV/AIDS prevention and reproductive health programs around the world (22).

Finally, peer education is considered one of many tools available to reach young people with information and skills. Activities in peer education programs vary widely in the type and frequency of activities, the number and intensity of contacts, and the frequency of follow-up. Peer education is often undertaken because it is thought to be an easy and convenient way to reach a large number of people with information, using inexpensive, volunteer staff. But when done well, peer education requires intensive planning, coordination, supervision, and resources. There are program costs inherent in each element of a peer education program – training,

support, supervision, supplies, allowances – all of which require realistic budgeting and careful monitoring (24).

Peer education programs also have a growing role in advocacy, promoting support for the rights of young people to scientifically accurate information about SRH and HIV/AIDS, and where needed, access to youth-friendly services (22).

2.6. Why Peer Education?

A young person's peer group has a strong influence on the way he or she behaves. This is true of both risky and safe behaviors. Not surprisingly, young people get a great deal of information from their peers on issues that are especially sensitive or culturally taboo. Peer education makes use of peer influence in a positive way (25).

The credibility of peer educators within their target group is an important base upon which successful peer education can be built. Young people who have taken part in peer education initiatives often praise the fact that information is transmitted more easily because of the educator's and the audience's shared background and interests in areas such as music and popular celebrities, use of the language, family themes (e.g., sibling issues, the struggle for independence), and role demands (e.g., student, team member). Youth peer educators are less likely to be seen as authority figures 'preaching' from a judgmental position about how others should behave. Rather, the process of peer education is perceived as receiving advice from a friend 'in the know' who has similar concerns and an understanding of what it is like to be a young person. Peer education is also a way to empower young people; it offers them the opportunity to participate in activities that affect them and to access the information and services they need to protect their health (26).

2.7. The Theoretical Base for Peer Education

When undertaking a peer education program, the objectives are often to reinforce positive behaviors, to develop new recommended behaviors, or to change risky behaviors in a target group. Why and how do people adopt new behaviors? The fields of health psychology, health education, and public health provide relevant behavioral theories that explain this process. It is important to be aware of these theories, because they provide a theoretical base that explains why peer education is beneficial. Moreover, these theories can help guide the planning and design of peer education interventions. The following theories and models of behavior change are of particular relevance for peer education (26).

Theory of reasoned action

This theory states that the intention of a person to adopt a recommended behavior is determined by:

- A person's subjective beliefs, that is, his or her own attitudes towards this behavior and his or her beliefs about the consequences of the behavior. For example, a young woman who thinks that using contraception will have positive results for her will have a positive attitude towards contraceptive use.

- A person's normative beliefs, that is, how a person's view is shaped by the norms and standards of his or her society and by whether people important to him or her approve or disapprove of the behavior.

Social learning theory

This theory is largely based upon the work of psychologist Albert Bandura. He states that people learn:

- Through direct experience.
- Indirectly, by observing and modeling the behavior of others with whom the person identifies (for example, how young people see their peers behaving).
- Through training that leads to confidence in being able to carry out behavior.

This specific condition is called self-efficacy, which includes the ability to overcome any barriers to performing the behavior. For example, using role plays to practice how and when to introduce a condom can be important in developing the self-confidence to talk about safer sex methods with a partner.

Diffusion of innovations theory

This theory argues that social influence plays an important role in behavior change. The role of opinion leaders in a community, acting as agents for behavior change, is a key element of this theory. Their influence on group norms or customs is predominantly seen as a result of person-to-person exchanges and discussions.

Theory of participatory education

This theory states that empowerment and full participation of the people affected by a given problem is a key to behavior change.

Health belief model

The health belief model was developed in the early 1950s by social psychologists Godfrey Hochbaum, Stephen Kegels, and Irwin Rosenstock. It was used to explain and predict health behavior, mainly through perceived susceptibility, perceived barriers, and perceived benefits.

This model suggests that if a person has a desire to avoid illness or to get well (value) and the belief that a specific health action would prevent illness (expectancy), then a positive behavioral action would be taken with regards to that behavior.

Social ecological model for health promotion

According to this model, behavior is viewed as being determined by the following:

- Intrapersonal factors – characteristics of the individual such as knowledge, attitudes, behavior, self-concept, and skills
- Interpersonal processes and primary groups – formal and informal social networks and social support systems, including the family, work group, and friendships
- Institutional factors – social institutions with organizational characteristics and formal and informal rules and regulations for operation
- Community factors – relationships among organizations, institutions, and informal networks within defined boundaries
- Public policy – local, state, and national laws and policies This theory acknowledges the importance of the interplay between the individual and the environment, and considers multilevel influences on unhealthy behavior. In this

manner, the importance of the individual is de-emphasized in the process of behavioral change.

IMBR model: information, motivation, behavioral skills, and resources

The IMBR model addresses health-related behavior in a way that can be applied to and across different cultures. It focuses largely on the information (the 'what'), the motivation (the 'why'), the behavioral skills (the 'how'), and the resources (the 'where') that can be used to target at-risk behaviors. For example, if a young man knows that using condoms properly may prevent the spread of HIV, he may be motivated to use them and know how to employ them correctly, but he may not be able to purchase or find them. Thus, the concept of resources is important to this model.

2.8. Peer Education and Youth

In most societies, young people often find it difficult to obtain clear and correct information on issues that concern them such as sex, sexuality, substance use, reproductive health, HIV/AIDS and STIs. This happens for many reasons: Socio cultural norms and taboos, economic deprivation or lack of access to information. Many times, information is available but it may be given in a manner that is authoritarian, judgmental, or non-adapted to the young people's values, viewpoints and lifestyle (25).

One effective way of dealing with these issues is peer education, because it is a dialogue between equals. It involves members of a particular group educating others of the same group. For example, young people share information with each other, some acting as facilitators of discussions. It usually takes the form of an informal gathering of people who, with the help of the peer educator, (someone of a similar age or social group), discuss and learn about a particular topic together. Peer education works well because it is participatory and involves the young people in discussion and activities. People learn more by doing than just getting information (26).

Peer education is, therefore, a very appropriate way to communicate in the context of HIV / AIDS. It empowers young people to take action. Examples of participatory activities used in peer education are games, art competitions and role-

plays. All of these can help people to see things from a new perspective without “being told” what to think or do (22).

Studies show that peer education reduces risky sexual behaviors. Adolescents who believe their peers are using condoms are also more than twice as likely to use condoms compared to teens who do not believe their peers use condoms (27,28).

In the United States, a peer education program targeting mostly black, urban females' ages 12 through 19 significantly improved HIV/AIDS knowledge and preventive behaviors. Before the program, 44 percent of sexually active participants reported not using condoms compared to 33 percent after the intervention. Reports of sex in the previous two weeks fell from 21 percent at baseline to 14 percent at follow-up (29).

Evaluation of a sexual health peer education program in Peru in 2000 found that, compared to controls, participating males had increased knowledge about pregnancy prevention and reported reduced incidence of sexual initiation and increased use of contraception at most recent sex. An evaluated peer health education program in Cameroon showed increased use of modern contraceptive methods and increased condom use at most recent sex among participants versus comparison youth. The program was more effective among in- than out-of-school youth (30).

The West African Youth Initiative implemented peer education programs in schools and out-of-school settings in Ghana and Nigeria. Evaluation showed that peer education significantly increased condom use among in-school youth. The proportion of youth reporting use of modern contraception methods increased significantly from 47 to 56 percent while use in comparison areas decreased slightly (31).

In an alternative school in Florida, a peer education program resulted in increased reports of condom use at most recent intercourse (up from 45 to 55 percent) and fewer reports of unprotected sex (down from 15 to four percent) among sexually active students (32).

A program in the South African identified peer leaders in the gay communities of two small cities. The leaders were then trained to talk individually with their peers about HIV risk behaviors. As a result, the proportion of men who

engaged in any unprotected anal intercourse in a two-month period decreased from 36.9 percent before the intervention to 27.5 percent after the intervention (33).

Teens Often Find Peer Educators More Credible Than Adult Educators. Trained peer educators are a more credible source of information for some youth than are adult educators because they communicate in readily understandable ways and serve as positive role models while dispelling misperceptions that most youth are having sex (14, 15).

A study comparing peer-led versus adult-led education programs found that peer counselors produced greater attitude changes in teens' perception of personal risk of HIV infection. Relative to adult-led education, peer-led education also improved teens' inclination to take steps to prevent transmission. The same study indicated that adolescents who were counseled by peers were more likely to engage in interactive discussion following the education curriculum than those counseled by adult health care providers (34).

The final evaluation of a Pilot Project implemented by the China Family Planning Association reported(35) "strong evidence that the pilot project was successful in testing a variety of styles and methods to raise sexual health awareness amongst youth, with the evaluation showing that many of the interventions were appropriate and systematic in design and rich and fitting in content, having an obvious effect on knowledge and attitude levels and a profound and lasting influence on both students, teachers, parents, health/family planning workers and policy makers". The pilot project was implemented in Minghan District (Shanghai) and Haidian District (Beijing), beginning in 1998. Its long-term goal was no less than "the achievement of the national plan for socio-economic development and improved quality of life through better SRH for Chinese youth". Peer educators were not only the primary vehicles of the intervention; they were also the project evaluators. After intense one-day workshops, eight student peer educators from each district were "equipped with the necessary tools to conduct a series of focus group discussions and in-depth interviews". They also gathered quantitative data from survey instruments that was later analyzed using SPSS, and qualitative data through the focus groups and in-depth interviews. Unfortunately, the base-line survey in Beijing was not available for comparison, so they were left with qualitative results to consider. In

both districts, peer education was central to the intervention, and focused on such diverse issues as decision-making, HIV/AIDS, avoiding drugs, and sexual health.

The immediate objectives of the interventions were:

- To provide appropriate information to the students;
- To create a healthy environment within the schools; and
- To empower students, assisting them in their personal development over this crucial stage in their lives.

Once selected, the peer educators conducted over 130 peer education sessions in Minghan District alone. A student-run newsletter was printed in seven issues, and a video was made showing students running peer education training and other activities. In all, the evaluation results indicated that the pilot project was very well received by students, teachers, parents and health/family planning workers. They also showed that the intervention helped “eradicate the ‘fear’ of AIDS and prevalent negative attitudes towards people living with AIDS ...with...90% of the students responding that they would be happy to live and study with people living with AIDS”. Findings from both implementations also showed that the peer education strategy of employing a variety of innovative styles, including focus group discussions, role plays, games and informal discussions was successful in “attracting students’ attention; gaining their participation; eradicating generation barriers; and encouraging creativity, imagination and discussions...with...84% of the students hoping that they could continue the peer education activities” . Qualitative results of the evaluation found that a large majority of students felt that their levels of knowledge of adolescent reproductive health issues had increased. They also reported that “their ability to make decisions had improved and this had helped them to mature”. Significantly, 80% of those surveyed in Minghan said that trained peer educators were the best sources of sexual health information for the following three reasons: “easy to communicate with peers; can empathize with students; and provide security” (35).

Peer education intervention was conducted in two villages, while another two villages served as a control group. Volunteers, who were married or unmarried women and men aged 15-24 years were designated as peer educators. They were trained on reproductive health issues, after which they conveyed the information to

their peers. A baseline study before, and a follow-up study after, the intervention were conducted to evaluate its influence. Reproductive health information level was assessed with the use of a questionnaire about reproductive health topics such as anatomy/physiology, pregnancy, family planning, etc. highest possible score was determined as 69. One-way variance analysis was used to compare the reproductive health grades and independent variables. The knowledge level of both women and men in intervention villages increased after peer education more than those in control villages. The total information grade of females (n=113) in the intervention were 32.8 ± 1.3 before the information and 38.0 ± 1.5 after the intervention (n=91). The grades for females in the control villages (n=108) were 30.7 ± 1.2 before the intervention and 30.4 ± 1.5 after the intervention (n=75). The knowledge level of females after the intervention was significantly higher than the level of females before the intervention in the intervention villages and that level was also higher than the level of females in the control villages at the beginning and the end phases of the study (36).

Nursing and other leadership positions could also play an important role in encouraging wider social discussion of SRH matters. This would create an environment that is more tolerant of adolescent sexuality and that recognizes the beneficial public health effect for adolescents of greater access to youth-friendly sexual and reproductive health services. Based on these thinking were suggest that critical thinking around the cultural and moral dimensions attached to adolescent sexuality should be emphasized in youth friendly services. These conflicting perspectives may reflect that nurse-midwives, similar to other health professionals within the area of reproductive health, are at a critical intersection between the norms and values of the community and the reality of adolescents engaging in premarital sex. Their tendency to take a more pragmatic approach could be due to awareness of the severe consequences of unprotected sex for adolescents, which they have to face as health care providers. Public health services may be available, but under-utilized by adolescents for various reasons. Confidentiality as well as health providers' attitudes are two important issues affecting whether or not young people will use health facilities (37). Then it seems that in these situations, a peer education method

is better than direct education. It is clear that the nurses and midwives have important role in educating of peers.

3. METHODOLOGY

3.1. Type of Study

This is an interventional study aimed to empower of a group of university female students in relation to their sexual and reproductive health, in order to identify the sexual and reproductive health needs of students, to design an educational and counseling model for them by peer education method in university.

Assessing of educational and counseling model for empowering of students that is our research's main goal will doing with comparing of pre and post-test's results and scores and number of students that would be consult.

3.2. Place of Study

Study was carried in Oromieh University that be comforted in Oromieh city on west south of IRAN.

General statement of Oromieh University

Oromieh University set up in Oromieh city of IRAN and has total 10788 students in tree campus. Two of these campuses are in the other cities and have only 219 students and the main campuses in Oromieh city have 10569 students that 4413students from them are female. Table 3.2.1 shows distribution of students in different faculties.

Table3.2.1. Distribution of students in faculties of Oromieh University (IRAN 2008-2009).

Faculty	Number of under graduate			
	Number of students		female students	
	n	%	n	%
Faculty of letter	2531	23.9	1343	30.4
Faculty of veterinary science	638	6.0	43	1.0
Faculty of science	2620	24.8	1253	28.4
Faculty of engineering	1933	18.3	354	8.0
Faculty of agricultural science	2535	24.0	1309	29.7
Faculty of art	312	2.9	111	2.5
Total	10569	100.0	4413	100.0

3.3. Study Population and Sampling

Study population in this study is Oromieh University female students. We are selected some department in faculty of letter as research samples (Department of Persian language and literature, Department of educational science, Department of English language and literature, Department of history, Department of geography) because of these departments are trained students that may be work as teacher in schools in the future and may be have main role in distributing of these information to other students. The distribution of students in these departments is showed in Table3.3.2.

Table3.3.2. Distribution of students in selected departments in faculty of letter at Oromieh University (IRAN 2008-2009).

Selected Departments	Number of undergraduate female students	
	n	%
Department of Persian language and literature	177	25.1
Department of Educational Science	138	19.5
Department of English language and literature	149	21.1
Department of History	137	19.4
Department of Geography	105	14.9
Total	706	100.0

3.4. Preparing of Data Collections Questionnaire

The data were obtained through a pretest questionnaire that obtain SRH knowledge and some questions about the history of group working and desire to participate in this study as peer educators and a post test questionnaire that obtain SRH knowledge and some questions about the effectiveness of peer education models (See to appendix 1 and 2). SRH knowledge questionnaire were prepared based on scientific text related to reproductive and sexual health of youth (38, 39). Understandability of questionnaire's content was confirmed by three professors of Hacettepe University that would be in judge thesis committee and two associated professor of Oromieh University*(with special thanks of them). Assessment of questionnaire's understandability was done by a pretest study with 20 female students in other university of Oromieh city (Azad University of Oromieh).

Dr Aram Fiezi (Associated Professor of Oromieh Medical University)

Dr Saleh Salimi (Associated Professor of Oromieh Azad University)

3.5. Implementation of Study

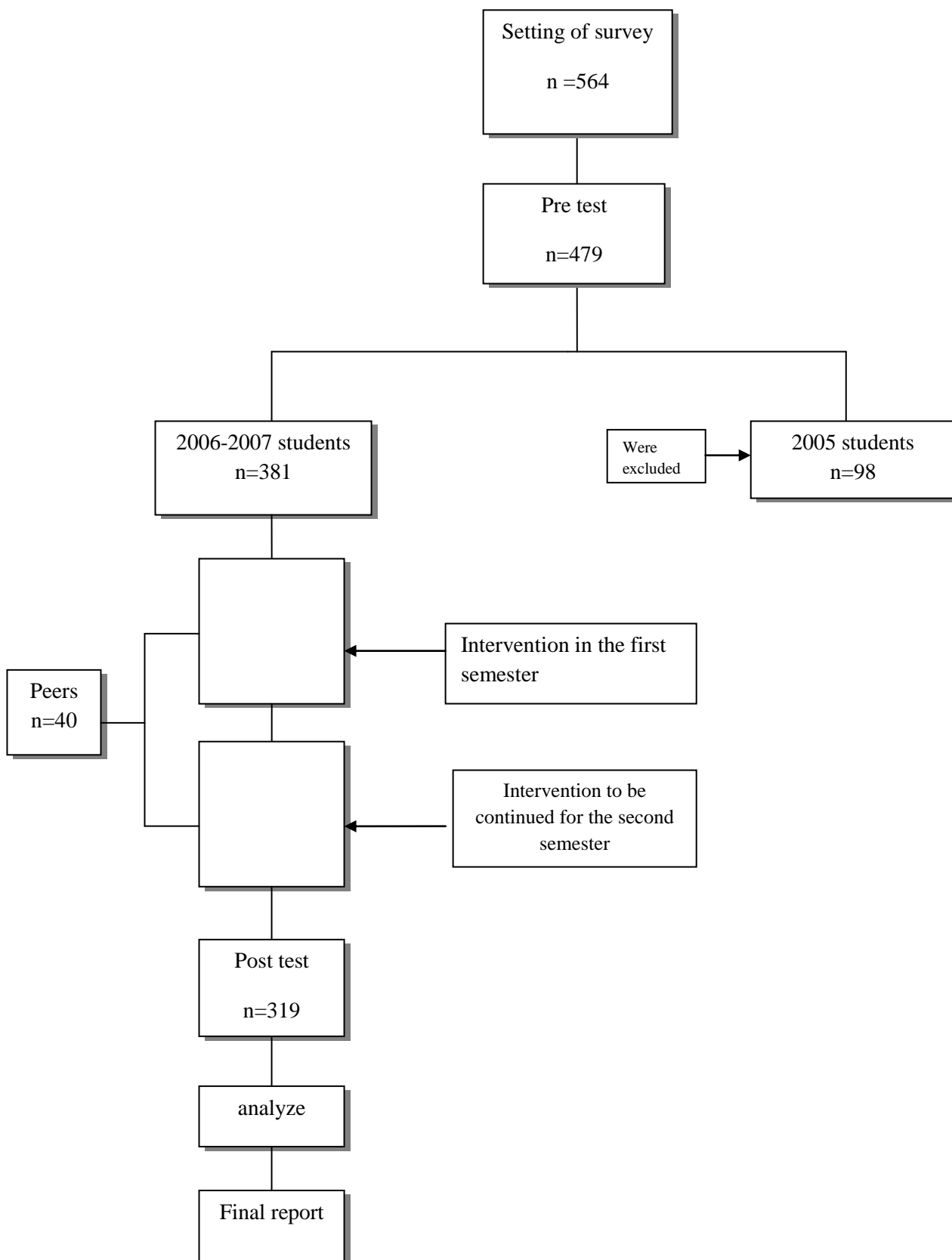
First of all a questionnaire would be distributed in these classes and would be filled by undergraduate female students those are study in these department. This questionnaire determines knowledge of students and their needs about reproductive and sexual health. In the next step were identified students who have leadership quality from different department and then organize a series of training for these youth leaders on various aspects of reproductive and sexual health and peer counseling. The prepared educational plan exists in appendix 3. For selecting of peer educators with leadership characteristics, first of all was requested from every students that want to participated in this study wrote a telephone number, then was requested from university professors that appointed appropriate students for peers educating.

Intervention of this plan was performed in one term primarily, but it has continued for another term when it present to thesis judge group, and due to the study was longer than prediction period, so, some of students have missed who were in last term and graduated from university (students that entered at 2005 to university) and couldn't got their final results and analyze their data as pilot, and their results used to increasing of quality from intervention and has used in analyzing of this data.

The result of these data (pilot) has showed in chart separately as a 2005 entered students. Decreasing of investigation society is due to those students (2005 entered students) that were excluded from study, so, some students didn't fill out questionnaire in post test and were missed, however, 319 from 479 students that have fill out post test without peer educators. The peer educator's questionnaires have excluded and have not analyzed. All of 319 students that fill out post test questionnaires, already fill out pre test questionnaires, because of researcher want them if every person didn't fill out questionnaire in before intervention , don't fill out it in after intervention.

Table 3.5.3. Accessibility rate to population of study in every phase (IRAN 2008-2009).

Field	entrance	Expected number	Number of students in pre test	Number of students in post test	Number of peer educators	Number of students in post test without peer educators	Post test/pre test	
Persian language and literature	2006	34	32	31	4	34	94%	
	2007	59	54	51	4	40		
	Total	93	86	82	8	74		
English language and literature	2006	45	44	44	5	42		
	2007	41	39	38	3	32		
	Total	86	83	82	8	74		
History	2006	35	32	30	6	37		
	2007	50	44	29	4	12		
	Total	85	76	59	10	49		
Geography	2006	27	23	23	1	17		
	2007	36	33	33	3	35		
	Total	63	56	56	4	52		
Educational science	2006	40	40	39	5	34		
	2007	42	40	40	5	35		
	Total	82	80	79	10	69		
Total		409	381	358	40	319		

Fig 3.5.1. Flow chart of survey's stages

3.6. Ethics

The project will present to the ethics committee of the Oromieh Medical University and Oromieh University for approving. Written consent was taken from the representatives of the researches heads of both universities. The study was explained to the Students in their classes, take the permission from them and questionnaires were completed anonymously.

3.7. Assessment of Data

3.7.1. The Computation of Score in the Study

The number of questions in every part is equal to the score of that part. It means that every right answers to the questions has one score and every wrong answer has zero score. In the " Reproductive health concept and reproductive health problem in youth" part number of question is 4 and the score of this part is 4 too and in the "Sexual organs and their structure and function, menstruation and pregnancy" part is 18, in the "Family planning concept and contraception methods" part is 14, in the "Genital tract infections, sexual transmitted disease, AIDS and preventive behavior" is 11 and finally total score calculated from 47 that it is the number of all questions in reproductive health knowledge in the survey's questionnaire.

3.7.2. Variables

Independent Variables:

- Age
- Field of study
- Marital status
- Where live in until 15 years
- Settling status
- Educational status of mother
- Educational status of father
- Job status of mother
- Knowledge level of sexual and reproductive health of students

- Receive any information about reproductive and sexual health issues up to now by students
- Taking the demography and family planning course
- Receive of educational text that prepare for this research
- Receive of any information about sexual and reproductive health from peer educator

Dependent variables:

- The average score of female students in question about sexual and reproductive health

3.7.3. Statistical Methods

In this survey data were processed with using of SPSS version 12 and analyzed using descriptive statistics method. For comparing of SRH knowledge scores in before and after intervention, t-test and Mcnemar test were used. For assessing of effectiveness of independent variables on dependent variable, t-test and One-way Anov were used.

3.8. Relations of Interest

Educational text has produced to students before intervention. Also, peer educators should educate in one day's training course and has prepared for them slides and power point file by researcher based on educational plan (See in appendix3). Pre test has performed in the classes and exams for students, in additional of explanation in plan's goal and arbitrary of questionnaire and participation in plan. A phone number have given from which students favor to corporation as a educators.

3.9. Peer Educators Training

Peer educators invited in several stages. Unfortunately, they couldn't be in course, because of contact their classes and these students have invited several times. The training courses have performed to educators for teaching and coordinating with

them. These courses have performed always on Thursdays with 15-20 persons per session. The universities in Iran are active part time on Thursdays and closed on Fridays, and then the students have fewer classes than other days. Researcher meets peer educators for coordinating and continuous educating of them on every Sunday and every Tuesday at 12-14 o'clock (between classes). They participated in these sessions one time a week voluntary.

Relationship between researcher and peers in these sessions is two-ways, so, the researchers present some education for them and peers asked question from researcher. These questions always were asked from peers by other students, and then answers transmitted to them by peers. There was private consultation for students on every Mondays and every Wednesdays at 12-14 o'clock (between classes). It means, stewardship (university) took authority and coordinated with undertakers in college, they gave a private room which students came there for private counselor. To bring to the notice of students about this private consultation, advertisement appointed to panel and said to them by peers. Although the most of consultations were done in the corridors and on stand.

With coordinating to undertakers, some posters related to reproductive health were prepared and labeled to panel in university continuously.

Coordination with peer educators has done one by one and by phone, and educators choose among of volunteers as 1 to 10 students that can reply to educating and answering to student's questions about SRH. Due to increasing of volunteers in some classes this ratio was 1 to 5, however, it has decreased in the coordinate sessions. In some of the classes weren't any peer or a few of them that we tried to use several motivations, such as, some professors of lessons, so for motivate of students by professors. Sometimes, we talked with professors that if somebody didn't have any absent sessions, she can be passed the "family planning and demography" courses, so, all of the information were according to that lesson.

Educational text was prepared based on update information's and with easy expresses or words that except of professional abbreviations and medical terms. So they were showed to 2 of professors and 5 of non medical students for knowing

about understandability of them, and then were published it for gave them to all students. This booklet was 40 pages and according to outline of studies' plan (See in appendix3). All of them should illustrated by peer educators.

Two meeting picnic were arranged for making best relationship between peer educators and researcher which were out of university with the amusement programs and something for eating that prepared by researcher.

According to student's request and accordant by peer educators, researcher performed a question- answer session in dormitory and another in university that students asked some questions and have got their answers as possible as.

A suggestions box was designed in front of classes that written on them" related to Empowering of Oromieh university female students in related to their sexual and reproductive health" but unfortunately, didn't have any benefit from it.

Intervention of this plan was performed in one term primarily, but it has continued for another term when it present to thesis judge group, and due to studies' plan was longer than prediction period, so, some of students have missed who were in last term and graduated from university (students that entered at 2005 to university) and their final data couldn't got, these data were analyze as pilot, and their results used to increasing of quality of intervention and has used in analyzing of this data. Decreasing of investigation society is due to those students (2005 entered students) that were excluded from study, so, some students didn't fill out questionnaire in post test and they were missed, however, 319 students have fill out pre test without peer educators. The peer educator's questionnaires have excluded and have not analyzed. All of 319 students that fill out post test questionnaires, already fill out pre test questionnaires, because of researcher want them if every person didn't fill out questionnaire in before intervention , don't fill out it in after intervention.

Table 3.9.4. Time table of thesis

1	2007	September	Primary study and writing of proposal
2		October	
3		November	
4		December	
5	2008	January	Approve of proposal
6		February	Preparation of questionnaire ,Communicate with offices and
7		March	Getting of preliminary
8		April	Pilot test of questionnaires
9		May	Doing of pre test
10		June	
11		July	Primary analyze of pre test data and preparation of report for thesis committee
12		August	
13		September	Presentation of the first report to thesis committee (thesis follow up 1)
14		October	Intervention: training of peers, distribution of educational material for students, education of students by peers, consultation with respected students
15		November	
16		December	
17		2009	January
18	February		Presentation of the post test report to thesis committee and they proposed to continuing of intervention (thesis follow up 2)

19		March	Continuing of intervention consist of: training and motivating of peers, educating of students by peers and consultation with respected students	
20		April		
21		May		
22		June	Recessing due to delivery (interruption)	
23		July		
24		August		
25		September		
26		October	Doing the post test	
27		November	Analyze of post test data and preparation of report for thesis committee	
28		December		
29		2010	January	Thesis follow up 3
30			February	
31	March		Writing of thesis	
32	April			
33	May			
34	June			
35	July			
36	August			
37	September			
38	October		Thesis follow up 4	
39	November	Reply of thesis		
40	December			
	2011	January		

3.10. Limitations of the Study

The results of this study generalized only to female students of university. To extending of similar results for greater populations, designing of similar research as public-based (for example rural area) or those youth that couldn't to enter university or male students or high school students and etc was needed. Also this study assessed the knowledge level of SRH as effectiveness of peer education method, but for assessing of sexual attitude and behavior of population study, designing of other research was needed. This study haven't control group, for the better comparing of results of the effectiveness of peer education method on SRH knowledge level, carrying of similar research with control group was needed.

In this study, open questions were answered only in some cases. It can be due to talking about SRH issues in this culture is taboo or students don't want to expend time for answering of these questions, then it is better that multiple selection questions were used for SHR issues and similar populations.

3.11. The Difficulties of Study

The students couldn't be in programmed courses, because of contact their classes and frequently we have to invite from students several times.

The most of counseling were done in the corridors and on stand and for this reason this study couldn't be showing its effectiveness in consultation part as good as. In some of the classes weren't any volunteer as peer educator and some volunteers in other classes weren't going to meeting regularly thus several motivations, such as, some professors of lessons and so on was used, but their motivations was very difficult.

Intervention of this plan was performed in one term primarily, but it has continued for another term when it present to thesis judge group, and due to studies' plan was longer than prediction period, so, some of students have missed who were in last term and graduated from university (students that entered at 2005 to university) and their final results couldn't got and analyze their data as pilot.

Decreasing of investigation society is due to those students (2005 entered students) that were excluded from study, so, some students didn't fill out questionnaire in post test and they missed , however, 319 students were remained that have fill out pre test without peer educators.

4. RESULTS

The obtainable results from empowering of Oromieh University female students in related to their sexual and reproductive health by peer education method presented in 5 parts. The first part contained socio demographic characteristic of study samples; the second part, baseline data from study population; the third part contained some data about evaluation of peer education method; in the fourth part reproductive health knowledge of study samples, before and after intervention and in the fifth part comparison of study population's score to reproductive health questions based on independent factors were contained.

4.1. Socio Demographic Characteristic of Study Samples

In this part socio demographic characteristic of students such as age, field of study, marital status, the place that live in until 15 years old, settling status, educational status of mother and father , job status of mother and father were presented.

Table 4.1.5. Socio demographic characteristic of female students (Oromieh University-IRAN 2008-2009).

Demographic characteristic (n=381)	n	Percent
Age (years)		
18-19	106	27.8
>=20	252	66.2
No answer	23	6.0
Minimum=18 Maximum=38 Mean =20.44 SD=1.95 Median=20		
Field of study		
Persian language and literature	86	22.6
English language and literature	83	21.8
History	76	19.9
Geography	56	14.7
Educational science	80	21.0
Marital status		
Never married	349	91.6
Married	14	3.7
Engaged	18	4.7
where live in until 15 years old		
Big cities*	124	32.5
Small City	208	54.6
Village	41	10.8
No answer	8	2.1
Settling status		
With family (relatives) in house	111	29.1
In dormitory, with peers, friends, students in house**	269	70.6
No answer	1	0.3

Table 4.1.5. Continue

Demographic characteristic (n=381)	n	Percent
Educational status of mother		
Illiterate	117	30.7
Only literate/Primary school	99	26.0
Secondary school	56	14.7
High school/ diploma	80	21.0
University degree	28	7.3
No answer	1	0.3
Job status of mother		
Employed	23	6.0
Retired	12	3.2
Housewife	342	89.8
No answer	4	1.0
Educational status of father		
Illiterate	43	11.3
Only literate/Primary school	79	20.7
Secondary school	70	18.4
High school/ diploma	95	24.9
University degree	85	22.3
Other***	3	0.8
No answer	6	1.6

* Sum of Abroad, Tehran and Big city.

** Sum of in dormitory, with peers/friends/students in house and alone.

*** Dead

This table shows information of Socio demographic characteristic of study population. Age of the majority of students are 20 years and up than it. The fields of 22.6% of students are Persian language and literature, 21.8% English language and literature, 19.9% history, 14.7% geography, 21% educational science

Majority of students (91.6%) were never married. Data also have shown, majority of students live in small city (54.6%) until 15 years old and up to 70% of them resident in dormitory or With peers/friends/ students in house.

Of the other hand, Up to 56% of students' mothers were illiterate or only literate/primary school and nearly 90% of them (most of them) were housewife. About their fathers' literacy in 32% were illiteracy or with writing and reading, although, it was better than mothers' literacy, by the way.

4.2. Baseline Data from Study Population

Table 4.2.6. Distribution of female student's answers due to the person in their family /relatives that they can comfortably talk about reproductive health-related matters with him/her (Oromieh University-IRAN 2008-2009). n=381

Student's answers about the person in their family that can talk about RH	n	%
The existence of person		
Yes	280	73.5
No	93	24.4
No answer	8	2.1
Their relatives*		
Mother	170	60.7
Sister	127	45.4
Aunt or other relatives	76	27.1
Friends	23	8.2
Father	3	1.1
Husband	2	0.7
Teacher	1	0.4
No answer	131	46.8
Their profession*		
Non health related profession	217	77.5
Health related profession	34	12.1
NO answer	142	50.7

* Due to more than one choice to these questions, total number induced.

This table shows that 73.5% of students have a person in their family/relatives that they can comfortably talk about reproductive health related matters. In most cases, this person was mother, next sister and later relatives or friends but unfortunately most of these persons weren't a health related profession and they aren't suitable person for consultation.

Table 4.2.7. Distribution of self assessment knowledge of reproductive health of female students (Oromieh University-IRAN 2008-2009).

Reproductive health subjects (n=381)	Self assessment of knowledge							
	It is adequate		It is partly adequate		It isn't adequate		No answer	
	n	%	n	%	n	%	n	%
Reproductive health concept and reproductive health problem in youth	52	13.6	154	40.4	126	33.1	49	12.9
Sexual organs and their structure and function, menstruation and pregnancy	42	11.0	161	42.3	129	33.9	49	12.9
Family planning concept and contraception methods	59	15.5	145	38.1	126	33.1	51	13.4
Genital tract infections, sexual transmitted disease, AIDS and preventive behavior	44	11.5	118	31.0	170	44.6	49	12.9

The written percents in cells calculated for rows in this table.

From students Were requested that determine their knowledge level of reproductive health. In result 13.6% of students assess their knowledge level of reproductive health concept and reproductive health problem in youth adequate. They assess knowledge level of sexual organs and their structure and function, menstruation and pregnancy in 11.0% of students adequate. In Family planning

concept and contraception methods part, 15.5% of students evaluated their knowledge level adequate. In the fourth part (Genital tract infections, sexual transmitted disease, AIDS and preventive behavior) 11.5% of students evaluated their knowledge level adequate.

Table 4.2.8. Distribution of female student's answers due to receiving any information about reproductive and sexual health issues up to now and the four most important source of these informations. (Oromieh University-IRAN 2008-2009).

Statues of receiving information	n		%	
Yes	265		69.6	
No	112		29.4	
No answer	4		1.0	
Total	381		100.0	

The most important informational sources on reproductive and sexual health	The sources of received information to set in order							
	1th		2th		3th		4th	
	n	%	n	%	n	%	n	%
Mother	129	33.9	35	9.2	22	5.8	9	2.4
Friends	52	13.6	53	13.9	65	17.1	28	7.3
Books/magazines	45	11.8	52	13.6	52	13.6	52	13.6
Sister	41	10.8	54	14.2	14	3.7	10	2.6
School teacher	28	7.3	34	8.9	29	7.6	24	6.3
Other family members/Relatives*	11	2.9	8	2.1	24	6.3	19	5.0
Radio/Television	11	2.9	21	5.5	26	6.8	43	11.3
Doctors	9	2.4	11	2.9	17	4.5	6	1.6
Computer/Internet	4	1.0	3	0.8	12	3.1	8	2.1
Nurses/other health worker	2	0.5	7	1.8	5	1.3	16	4.2
Father	0	0.0	3	0.8	1	0.3	0	0.0
Brother	0	0.0	0	0.0	1	0.3	1	0.3
Films/Videos	0	0.0	2	0.5	4	1.0	6	1.6
No answer	49	12.9	78	20.5	109	28.6	159	41.7

* consist to aunt, cousin, niece, brother's wife, sister-in-law

69.6% of students state that receive information about reproductive and sexual health issues up to now.

The first most important source of information on reproductive and sexual health in view of students was mother (33.9%), friends (13.6%), book/magazines (11.8%) and sister (10.8%). For the second source of information, sister (14.2%), friends (13.9%), Books/magazines (13.6%) and mother (9.2%) were student's selection. The third selections in view of students were friends (17.1%), book/ magazines (13.6%), School teacher (7.6%), Radio/Television (6.8%). And finally students select Books/magazines (13.6%), Radio/Television (11.3%), friends (7.3%) and School teacher (6.3%) for the four source of information on reproductive and sexual health.

Table 4.2.9. Distribution of female student's answers due to their interesting in learning about reproductive health and the four most preferred source of information about them. (Oromieh University-IRAN 2008-2009).

The status of student's interesting in learning	n		%	
Yes ,Very much	96		25.2	
Yes ,Slightly	211		55.4	
Not at all	67		17.6	
No answer	7		1.8	
Total	381		100.0	

The most preferred important informational sources	The preferred source to set in order							
	1th		2th		3th		4th	
	n	%	n	%	n	%	n	%
Doctors	84	22.0	36	9.4	30	7.9	18	4.7
Mother	71	18.6	21	5.5	23	6.0	10	2.6
Books/ magazines	37	9.7	30	7.9	51	13.4	40	10.5
Nurses/other health worker	29	7.6	59	15.5	28	7.3	17	4.5
Friends	27	7.1	21	5.5	22	5.8	20	5.2
School teacher	22	5.8	35	9.2	14	3.7	18	4.7
Sister	18	4.7	28	7.3	15	3.9	11	2.9
Radio/ Television	6	1.6	17	4.5	32	8.4	25	6.6
Computer/ Internet	5	1.3	7	1.8	17	4.5	24	6.3
Other family members/Relatives*	2	0.5	8	2.1	9	2.4	10	2.6
Films/Videos	2	0.5	7	1.8	5	1.3	15	3.9
Father	1	0.3	0	0.0	1	0.3	0	0.0
No answer	77	20.2	112	29.4	134	35.2	173	45.4

* consist to aunt, cousin, niece, brother's wife, sister-in-law

To reply of: "Are you interested in learning about reproductive health?" 25.2% of students interested in learning about reproductive health very much, 55.4% of them (majority of them) interested slightly and only 17.6% of students didn't interested in learning at all. So most of them have attention to gain more information

about reproductive health. Students prefer to receive more information primarily from doctor (22.0%) then mother (18.6%), book/magazine (9.7%) and nurse/other health worker (7.6%). For the second preferred source of information, Nurses/other health worker (15.5%), doctors (9.4%), School teacher (9.2%) and Books/magazines (7.9%) were student's selection. The third selection that proffered by students were book/ magazines (13.4%), radio/television (8.4%), doctors (7.9%) and Nurses/other health worker (7.3%). And finally students preferred Books/magazines (10.5%), radio/television (6.6%), Computer/ Internet (6.3%) and friends (5.2%) for the fourth source of information on reproductive and sexual health.

Table 4.2.10. Distribution of female student's answers due to the best time for starting reproductive health education in their opinion, their interesting in having a formal course about it and the topics that they interested learning in this course (Oromieh University-IRAN 2008-2009).

The best time for education	n	%
Primary school	12	3.1
Secondary school	121	31.8
High school	151	39.6
University	84	22.0
No answer	13	3.5
Total	381	100.0
Interesting to formal course	n	%
Yes	334	87.7
No	37	9.7
No answer	10	2.6
Total	381	100.0
Topics*	n	%
Family planning	37	9.7
Pregnancy	38	10.0
Genital infections/STI tract	20	5.2
Sexual issues	35	9.2
Genital tract hygiene	56	14.7
No answer	260	68.2

* Due to more than one choice to these questions, total number induced

According to data from table, only 22.0% of students state that the university is the best time for starting reproductive health training and the others thought that the best time for training is before entrance to university, 31.8% of them, secondary school and 39.6% of them, high school were choice for starting of training. Near to eighty eight percent of students are interested in having a formal course about reproductive health in the university and most of them suggested to interested to learning in this course: family planning, pregnancy, genital tract hygiene and sexual issues. As found in this table, open questions weren't answered in many cases (68.2%). It can be due to talking about SRH issues in this culture is taboo or students don't want to expend time for answering of these questions.

Table 4.2.11. Distribution of female student's answers due to taking the demography and family planning course at the university and adequacy of this course content's for their reproductive health related knowledge needs (Oromieh University-IRAN 2008-2009).

Taking the course	n	%
Yes	141	37.0
No	233	61.2
No answer	7	1.8
Total	381	100.0
Adequacy of this course (n=141)	n	%
Completely adequate	11	7.8
partly adequate	105	74.5
Not adequate	21	14.9
No answer	4	2.8

This table shows that 37.0% of students take the demography and family planning courses in the university. Only 7.8% of students think that the content of this course (demography and family planning) is completely adequate for reproductive health related knowledge needs. 14.9% of them think that the content of

this course is not adequate for reproductive health related knowledge needs. Most of them (74.5%) said that it is fairly adequate for their knowledge needs.

4.3. Some Data About Evaluation of Peer Education Method

Table 4.3.12. Distribution of female student's answers due to receiving educational text that prepare for this research and to having consulate by researcher during this research (Oromieh University-IRAN 2008-2009).

Receiving educational text	n	%
Yes	278	87.2
No	41	12.8
Total	319	100.0
Having consulate by researcher	n	%
Yes	133	41.7
No	154	48.3
No answer	32	10.0
Total	319	100.0

In according to tell of 319 answerer, only 278 students took educational texts, but 41 of them didn't take it. And in among of 319 search units than answered questionnaire, 133(41.7%) of them took consulted in this search by researcher. Generally consultation issues were personal problems as hymen, virginity and etc.

Table 4.3.13. Distribution of female student's answers due to receiving any information about reproductive health from peer educator and Where or when are they received this information from peer educator (Oromieh University-IRAN 2008-2009).

Receiving any information from peer educators	n	%
No, I am not received any information from peer educator	32	10.0
Only I received educational text but there isn't any conversation between us	73	22.9
I received educational text and information from peer educator	150	47.0
I didn't receive educational text but I receive information from peer educator	13	4.1
No answer	51	16.0
Total	319	100.0
Where or when are they received information from peer educator *	n	%
In dormitory	73	22.9
In school between courses	102	32.0
In restaurant	7	2.2
Other	2	0.6
No answer	148	46.4

* Due to more than one choice to these questions, total number induced.

In the repliers to questionnaire from after intervention 10.0% of them mentioned that they have never take information from peer educators and 22.9% mentioned that they have take educational text from peer educators but they haven't any conversation between them. 47% of repliers take the educational text and information from peer educator and 4.1% mentioned that they have not had educational text but they have received information from peer educator. To replied of: "Where or when are you received this information from educator?" 73 number

have mentioned were in dormitory, 102 (32.0%) number in university between their classes and 7 number in restaurant and 2 number in other places.

Table 4.3.14. Distribution of female student's self assessment about this research on your reproductive health enablement (Oromieh University-IRAN 2008-2009).

Self assessment	n	%
More effective	115	36.1
Effective	117	36.7
Not effective	19	6.0
No answer	68	21.3
Total	319	100.0

To replied of: "How are you assess this research on your reproductive health enablement?" It was shown that 36.1% were most effective, 36.7% were effective and only 6.0% were not effective.

4.4. Reproductive health knowledge of study population, before and after intervention.

Table 4.4.15. Distribution of female student's right answers due to the question about reproductive health and reproductive health problem in youth (Oromieh University-IRAN 2008-2009).

Right answers	Before intervention		After intervention		Statistical analysis
	n=381		n=319		
	n	%	n	%	
The target group for reproductive health services are all men and women through their lives.	118	31.0	99	31.0	$K^2=0.007$ $p=0.93$
Gynecological cancer isn't a common reproductive health problem in youth.	107	28.1	159	49.8	$K^2=30.74$ $p=0.00$
Conceal of genital tract infection from sexual partner is not a reproductive right of young people.	203	53.3	224	70.2	$K^2=21.33$ $p=0.00$
Fertility rate is increasing in IRAN.	102	26.8	88	27.6	$K^2=0.20$ $p=0.65$

* There are significant differences (McNemar Test) (95% confidence interval of the difference)

It shows that, percent of correct answers to the question about reproductive health and reproductive health problem in youth have increased after intervention in all matters. Although, correct answers to the questions about target group for reproductive health services and fertility situation in IRAN were low after intervention yet. In spite of, H2 hypothesis "Female students' knowledge score in relating to reproductive health concept and reproductive health problem in young people after intervention will be increased" Was admitted.

Table 4.4.16. Distribution of female student's right answers due to the question about Sexual organs and their structure and function, menstruation and pregnancy (Oromieh University-IRAN 2008-2009).

Right answers	Before intervention n=381		After intervention n=319		Statistical analysis
	n	%	n	%	
Ovaries are not a structure of external genital of women.	161	42.3	216	67.7	$K^2=49.49$ p=0.00
Ovaries are responsible for secretion of female sexual hormones (oestrogen and progesterone) and ovulation.	161	42.3	184	57.7	$K^2=15.53$ p=0.00
Conception is happened in Uterine tube.	59	15.5	108	33.9	$K^2=25.38$ p=0.00
Sperm can be alive in women reproductive organs for 48 hours.	37	9.7	37	11.6	$K^2=0.02$ p=0.90
Ova can be alive after ovulation for 24 hours.	65	17.1	126	39.5	$K^2=37.07$ p=0.00
Brain is controlled menstruation in women.	126	33.1	210	65.8	$K^2=60.09$ p=0.00
Menstruation is happened in uterus.	150	39.4	166	52.0	$K^2=12.20$ p=0.00
The upper normal limit of menarche is 16 years.	130	34.1	158	49.5	$K^2=20.83$ p=0.00
The normal duration of menstrual bleeding is 3-7 days.	277	72.7	276	86.5	$K^2=17.76$ p=0.00
Testis is responsible for secretion of male sexual hormone (testosterone) and production of sperm.	110	28.9	158	49.5	$K^2=23.30$ p=0.00
Nausea and vomiting is not from the symptoms of premenstrual syndrome.	101	26.5	159	49.8	$K^2=39.77$ p=0.00
The normal duration of pregnancy is 40weeks.	52	13.6	112	35.1	$K^2=39.68$ p=0.00
The probability of conception is the highest in 2weeks before next menstruation.	115	30.2	181	56.7	$K^2=46.93$ p=0.00

Table 4.4.16. Continue

Right answers	Before intervention n=381		After intervention n=319		Statistical analysis
	n	%	n	%	
The most suitable age range for pregnancy is 22-34.	221	58.0	270	84.6	$K^2=54.36$ p=0.00
Pregnancy after 18 and before 35 years old is not a high risk pregnancy.	143	37.5	217	68.0	$K^2=58.78$ p=0.00
The most hazardous time for teratogenicity of drugs in pregnancy is the first trimester.	93	24.4	161	50.5	$K^2=47.51$ p=0.00
Antenatal care of pregnancy must be start as soon as pregnancy diagnosed.	201	52.8	264	82.8	$K^2=64.62$ p=0.00
Vaginal delivery is better for normal pregnancy.	213	55.9	268	84.0	$K^2=55.95$ p=0.00

* There are significant differences (McNemar Test) (95% confidence interval of the difference)

Frequency of right answer to the question about Sexual organs and their structure and function, menstruation and pregnancy were induced after intervention in all cases. And about sub hypothesis, H3 hypothesis "Female students' knowledge score in relating to their sexual organs and their structure and function, menstruation and pregnancy after intervention will be increased" Was admitted.

Table 4.4.17. Distribution of female student's right answers due to the question about Family planning concept and contraception methods (Oromieh University-IRAN 2008-2009).

Right answers	Before intervention n=381		After intervention n=319		Statistical analysis
	n	%	n	%	
Family planning is having desired number and desired time of child birthing.	93	24.4	141	44.2	$K^2=27.86$ p=0.00
Resolving of family problem is not a goal of family planning.	148	38.8	200	62.7	$K^2=33.31$ p=0.00
Coitus interrupts is not an effective contraceptive method.	153	40.2	220	69.0	$K^2=51.67$ p=0.00
Inter menstruation bleeding is not from the advantage of IUD.	65	17.1	142	44.5	$K^2=57.45$ p=0.00
The effect of vasectomy does not begin as soon as operation and it is from its disadvantage.	47	12.3	98.0	30.7	$K^2=32.30$ p=0.00
Condom can prevent from sexual transmitted disease too.	98	25.7	161	50.5	$K^2=41.25$ p=0.00
Elimination of worry about another pregnancy is an advantage of tubectomy.	119	31.2	185	58.0	$K^2=41.41$ p=0.00
Condom is a male contraception method.	128	33.6	216	67.7	$K^2=71.74$ p=0.00
Vaseline must not use with the condom for lubricating.	81	21.3	153	48.0	$K^2=49.33$ p=0.00
Oral contraceptive pill doesn't prevent from sexually transmitted disease.	65	17.1	128	40.1	$K^2=45.23$ p=0.00
Inhibition of ovulation is one of the mechanisms of oral contraceptive pill.	57	15.0	78	24.5	$K^2=9.07$ p=0.00

Oral contraceptive pill is suitable for young new married couple.	125	32.8	211	66.1	$K^2=74.34$ p=0.00
Condom can block entering of sperm to vagina.	146	38.3	228	71.5	$K^2=68.45$ p=0.00
Women are not responsible to infertility in all cases.	136	35.7	234	73.4	$K^2=93.49$ p=0.00

* There is significant difference (McNemar Test) (95% confidence interval of the difference)

Frequency of right answer about Family planning concept and contraception methods has improved by plan in all cases after intervention to before it. Then H4 hypothesis "Female students' knowledge in relating to family planning concept and contraception methods after intervention will be increased" Was admitted.

Table 4.4.18. Distribution of female student's right answers due to the question about Genital tract infections, sexual transmitted disease, AIDS and preventive behavior (Oromieh University-IRAN 2008-2009).

Right answers	Before intervention n=381		After intervention n=319		Statistical analysis
	n	%	n	%	
Bad odor of vaginal discharge is abnormal.	70	18.4	163	51.1	$K^2=77.07$ p=0.00
Hepatitis A is not from sexual transmitted infections.	24	6.3	81	25.4	$K^2=37.84$ p=0.00
Genital tract infections are not affected only married women.	105	27.6	184	57.7	$K^2=58.63$ p=0.00
Nausea and vomiting is not a common symptom of sexual transmitted infections.	66	17.3	148	46.4	$K^2=67.13$ p=0.00
Continuous headache is not a sign of AIDS.	39	10.2	63	19.7	$K^2=12.64$ p=0.00
HIV can not transmitted by mouth secretion.	141	37.0	212	66.5	$K^2=61.45$ p=0.00
HIV carrier status can be diagnosed before appearing of symptom.	50	13.1	84	26.3	$K^2=17.47$ p=0.00
Use of drugs can not prevent from AIDS and sexual transmitted infections.	45	11.8	109	34.2	$K^2=47.82$ p=0.00
Washing of internal part of vagina in toilet is not necessary for genital hygiene.	38	10.0	125	39.2	$K^2=60.89$ p=0.00
Washing of underwear in women by water and without any detergent is not correct.	134	35.2	181	56.7	$K^2=34.88$ p=0.00
Pads must be changed after each toilet as possible as.	86	22.6	162	50.8	$K^2=52.08$ p=0.00

* There are significant difference (McNemar Test) (95% confidence interval of the difference)

Percent of right answers about Genital tract infections, sexual transmitted disease, AIDS and preventive behavior has improved significantly after intervention to before it in all questions. Then H5 hypothesis "Female students' knowledge in relating to genital tract infections, sexual transmitted disease, AIDS and preventive behavior about them after intervention will be increased" Was admitted.

Table 4.4.19. The average score of female students in question about reproductive health (Oromieh University-IRAN 2008-2009).

Reproductive health issue	Before intervention	After intervention	Statistical analysis
Reproductive health concept and reproductive health problem in youth	1.39±1.02	1.79±1.03	t=-5.11 p=0.00
Sexual organs and their structure and function, menstruation and pregnancy	6.34±3.93	10.25±3.50	t=-13.82 p=0.00
Family planning concept and contraception methods	3.83±3.59	7.51±3.57	t=-13.89 p=0.00
Genital tract infections, sexual transmitted disease, AIDS and preventive behavior	2.09±2.20	4.73±2.72	t=-14.44 p=0.00
Total of score	13.66±8.84	24.29±9.12	t=-15.85 p=0.00

* There are significant difference (t-Test) (95% confidence interval of the difference)

The average score of students in question about reproductive health concept and reproductive health problem in youth, from 1.39±1.02 before intervention arrived to 1.79±1.03 after intervention. The average score of students in question about Sexual organs and their structure and function, menstruation and pregnancy was 6.34±3.93 before intervention that improved to 10.25±3.50 after intervention. The average of 3.83±3.59 before intervention was arrived to 7.51±3.57 after intervention in question about Family planning concept and contraception methods.

Finally, in Genital tract infections, sexual transmitted disease, AIDS and preventive behavior average marks were arrived 4.73 ± 2.72 from 2.09 ± 2.20 before intervention.

In the plus of them, the average score of all questions in reproductive health issues was 13.66 ± 8.84 before intervention and arrived to 24.29 ± 9.12 after intervention. These data showed that the average score in every issue and totally were improved after intervention significantly.

Then H0 hypotheses means that "Female students' knowledge score in relating to their reproductive health after intervention will not be increased" rejected and H1 hypothesis "Female students' knowledge score in relating to their reproductive health after intervention will be increased" admitted.

4.5. Comparison of study sample's score to reproductive health questions based on independent factors.

Table 4.5.20. Effect of some student's demographics characteristics on the average score of female students in Reproductive health knowledge.

Demographics Characteristics	Average score	
	Before intervention n=381	After intervention n=319
Age(years)		
18-19	11.96±8.57	21.32±8.30
≥20	14.31±8.87	24.76±9.19
Statistical analyze*	t=2.54 p=0.01	t=2.08 p=0.03
Field of study		
Persian language and literature	13.29±8.58	25.43±7.54
English language and literature	17.08±9.85	28.93±9.52
History	12.14±8.25	22.47±8.48
Geography	13.02±7.89	20.73±6.92
Educational sciences	12.39±8.43	22.01±10.07
Statistical analyze**	F=4.349 p=0.002	F= 9.53 p= 0.000
Marital status		
Never married	13.43±8.67	23.87±9.21
Married	16.19±10.27	26.95±8.04
Statistical analyze*	t=1.69 p= 0.09	t= 2.004 p=0.04
Living location until 15 years		
Big cities	15.20±9.53	29.00±10.21
Small City	12.91±8.46	26.81±10.07
Village	13.63±8.53	22.20±7.86
Statistical analyze**	F= 1.6 p= 0.17	F= 7.18 p= 0.000
Settling status		
With family (relatives) in house	15.50±9.51	27.71±9.68
In dormitory, With peers/friends/ students in house***	12.90±8.45	22.26±8.25
Statistical analyze*	t=2.82 p= 0.005	t= -5.261 p= 0.000

*T-test was used

** One-way anova was used

***Sum of in dormitory, with peers/friends/students in house and alone.

Table4.5.20. shows that the students with ages up to 20 years achieve upper score (14.31±8.87before and 24.76±9.19 after intervention) than students with ages

down 20 years (11.96 ± 8.57 before, 21.32 ± 8.30 after intervention). These differences are statistically significant ($p < 0.05$). This table shows that the students in English language and literature field achieve upper score (17.08 ± 9.85 before and 28.93 ± 9.52 after intervention) than other students. One-Way Anova test shows statistically significant differences between group ($p < 0.05$). Also the married students achieve upper score (16.19 ± 10.27 before and 26.95 ± 8.04 after intervention) than the never married students (13.43 ± 8.67 before, 23.87 ± 9.21 after intervention). This difference is statistically significant in after intervention ($p < 0.05$) and those students that live in big cities until 15 years achieve upper score (15.20 ± 9.5385 before and 29.00 ± 10.21 after intervention) than other students. One-Way Anova test shows statistically significant differences between group in after intervention ($p < 0.05$). Those students that live with family (relatives) in house achieve upper score (15.50 ± 9.51 before and 27.71 ± 9.68 after intervention) than the other students (12.90 ± 8.45 before, 22.26 ± 8.25 after intervention) too. These differences are statistically significant ($p < 0.05$).

Table 4.5.21. Effect of educational and job status of student's mother and father on the average score of female students in question about Reproductive health

Educational and Job Status of Mother's and Father's	Average score	
	Before intervention n=381	After intervention n=319
Educational status of mother		
Illiterate	12.84±8.46	23.32±7.84
Only literate/Primary school	12.15±8.42	23.03±8.86
Secondary school	13.20±7.69	23.92±9.75
High school/ diploma	16.15±9.76	26.19±9.87
University degree	16.46±9.78	27.28±9.71
Statistical analyze*	F= 3.38 p=0.01	F= 2.15 p= 0.07
Educational status of father		
Illiterate	12.16±8.47	22.85±7.67
Only literate/Primary school	13.05±8.36	25.04±8.56
Secondary school	10.86±7.68	23.89±8.04
High school/ diploma	14.46±8.71	22.88±9.14
University degree	16.44±9.59	26.69±10.34
Statistical analyze*	F= 1.31 p=0.11	F= 2.13 p= 0.07
Job status of mother		
Employed	16.92±10.41	26.34±10.31
housewife	13.29±8.58	24.01±8.95
Statistical analyze**	t=-2.89 p= 0.004	t= -1.522 p= 0.13

*One-way Anova was used

** t-test was used

Table 4.5.21. shows that the students with the higher educational status of mother (High school/ diploma, University degree) achieve upper score (16.15±9.76, 16.46±9.78 before and 26.19±9.87, 27.28±9.71 after intervention) than the other students. One-Way Anova test shows statistically significant differences between group in before intervention ($p < 0.05$). It means that the higher educational status of mother, the higher achieved score by students, for before intervention and after

intervention too. Also this table shows that with increasing of educational statuses of student's father, the achieved score by students increased. But One-Way Anova test doesn't show statistically significant differences between group ($p > 0.05$) and those students with employed mother achieve upper score (16.92 ± 10.41 before and 26.34 ± 10.31 after intervention) than the students with housewife mothers (13.29 ± 8.58 before, 24.01 ± 8.95 after intervention). These differences are statistically significant in before intervention ($p < 0.05$).

Table 4.5.22. Effect of self assessment knowledge of reproductive health subjects by students on the average score of question about Reproductive health.

Self assessment knowledge of students	Average score	
	Before intervention n=381	After intervention n=319
Reproductive health concept and reproductive health problem in youth		
It is adequate	15.44±9.29	26.39±8.36
It is partly adequate	15.00±9.00	25.39±9.27
It isn't adequate	12.52±8.10	22.88±8.59
Statistical analyze*	F= 3.483 p= 0.032	F=3.298 p=0.038
Sexual organs and their structure and function, menstruation and pregnancy		
It is adequate	16.62±10.15	27.20±8.28
It is partly adequate	15.08±8.65	25.79±8.98
It isn't adequate	12.25±8.04	21.90±8.30
Statistical analyze*	F=5.794 p= 0.003	F=7.426 p=0.001
Family planning concept and contraception methods		
It is adequate	16.39±10.33	29.78±6.47
It is partly adequate	15.26±8.69	24.25±8.96
It isn't adequate	11.68±7.36	20.24±8.52
Statistical analyze*	F= 8.502 p= 0.000	F=22.794 p=0.000
Genital tract infections, sexual transmitted disease, AIDS and preventive behavior		
It is adequate	15.61±9.51	27.79±8.23
It is partly adequate	15.54±9.50	25.82±9.29
It isn't adequate	12.85±7.80	22.56±8.28
Statistical analyze*	F= 4.050 p= 0.018	F=7.524 p=0.001

*One-way Anova was used.

Table4.5.22. shows that the students assessed their knowledge of reproductive health concept and reproductive health problem in youth, adequate or fairly adequate(15.44±9.29, 15.00±9.00 before and 26.39±8.36, 25.39±9.27after intervention) achieved higher score than the students assessed not adequate(12.52±8.10before intervention, 22.88±8.59after intervention). One-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$). Also those students that assessed

their knowledge of sexual organs and their structure and function, menstruation and pregnancy, adequate or fairly adequate (16.62 ± 10.15 , 15.08 ± 8.65 before and 27.20 ± 8.28 , 25.79 ± 8.98 after intervention) achieved higher score than the students assessed not adequate (12.25 ± 8.04 before intervention, 21.90 ± 8.30 after intervention). One-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$). This table shows that the students that assessed their knowledge of family planning concept and contraception methods, adequate or fairly adequate (16.39 ± 10.33 , 15.26 ± 8.69 before and 29.78 ± 6.47 , 24.25 ± 8.96 after intervention) achieved higher score than the students assessed not adequate (11.68 ± 7.36 before intervention, 20.24 ± 8.52 after intervention). One-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$) and finally those students that assessed their knowledge of genital tract infections, sexual transmitted disease, AIDS and preventive behavior, adequate or fairly adequate (15.61 ± 9.51 , 15.54 ± 9.50 before and 27.79 ± 8.23 , 25.82 ± 9.29 after intervention) achieved higher score than the students assessed not adequate (12.85 ± 7.80 before intervention, 22.56 ± 8.28 after intervention). One-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$).

Table 4.5.23. Effect of receiving any information about reproductive health issues up to now, and taking the demography and family planning course by students on the average score of question about reproductive health.

	Average score	
	Before intervention n=381	After intervention n=319
Receiving any information		
Yes	15.05±9.09	24.81±8.88
No	10.61±7.35	17.53±9.07
Statistical analyze*	t=4.984 p= 0.000	t= 3.461 p= 0.001
Taking the course		
Yes	16.23±9.13	24.82±9.06
No	12.23±8.20	24.19±8.66
Statistical analyze*	t=4.268 p= 0.000	t= 0.622 p= 0.534

*t-test was used

Table4.5.23. shows that the students that received any information about reproductive health issues up to now achieve upper score (15.05±9.09 before and 24.81±8.88 after intervention) than the students didn't receive them (10.61±7.35, 17.53±9.07 after intervention). These differences are statistically significant in before intervention and after intervention too ($p < 0.05$). Also this table shows that the students that took the demography and family planning course achieve upper score (16.23±9.13 before and 24.82±9.06 after intervention) than the students didn't take them (12.23±8.20, 24.19±8.66 after intervention). These differences are statistically significant in before intervention ($p < 0.05$).

Table 4.5.24. Effect of receiving educational text that prepared for this research and receiving any information about reproductive health from peer educator by students on the average score of question about Reproductive health.

	Average score
Receiving educational text	
Yes	25.94±8.40
No	20.66±7.82
Statistical analyze*	t= 3.976 p= 0.000
Receiving any information from peer educator	
No, I am not received any information from peer educator	23.94±8.58
Only I received educational text but there isn't any conversation between us	23.68±8.63
I received educational text and information from peer educator	26.26±8.29
I didn't receive educational text but I receive information from peer educator	18.92±7.53
Statistical analyze**	F=4.170 p=0.007

*t-test was used.

** One-way Anova was used.

Table4.5.24. shows that the students that received educational text that prepare for this research achieve upper score (25.94±8.40) than the students didn't receive them (20.66±7.82). This difference are statistically significant ($p < 0.05$). Also this table shows that the students that received educational text that prepare for this research and information from peer educator too, achieve upper score (26.26±8.29) than the other students. One-Way Anova test shows statistically significant differences between group ($p < 0.05$).

5. DISCUSSION

The first step for empowering of youth in related to reproductive and sexual health is increasing their knowledge in this area. Increasing of reproductive and sexual health knowledge's help to youth for right decision making and prevent to expose the high risk sexual behavior by them. Thus doing an applicable research and designing of special educational model for youth are important for finding educational needs of them in this area.

In the literature review the peer education method is a very appropriate way to communicate in the context of reproductive and sexual health. It empowers young people to take action (40, 42, 44-53, 55-58).

In this study were tried to determine educational needs of female students in related to their reproductive and sexual health and then to design a reproductive and sexual health educational and consulting model to empower them.

The obtainable results from empowering of Oromieh University female students in related to their sexual and reproductive health by peer education method were discussed in 4 parts. The first part contained baseline data from study population; the second part contained some data about evaluation of peer education method; the third part reproductive health knowledge of study population, before and after intervention and in the fourth part comparison of study population's score to reproductive health questions based on independent factors were contained.

5.1. Baseline Data from Study Samples

Seventy three percent of students have a person in their family/ relatives that they can comfortably talk about reproductive health related matters. In most cases, this person was mother, next sister and later relatives or friends but unfortunately most of these persons weren't a health profession and they aren't suitable person for consultation. (see Table4.2.6). In the Parwej and et all (2005) study that to measure the effectiveness of a reproductive health education package in improving the knowledge of adolescent girls aged 15-19 years in India (40) only 26% respondents had acquired information from teachers although 64% think that teachers are the best source of information on reproductive health issues. They believed that parents' position is more sensitive and they also lack the confidence and skills to address the psychosocial and sexuality related problems of the adolescents. This comparison state that the accessibility of youth to an appropriate person as educated teacher, doctor, nurse or other health worker especially in the youth friendly clinics can be effective to empower them in related to reproductive and sexual health.

Researchers requested from students that determine their knowledge level of reproductive health. In result 13.6% of students assess their knowledge level of reproductive health concept and reproductive health problem in youth adequate. They assess knowledge level of Sexual organs and their structure and function, menstruation and pregnancy in 11.0% of students adequate. In Family planning concept and contraception methods part, 15.5% of students evaluated their knowledge level adequate. In the fourth part (Genital tract infections, sexual transmitted disease, AIDS and preventive behavior) 11.5% of students evaluated their knowledge level adequate (see Table4.2.7). So a few percent of students assessed their knowledge of reproductive health in all 4 parts adequate. Pinar and Taskin (2008) studied the effectiveness of reproductive and sexual health education program on university students (41). In this study 19.1% from 157 students received any information about reproductive and sexual health and 35.5% assessed their knowledge about this area adequate. This status in compare of present study is better. It is possible that due to their higher socio economic status and high percent of married students in that study. In this study only 63.7% of students were never married in compare of 91.6% of students in our study and only 17.8% lived in

dormitory in compare of 70.6% in our study. Their educational status of mothers and fathers are higher than present study. In this study 31.8% of mothers had university degree, 32.6% had high school diploma and there weren't illiterate mothers. Although 47.8% from fathers had university degree, 29.9% had high school diploma and there weren't illiterate fathers too. 84.4% of mothers were employed or retired and only 16.6% were housewife. In this study 30.7% of mothers and 11.3% of fathers were illiterate and only 7.3% of mothers and 22.3% of fathers had university degree. Although the most of mothers in our study (89.8%) were housewife and hadn't any job and only 9.1% of mothers were employed or retired. These data show that the socio economic status of present population's study was lower than their study. Although generally the married peoples need more to achieve information about reproductive health and the knowledge. These comparison show that first of all most of students assessed their knowledge about RSH inadequate and they need to training in this area. Also the socio economic statues of students can be effect on their knowledge about it, that is to say as lower socio economy of family statues, as the higher need to receive information about RSH.

This study show that 69.6% of students state that receive information about reproductive and sexual health issues up to now (seeTable4.2.8). The first most important source of information on reproductive and sexual health in view of students was mother (33.9%), friends (13.6%), book/magazines (11.8%) and sister (10.8%). For the second source of information, sister (14.2%), friends (13.9%), Books/magazines (13.6%) and mother (9.2%) were student's selection. The third selections in view of students were friends (17.1%), book/ magazines (13.6%), School teacher (7.6%), Radio/Television (6.8%). And finally students select Books/magazines (13.6%), Radio/Television (11.3%), friends (7.3%) and School teacher (6.3%) for the fourth source of information on reproductive and sexual health (see Table4.2.8). To reply of: "Are you interested in learning about reproductive health?" 25.2% of students interested in learning about reproductive health very much, 55.4% of them (majority of them) interested slightly and only 17.6% of students didn't interested in learning at all. So most of them have attention to gain more information about reproductive health (Table4.2.9). Students prefer to receive more information primarily from doctor (22.0%) then mother (18.6%),

book/magazine (9.7%) and nurse/other health worker (7.6%). For the second preferred source of information, Nurses/other health worker (15.5%), doctors (9.4%), School teacher (9.2%) and Books/magazines (7.9%) were student's selection. The third selection that preferred by students were book/ magazines (13.4%), Radio/Television (8.4%), doctors (7.9%) and Nurses/other health worker (7.3%). And finally students preferred Books/magazines (10.5%), Radio/Television (6.6%), Computer/ Internet (6.3%) and friends (5.2%) for the fourth source of information on reproductive and sexual health.

In compared of selected and preferred sources of information about reproductive health in view of population study, can noticed that the friends are one of the most important sources in reproductive and sexual health that students receive their information but they didn't prefer the friends as reliable source. If we notice to preferred sources of information by students, doctor and nurse/other health workers are preferred by them but they didn't receive information from them because of doctors, nurse/health workers didn't available for them. Parwej and et all (2005) study the effectiveness of a reproductive health education package in improving the knowledge of adolescent girls aged 15-19 years in India (40), only 26% respondents had acquired information from teachers although 64% think that teachers are the best source of information on reproductive health issues. Parents' position is more sensitive. They also lack the confidence and skills to address the psychosocial and sexuality related problems of the adolescents. Interface of schools with health professionals is usually not very strong in India. Thus peers remain the only choice from where adolescents learn, who in turn learn from mass media, pornography, magazines etc. Ozcebe, Akin (2000) find out the sources of information of girl adolescents about family planning were mother, sister, television and friends but they preferred to receive information in this field from mother, doctor, sister and friends (42). They received information about sexual transmitted disease from television and sister, but they preferred to receive information in this field from health workers, friends and sister. Also they received information about sexual issue from friends, sister and mother, but preferred to receive from health workers. Finally they received information about menstruation from sister, mother and friends, but they proffered to receive from doctor and sister. In the summary, young girls in this study received

their information about reproductive health from friends (60.4%), television (48.3%), sister (38.5%), mother (35.2%) and book (34.1%) in ordinary that is similar to our finding. Although the our population study is different in view of educational statuses, culture, settling statues and etc from their study but our finding about the source of information about reproductive health are similar.

According to data from study, only 22.0% of students state that the university is the best time for starting reproductive health training and the others thought that the best time for training is before entrance to university. Near to eighty eight percent of students are interested in having a formal course about reproductive health in the university. Students replied to "What topics do you interested learning in this course?" most of them suggested to have: family planning, pregnancy, genital tract hygiene and sexual issues (see Table 4.2.10). As was seen, 68.2% of students didn't answer to this question. This question was open answer's question and in this study, open questions weren't answered adequately. It can be due to talking about SRH issues in this culture is taboo or students don't want to expend time for answering of these questions, then it is better that multiple selection questions were used for SHR issues and similar populations. Pinar, and Taskin (2008) find out that 96.2% of students were interested to receive more information about reproductive health issues (41). They were interested to receive information about family planning (41.2%), sexual transmitted information (28.5%), and structure and function of sexual organ (17.5%) and about pregnancy and delivery (12.8%). In compared of these studies, RSH training must be start from adolescents' age and continue in university and later. Having a formal course about reproductive health in the university is an appropriate opportunity for this training. Although family planning, pregnancy, genital tract hygiene, structure and function of sexual organ and sexual issues are the common issues that students interested to receive information about them.

Thirty seven percent of students take the demography and family planning courses in the university (see Table 4.2.11). Only 7.8% of students think that the content of this course (demography and family planning) is completely adequate for reproductive health related knowledge needs. 14.9% of them think that the content of this course is not adequate for reproductive health related knowledge needs. Most of them (74.5%) said that it is partly adequate for their knowledge needs (See Table

4.2.11). It seems that the content of this course can't to reply of the students' knowledge needs. Taking of this course as compulsory for all university students in Iran is an opportunity for youth, but it seems that the content of this course was revised.

5.2. Some Data About Evaluation of Peer Education Method

In according to tell of 319 answerer, majority of 278 students (87.2%) took educational texts, but 41 of them (12.8%) didn't take it. In among of 319 search units than answered questionnaire, 133(41.7%) of them took consulted in this search by researcher (see Table 4.3.12). Generally consultation issues were personal problems as hymen, virginity and etc then it wasn't seems that there was side effect to this studies' result as confidential factors.

In the repliers to questionnaire from after intervention 10.0% of them mentioned that they have never take information from peer educators and 22.9% mentioned that they have take educational text from peer educators but they haven't any conversation between them. 47% of repliers take the educational text and information from peer educator and 4.1% mentioned that they have not had educational text but they have received information from peer educator (see Table 4.3.13). In sum of 236 students have had minimally one contact with peer educators in our study. Erulkar and et all(2006) did a population-based surveys among over 1000 adolescents aged 10 to 19 years in slum areas of Addis Ababa, Ethiopia (43). An inventory of youth program including youth centers and peer education program was compiled in the study area. Eight peer education program and six youth centers were operating in the study area. Only 27% of boys and 15% of girls had had contact with a peer educator. Evidence presented by Erulkar of the Population Council highlighted a distinct gender gap in access to peer education in Ethiopia, a situation not unusual in many countries. About one of four boys said they had been exposed to peer education, compared to about one of seven girls. The girls with a heavy workload (over 40 hours) were the least likely to have exposure. Among girls, those sexually active were more likely to have contact with the peer educators. The study concluded that girls in general and especially those most at risk, such as domestic workers, were the hardest to reach by peer educators but most in need. In one study in rural area of Turkey that was done by Ozcebe , Akin (44), 56.4% and 61.5% of young girls in the interventional villages answered that they had

known the peer educators. 43.6% and 38.5% of them answered that they hadn't known the peer educator not at all. 28.2% and 50% of these girls in the interventional group (two village) stated that they had talk with peer educators and 48.1% , 64.1% of them hadn't talk with peer educator not at all. From these girls that had talk with peer educators 19.2% and 30.8%(two interventional village) answered that only talked with peer educators, 2.6% and 17.3% received educational text and 2.6% ,26.9% of them stated that peer educators showed them pictures from educational text.

To replied of: "Where or when are you received this information from educator?" 73 students have mentioned were in dormitory, 102 (32.0%)number in university between their classes and 7 students in restaurant and 2 students in other places. The others didn't reply to this question (see Table 4.3.13). To replied of: "How are you assess this research on your reproductive health enablement?" It was shown that 36.1% were most effective, 36.7% were effective and only 6.0% were not effective (Table 4.3.14). In the Ozcebe , Akin 's study(44), nearly half of youth stated that this survey was useful for them. Nearly half of these youth too stated that the survey was useful but they didn't use from it. It seems that the university students in our study assessed the peer education method about reproductive health matters more effective than the youth that lived in rural area. It means that, as similarity in peer groups as effective this model in training of youth about RSH.

5.3. Reproductive Health Knowledge of Study Samples, Before and After Intervention

The results show that, percent of correct answers to the question about reproductive health and reproductive health problem in youth have increased after intervention in all matters. Then H2 hypothesis "Female students' knowledge score in relating to reproductive health concept and reproductive health problem in young people after intervention will be increased" Was admitted ($p < 0.05$). Although, correct answers to the questions about target group for reproductive health services and fertility situation in IRAN were low after intervention yet (see Table 4.4.15).

And about sub hypothesis, H3 hypothesis "Female students' knowledge score in relating to their sexual organs and their structure and function, menstruation and pregnancy after intervention will be increased" Was admitted because of frequency of right answer to the question about Sexual organs and their structure and function, menstruation and pregnancy were induced after intervention in all cases ($p < 0.05$) (See Table 4.4. 16).

Frequency of right answer about Family planning concept and contraception methods has improved by plan in all cases after intervention to before it (see Table 4.4.17). Then H4 hypothesis "Female students' knowledge in relating to family planning concept and contraception methods after intervention will be increased" Was admitted ($p < 0.05$).

Percent of right answers about Genital tract infections, sexual transmitted disease, AIDS and preventive behavior has improved significantly after intervention to before it in all questions.(see Table 4.4.18) Then H5 hypothesis "Female students' knowledge in relating to genital tract infections, sexual transmitted disease, AIDS and preventive behavior about them after intervention will be increased" Was admitted ($p < 0.05$).

The average score of students in question about reproductive health concept and reproductive health problem in youth, from 1.39 ± 1.02 before intervention arrived to 1.79 ± 1.03 after intervention. The average score of students in question about Sexual organs and their structure and function, menstruation and pregnancy was 6.34 ± 3.93 before intervention that improved to 10.25 ± 3.50 after intervention. The average of 3.83 ± 3.59 before intervention was arrived to 7.51 ± 3.57 after intervention in question about Family planning concept and contraception methods. Finally, in Genital tract infections, sexual transmitted disease, AIDS and preventive behavior average marks were arrived 4.73 ± 2.72 from 2.09 ± 2.20 before intervention. In the plus of them, the average score of all questions (47 question=47scores) in reproductive health issues was 13.66 ± 8.84 before intervention and arrived to 24.29 ± 9.12 after intervention. It means that students averagely answered to the questions correct 29% before intervention and 52% after intervention. There is 23% increasing in correct answer of students to question about reproductive health issues.

These data showed that the average score in every issue and totally were improved after intervention significantly (see Table 4.4.19). So H0 hypotheses means that "Female students' knowledge score in relating to their reproductive health after intervention will not be increased" rejected and H1 hypothesis "Female students' knowledge score in relating to their reproductive health after intervention will be increased." admitted.

There is a significant positive effect on knowledge related to reproductive health in the all surveys that we found in literature review. The population studies in some surveys are university students. Pinar and Taskin(2008) studied the effectiveness of reproductive and sexual health education program on university students(41). In this study there was a significant difference in the general scores of the students before (28.76 ± 8.04) and after (47.85 ± 2.97) education ($p=0.000$). Of course this study was assessed immediately after intervention on the contrary of our study that assessment was done one year after the starting of intervention. Also total score was 55 in this study, that it means increasing was 19.09 score equal to 34.7% increase though in our study total score was 47 and increasing was 10.63 equal to 22.6% increase. Comparison between these two studies also show that in the first part (reproductive health concept in youth) added score in interventional group in Pinar and Taskin' study (41) were from 9.05 ± 1.60 before to 11.06 ± 1.00 after intervention. It is 2.01 score from 12 totally score equal to 16.75% addition. In the second part (sexual organs and their structure and function, menstruation and pregnancy) added score in interventional group were from 8.39 ± 2.31 before to 11.92 ± 1.42 after intervention from totally 13 scores in this part that equal to 25.21% addition. In the third part (family planning and contraception method) addition were 4.94 score (from 8.08 ± 3.17 to 13.02 ± 1.31) from totally 15 score in this section is equal to 32.93% addition. And finally in the forth part (sexual transmitted infections) addition was 5.03 score (from 6.91 ± 2.46 to 11.94 ± 1.32) from totally 15 score in this part equal to 33.53% addition. These amounts in our study are followed: in the first part (reproductive health concept in youth) added score was 0.4 from 4 totally score equal to 10% addition. In the second part (sexual organs and their structure and function, menstruation and pregnancy) added score was 3.91 from totally 18 scores in this part that equal to 21.72% addition. In the third part (family planning and

contraception method) addition was 3.68 score from totally 14 score in this section is equal to 26.28% addition. And finally in the forth part (sexual transmitted infections) addition was 2.64 score from totally 11 score in this part equal to 24% addition. In the all part added score in direct education and short assessment (Pinar and Taskin' study) were greater than indirect peer-led education and long term assessment but the most addition was in the third part (family planning and contraception methods) for all two studies. In the other study that was conducted at Dokuz Eylul University in Izmir, Turkey (2008) assessed the training of the peer trainers' course on short and long term basis. In this study the peer trainers' course and peer trainers' knowledge about reproductive health were assessed. According to the pre and immediate post-test results, the training resulted in an increase in knowledge learned by an average of 21.6% ($p < 0.05$). Whereas, according to the immediate post-test and the late post-test which was given six month later, there was a 1.8% decrease in the knowledge and attitude of the participants ($p < 0.05$). In this study, the most increasing in reproductive health knowledge of peer trainers was in family planning section too (37.42%) (45). In the other study by Mevsim and et al (2009) to determine whether students' knowledge of sexual and reproductive health can be improved by means of a thorough continuing education program including peer education and reproductive health counseling (46). The knowledge score of reproductive function, sexually transmitted infections and contraception increased by 17.4%, 10.0% and 11.9% respectively. The total knowledge score increased by 10.2%. The potential of peer counseling as a strategy in culture-specific adolescent pregnancy prevention program was assessed in a sample of 63 female African American 12-16 years of age recruited from four public housing development in Charlottesville, Virginia (US) (1998). A randomized pretest and multiple post-test experimental and comparison group design were used. Adolescents in the experimental group participated in an 8-week peer counseling program. There was a statistically significant increase over baseline in knowledge about reproduction, contraception, and sexuality transmitted disease in the experimental group at the 8-week post-test and score were maintained at the 3 month post-test (47). Also to determine the effectiveness of an educational intervention program on knowledge of reproductive health among female adolescents, an educational intervention study was carried out over a period of one

year. A total 791 rural girls in the age group 16-19 years were randomly selected from coastal villages in Udupi district, Karnataka (2008). A significant increase in overall knowledge after intervention (from 14.4 to 68%, $p < 0.01$) was observed regarding contraception. Knowledge regarding ovulation, first sign of pregnancy and fertilization improved by 37.2 % (48). A quasi-experimental study compared the relative efficacy of teacher instruction alone, peer education alone, and a combination of these two on reproductive health knowledge, attitude, and perceived self-efficacy among secondary schools students in the Ibarapa district of Southwestern Nigeria at 2007. By follow-up survey that carried of after one academic session, however all three intervention schools showed significant knowledge gain, while the control school students' mean score increased slightly. Increase in knowledge was greater (+5.0 points) among the third group (combination of teacher instruction and peer education), followed by the second group (peer education alone) (+3.4 points), and the first group (teacher instruction alone) (+1.4 points) and in control group (0.3 points) (49). In Egypt, another quasi-experimental study (pre-post testing control group) was carried out among 682 female university students living in the university hostels, 354 students represented the intervention group (Ezbet-Saad hostel) who received the program and 328 students constituted the control group (El-Shatby hostel) (2003). The study revealed that no one had satisfactory knowledge level while 61.7 % and 38.3% respectively had fair and poor levels. The low knowledge level was more evident regarding the questions about: the meaning of the term 'reproductive health' (only 5.1% gave correct complete answer), the benefits of premarital examination (only 37.9% reported complete answer), the investigations done for the pregnant woman (only 28.3% gave complete answer) the benefits of breast feeding (only 8.2% reported complete answer), methods of family planning (only 36.4% gave complete answer), side effects of female genital mutilation (only 4% reported complete answer), sexually transmitted diseases and methods of protection (only 11.9% and 3.9% reported complete answer). It was evident that 32.6% had an overall positive attitude level, 46.3% were in the neutral level and 21.1% had a negative level. After the intervention program there was a significant improvement in the majority of knowledge questions from pre to post test in the intervention group and no absolute changes were detected in the control group.

The highest percentage of gain scores (33.3%) was detected for knowledge about the term 'reproductive health' and female genital mutilation. A significant gain score of 25% was observed for the knowledge about sexually transmitted diseases. Also there was a gain of 20% in the median score concerning the knowledge about breast feeding and family planning (50).

A reproductive health education package, developed in consultation with parents, teachers and adolescents, was delivered to randomly sampled classes of two senior secondary school and one school was selected as control (2005). In one school, a nurse conducted 15 sessions for 94 students in three batches using conventional education approach. In another school she conducted sessions for a selected group of adolescents who later disseminated the messages informally to their 84 classmates (peer education model). Reproductive health knowledge scores improved significantly after intervention in conventional education (27.28) and peer education group (20.77) in comparison to the controls (3.64). Post-test scores were not significantly different between peer education group and conventional education group (43.65 and 40.52 respectively) though the time consumed in delivering the peer education intervention was almost one third of time taken to implement conventional education (40). Ozcebe and Akin (2002) conducted a study to evaluate the information level of adolescents, who lived in rural area of Turkey, on reproductive health, and the effectiveness of peer group education model among them (44). The knowledge level of both women and men in intervention villages increased after peer education more than those in control villages. The total information grade of females (n=113) in the intervention villages were 32.8 ± 1.3 before the intervention and 38.0 ± 1.5 after the intervention (n=91). The grades for females in the control villages (n=108) were 30.7 ± 1.2 before the intervention and 30.4 ± 1.5 after the intervention (n=75). The knowledge level of females after the intervention was significantly higher than the level of females before the intervention in the intervention villages and that level was also higher than

the level of females in the control villages at the beginning and the end phase of the study. Speizer and et all (2001) designed a quasi-experimental design to evaluate the peer educator program to promote STD/HIV-preventive behavior in Nkongsamba, Cameroon (52). The study indicates that contact with a peer educator is statistically significantly associated with greater spontaneous knowledge of modern contraception, the symptom of sexually transmitted infections. Golbasi and Taskin (2009) were carried out a quasi-experimental study to evaluate the effectiveness of school-based reproductive health education for adolescent girls on the reproductive knowledge level of the girls (51). Baseline knowledge score of students in study and control group were similar and low ($p > 0.05$). We found that the reproductive health knowledge level of students in the study group increased significantly after the program of education. Post-test knowledge scores (75.03 +/- 13.82) of the students in the study group were higher than those of the control group (36.65 +/- 14.17).

Other various studies have shown the effectiveness of interventions in increasing knowledge of reproductive health (52-57).

Studies conducted in IRAN revealed poor knowledge among youth regarding reproductive and sexual health and the present study concurs with these finding (3-11). Similar finding have been noted in other developing countries as well (50,58,59). although the effectiveness of health education remains controversial, it nevertheless has its merits. Unintentionally it creates an increased awareness among young girls, empowering them to take care of their own health as well as protect themselves from possible reproductive health problems.

Totally in compared of various studies about the effectiveness of RSH educations were found that, direct education can be more effective but it is more expensive. Although it seems that for some issues and for some cultures such as reproductive and sexual issues and between youth specially students, indirect education models as peer education model is more effective than other models. Although some issues such as reproductive and sexual issues were taboo and talking

about them is forbidden among unmarried young women, peer-led education can be more effective, more permanent and less expensive.

5.4. Comparison of Study Population's Score to Reproductive Health Questions Based on Independent Factors

Results of present study shows that the students with ages up to 20 years achieve upper score (14.31 ± 8.87 before, 24.76 ± 9.19 after intervention) than students with ages down 20 years (11.96 ± 8.57 before, 21.32 ± 8.30 after intervention). These differences are statistically significant ($p < 0.05$), (see Table 4.5.20). In the study that was conducted in rural area of Turkey there isn't difference of achieved score between age groups in intervention villages (42).

In the present study found that the students in English language and literature field achieve upper score (17.08 ± 9.85 before, 28.93 ± 9.52 after intervention) than other students. One-Way Anova test shows statistically significant differences between groups ($p < 0.05$), (See Table 4.5.20). It seems that the socio cultural statuses of these students were higher than others however weren't carried of any statistical analysis for this issue. These comparison shows that the socio economic statuses of students can be effect on their knowledge about SRH, that is to say as lower socio economy of family statues, as the higher achieved score about SRH.

The results shows that the married students achieve upper score (16.19 ± 10.27 before and 26.95 ± 8.04 after intervention) than the never married students (13.43 ± 8.67 before, 23.87 ± 9.21 after intervention). This difference is statistically significant in after intervention ($p < 0.05$) (See table 4.5.20). In the study that was conducted by Ozcebe and et all (42) there isn't significant difference of achieved score of reproductive health between married and unmarried girls before intervention (30.6 ± 1.0 , 34.1 ± 1.8 , $P = 0.09$) but these scores after intervention increase to 36.6 ± 1.8 for unmarried girl and 42.5 ± 2.8 for married girls. These results concur with present study. It seems logically that married girls have more knowledge needs about reproductive health issues and in result have more information those unmarried girls.

Present study shows that the students that live in big cities until 15 years achieve upper score (15.20 ± 9.53 before and 29.00 ± 10.21 after intervention) than other

students. One-Way Anova test shows statistically significant differences between group in after intervention ($p < 0.05$), (See Table 4.5.20) In the study that was conducted by Ozcebe and et all (44), the score of women from almost all groups in intervention villages increased after the peer education. There was a significant increase in the score of women, who had been living in the village since their birth (30.4 ± 1.5 before, 38.2 ± 1.8 after intervention $p = 0.0001$) with other girls that live in village only at holidays and weekend (41.8 ± 3.1 before, 41.7 ± 7.8 after intervention $p = 0.21$) or migrated (36.5 ± 3.3 before, 37.0 ± 3.1 after intervention $p = 0.94$) as seen achieved score in before intervention for girls who had been living in the village since their birth was lower than others but the efficacy of intervention in this group was higher than other groups, probably it is due to the higher contact with peer educators in this study. If these findings were compared to before intervention phase, concur with present study. It means that living in big cities even though as temporary can be effective on cultural space of family and it can be effect on knowledge about RSH.

The present study found the students that live with family (relatives) in house achieve upper score (15.50 ± 9.51 before, 27.71 ± 9.68 after intervention) than the other students (12.90 ± 8.45 before, 22.26 ± 8.25 after intervention). These differences are statistically significant ($p < 0.05$), (see Table 4.5.20). Most of these students that lived with their families are from Oromieh city that it is a fairly big city. As it was discussed, living in big cities can be effective on cultural space of family and it can be effect on knowledge about RSH.

Present study shows that the students with the higher educational status of mother (High school/ diploma, University degree) achieve upper score (16.15 ± 9.76 , 16.46 ± 9.78 before, 26.19 ± 9.87 , 27.28 ± 9.71 after intervention) than the other students. One-Way Anova test shows statistically significant differences between groups in before intervention ($p < 0.05$). It means that the higher educational status of mother, the higher achieved score by students, for before intervention and after intervention too (See Table 4.5.21). Also the results shows that with increasing of educational statuses of student's father, the achieved score by students increased. But One-Way Anova test doesn't show statistically significant differences between group

($p > 0.05$), (See Table 4.5.33) On the other hand the results showed that the students with employed mother achieve upper score (16.92 ± 10.41 before, 26.34 ± 10.31 after intervention) than the students with housewife mothers (13.29 ± 8.58 before, 24.01 ± 8.95 after intervention). These differences are statistically significant in before intervention ($p < 0.05$), (See table 4.5.21). In the study that was conducted by Mounir Gm and et all (50) in Egypt found that students of highly or moderately educated mothers and of high social class reported significantly higher knowledge score about premarital examination, age of marriage and breast-feeding than those of non-educated mothers and of low social class that concur with present study. The comparison of data in these study state that the knowledge level of students not only before intervention but also after intervention is depend to socio cultural statues of their families. In the higher statues, knowledge of students about RSH is higher than others.

Present study shows that the students that assessed their knowledge of reproductive health concept and reproductive health problem in youth, adequate or fairly adequate (15.44 ± 9.29 , 15.00 ± 9.00 before, 26.39 ± 8.36 , 25.39 ± 9.27 after intervention) achieved higher score than the students assessed not adequate (12.52 ± 8.10 before intervention, 22.88 ± 8.59 after intervention). One-Way Anova test shows statistically significant differences between groups in before intervention and after intervention too ($p < 0.05$), (See Table 4.5.22) Also the students that assessed their knowledge of sexual organs and their structure and function, menstruation and pregnancy, adequate or fairly adequate (16.62 ± 10.15 , 15.08 ± 8.65 before and 27.20 ± 8.28 , 25.79 ± 8.98 after intervention) achieved higher score than the students assessed not adequate (12.25 ± 8.04 before intervention, 21.90 ± 8.30 after intervention). One-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$), (see Table 4.5.22) Although those students that assessed their knowledge of family planning concept and contraception methods, adequate or partly adequate (16.39 ± 10.33 , 15.26 ± 8.69 before, 29.78 ± 6.47 , 24.25 ± 8.96 after intervention) achieved higher score than the students assessed not adequate (11.68 ± 7.36 before intervention, 20.24 ± 8.52 after intervention). One-Way Anova test shows statistically significant differences between groups in before intervention and after intervention too ($p < 0.05$), (see Table

4.5.22). And finally those students that assessed their knowledge of genital tract infections, sexual transmitted disease, AIDS and preventive behavior, adequate or fairly adequate (15.61 ± 9.51 , 15.54 ± 9.50 before, 27.79 ± 8.23 , 25.82 ± 9.29 after intervention) achieved higher score than the students assessed not adequate (12.85 ± 7.80 before intervention, 22.56 ± 8.28 after intervention). One-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$), (see Table 4.5.22). The comparison of data in this study state that the knowledge level of students not only before intervention but also after intervention is depend to self assessment of students about RSH. It means that those students assessed their knowledge about RSH adequate or fairly adequate, are more interested to receive information about it and then achieved higher score not only before but also after intervention.

The results show that students that received any information about reproductive health issues up to now achieve upper score (15.05 ± 9.09 before, 24.81 ± 8.88 after intervention) than the students didn't receive them (10.61 ± 7.35 , 17.53 ± 9.07 after intervention). These differences are statistically significant in before intervention and after intervention too ($p < 0.05$), (see Table 4.5.23). Although those students that took the demography and family planning course achieve upper score (16.23 ± 9.13 before and 24.82 ± 9.06 after intervention) than the students didn't take them (12.23 ± 8.20 , 24.19 ± 8.66 after intervention). These differences are statistically significant in before intervention ($p < 0.05$), (see Table 4.5.23).

The present study found that students that received educational text that prepare for this research achieve upper score (25.94 ± 8.40) than the students didn't receive them (20.66 ± 7.82). This difference are statistically significant ($p < 0.05$), (see Table 4.5.41) Also those students that received educational text that prepared for this research and information from peer educator too, achieve upper score (26.26 ± 8.29) than the other students. One-Way Anova test shows statistically significant differences between group ($p < 0.05$), (see Table 4.5.24). The comparison of data in this study means that the students that received any information about RSH whether before study as in the process of this study, their knowledge level's of RSH is higher than others. Perhaps receiving of information show that their needs to know about RSH.

Main hypotheses of this study "Female students' knowledge score in relating to their reproductive health after intervention will not be increased" rejected and H1 hypothesis "Female students' knowledge score in relating to their reproductive health after intervention will be increased" admitted. It means that, this study showed the effectiveness of peer education method on RSH empowerment of female's university students and these findings mostly accompanied from other references.

6. CONCLUSION and PROPOSALS

6.1. Conclusion

Conclusions of Descriptive Data

- These data show that the population studies were very young. Most of them were never married. Most of them were from small cities or villages and lived in dormitory or in house with friends not with families. The educational status of their mothers and fathers show that their socio economic statuses were low or medium (See table 4.1.5).
- Two third of students have a person in their family/ relatives that they can easily talk about reproductive health related matters. In most cases, this person was mother, next sister and later relatives or friends but unfortunately most of these persons weren't a health related profession and they aren't suitable person for consultation (See table 4.2.6).
- A few percent of students (less than 15%) assessed their knowledge about sexual and reproductive health in all 4 part adequate (See table 4.2.7).
- Nearly 70% of students state that they receive information about reproductive and sexual health issues up to now. The most important source of information on reproductive and sexual health in view of students were mother , friends, book/magazines, sister, School teacher, Radio/Television (See table 4.2.8).
- Nearly 80% of students interested in learning about reproductive health. Students prefer to receive more information from doctor, mother, book/magazine, and nurse/other health worker, School teacher, Radio/Television, Computer/ Internet and friends (See table 4.2.9).
- Most of students state that the best time for starting reproductive health training is before entrance to university. Up to 85% of students are interested in having a formal course about reproductive health in the university (See table 4.2.10).
- Nearly 40% of students take the demography and family planning courses in the university. Less than 10% of students think that the content of this course

(demography and family planning) is completely adequate for reproductive health related knowledge needs (See table 4.2.11).

Conclusions Related to Peer Education Method

- Near to 88% of students received educational text that prepare for this research from peer educators and 41.7% of them have consulate by researcher during this research (See table 4.3.12).
- Up to 85% of students have had minimally one contact with peer educators and received educational text from them in the present study. Nearly half of them took consulted by researcher. Most of them received this information from peer educator in dormitory and in university between their classes (See table 4.3.13).
- Nearly 75% of students assess this research on your reproductive health enablement effective (See table 4.3.14).

Conclusion related to effectiveness of RSH education and counseling model

- The percents of correct answers to the question about reproductive health and reproductive health problem in youth have increased after intervention in all matters (See table 4.4.15).
- Frequency of right answer to the question about Sexual organs and their structure and function, menstruation and pregnancy were induced after intervention in all cases (See table 4.4.16).
- Frequency of right answer about family planning concept and contraception methods has improved by plan in all cases after intervention to before it (See table 4.4.17).
- The percent of right answers about genital tract infections, sexual transmitted disease, AIDS and preventive behavior has improved significantly after intervention to before it in all questions (See table 4.4.18).
- The average score of students in question about reproductive health concept and reproductive health problem in youth, from 1.39 ± 1.02 before intervention arrived to 1.79 ± 1.03 after intervention ($p < 0.05$) and the average score of students in question about Sexual organs and their structure and function, menstruation and

pregnancy was 6.34 ± 3.93 before intervention that improved to 10.25 ± 3.50 after intervention ($p < 0.05$). The average of 3.83 ± 3.59 before intervention was arrived to 7.51 ± 3.57 after intervention in question about Family planning concept and contraception methods ($p < 0.05$). Finally, in Genital tract infections, sexual transmitted disease, AIDS and preventive behavior average marks were arrived 4.73 ± 2.72 from 2.09 ± 2.20 before intervention ($p < 0.05$). In the plus of them, the average score of all questions (47 question=47scores) in reproductive health issues was 13.66 ± 8.84 before intervention and arrived to 24.29 ± 9.12 after intervention ($p < 0.05$) (See table 4.4.19).

Conclusions Related to Effect of Independent Factors on RSH Knowledge Score

- The students with ages up to 20 years achieve upper score (14.31 ± 8.87 before and 24.76 ± 9.19 after intervention) than students with ages down 20 years (11.96 ± 8.57 before, 21.32 ± 8.30 after intervention). These differences are statistically significant ($p < 0.05$). The students in English language and literature field achieve upper score (17.08 ± 9.85 before, 28.93 ± 9.52 after intervention) than other students. One-Way Anova test shows statistically significant differences between group ($p < 0.05$). The married students achieve upper score (16.19 ± 10.27 before, 26.95 ± 8.04 after intervention) than the never married students (13.43 ± 8.67 before, 23.87 ± 9.21 after intervention). This difference is statistically significant in after intervention ($p < 0.05$). On the other hand the students that live in big cities until 15 years achieve upper score (15.20 ± 9.53 before, 29.00 ± 10.21 after intervention) than other students. One-Way Anova test shows statistically significant differences between group in after intervention ($p < 0.05$). Although the students that live with family (relatives) in house achieve upper score (15.50 ± 9.51 before, 27.71 ± 9.68 after intervention) than the other students (12.90 ± 8.45 before, 22.26 ± 8.25 after intervention). These differences are statistically significant ($p < 0.05$) (See table 4.5.20).
- The students with the higher educational status of mother (High school/ diploma, University degree) achieve upper score (16.15 ± 9.76 , 16.46 ± 9.78 before, 26.19 ± 9.87 , 27.28 ± 9.71 after intervention) than the other students. One-Way Anova test shows statistically significant differences between group in before

intervention ($p < 0.05$). Although the students with the higher educational status of father (High school/ diploma, University degree) achieve upper score but One-Way Anova test doesn't show statistically significant differences between group ($p > 0.05$). Also the students with employed mother achieve upper score (16.92 ± 10.41 before, 26.34 ± 10.31 after intervention) than the students with housewife mothers (13.29 ± 8.58 before, 24.01 ± 8.95 after intervention). These differences are statistically significant in before intervention ($p < 0.05$) (See table 4.5.21).

- The students that assessed their knowledge of reproductive health concept and reproductive health problem in youth, adequate or fairly adequate (15.44 ± 9.29 , 15.00 ± 9.00 before, 26.39 ± 8.36 , 25.39 ± 9.27 after intervention) achieved higher score than the students assessed not adequate (12.52 ± 8.10 before intervention, 22.88 ± 8.59 after intervention), one-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$). Although the students that assessed their knowledge of sexual organs and their structure and function, menstruation and pregnancy, adequate or fairly adequate (16.62 ± 10.15 , 15.08 ± 8.65 before, 27.20 ± 8.28 , 25.79 ± 8.98 after intervention) achieved higher score than the students assessed not adequate (12.25 ± 8.04 before intervention, 21.90 ± 8.30 after intervention), one-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$). Also the students that assessed their knowledge of family planning concept and contraception methods, adequate or fairly adequate (16.39 ± 10.33 , 15.26 ± 8.69 before, 29.78 ± 6.47 , 24.25 ± 8.96 after intervention) achieved higher score than the students assessed not adequate (11.68 ± 7.36 before intervention, 20.24 ± 8.52 after intervention), one-Way Anova test shows statistically significant differences between group in before intervention and after intervention too ($p < 0.05$). Finally the students that assessed their knowledge of genital tract infections, sexual transmitted disease, AIDS and preventive behavior, adequate or fairly adequate (15.61 ± 9.51 , 15.54 ± 9.50 before, 27.79 ± 8.23 , 25.82 ± 9.29 after intervention) achieved higher score than the students assessed not adequate (12.85 ± 7.80 before intervention, 22.56 ± 8.28 after intervention), one-Way Anova test shows statistically

significant differences between group in before intervention and after intervention too ($p < 0.05$) (See table 4.5.22).

- The students that received any information about reproductive health issues up to now achieve upper score (15.05 ± 9.09 before, 24.81 ± 8.88 after intervention) than the students didn't receive them (10.61 ± 7.35 before, 17.53 ± 9.07 after intervention). These differences are statistically significant in before intervention and after intervention too ($p < 0.05$). Also the students that took the demography and family planning course achieve upper score (16.23 ± 9.13 before, 24.82 ± 9.06 after intervention) than the students didn't take them (12.23 ± 8.20 , 24.19 ± 8.66 after intervention). These differences are statistically significant in before intervention ($p < 0.05$), (See table 4.5.23).
- The students that received educational text that prepare for this research achieve upper score (25.94 ± 8.40) than the students didn't receive them (20.66 ± 7.82). This difference are statistically significant ($p < 0.05$). Also the students that received educational text that prepare for this research and information from peer educator too, achieve upper score (26.26 ± 8.29) than the other students. One-Way Anova test shows statistically significant differences between group ($p < 0.05$), (See table 4.5.24).

Hypothesis of Study

- H0 hypotheses means that "Female students' knowledge score in relating to their reproductive health after intervention will not be increased" rejected and H1 hypothesis "Female students' knowledge score in relating to their reproductive health after intervention will be increased" admitted (See table 4.4.19).
- H2 hypothesis "Female students' knowledge score in relating to reproductive health concept and reproductive health problem in young people after intervention will be increased" Was admitted (See table 4.4.15).
- H3 hypothesis "Female students' knowledge score in relating to their sexual organs and their structure and function, menstruation and pregnancy after intervention will be increased" Was admitted (See table 4.4.16).

- H4 hypothesis "Female students' knowledge in relating to family planning concept and contraception methods after intervention will be increased" Was admitted (See table 4.4.17).
- H5 hypothesis "Female students' knowledge in relating to genital tract infections, sexual transmitted disease, AIDS and preventive behavior about them after intervention will be increased" Was admitted (See table 4.4.18).

6.2. Proposals

Proposals to Researchers

- The results of this study generalized to female students of Oromieh University. To extending of similar results for other population as male students or high school students, conducting the similar research was proposed.
- This study assessed the knowledge level of RSH as effectiveness of peer education method, but for assessing of sexual attitude and behavior of population study, designing of other research was proposed.
- This study showed the effectiveness of peer education method on RSH knowledge level, but Carrying of similar research with control group for the better comparing of results was proposed.
- The results of this study generalized to female students of Oromieh University. To extending of similar results for greater populations, designing of similar research as public-based (for example rural area) or those youth that couldn't to enter university and etc was proposed.
- Follow up of this study was nearly one year, conducting of other studies with the longer follow up was proposed.

Proposals to Chancellor of Universities

- A few percent of students assessed their knowledge of reproductive health in all 4 parts adequate, on the other hand most of them are interested in learning

about it, thus designing of special courses, lectures or similar peer-led education in this area strongly was proposed.

- In compared of selected and preferred sources of information about reproductive health in view of population study, can noticed that the friends are one of the most important sources in reproductive and sexual health that students receive their information but they didn't prefer the friends as reliable source thus peer-led education models can be effect for empowering of university students about their RH and strongly was proposed.
- If were noticed to preferred sources of information by students, doctor and nurse/other health workers are mostly preferred by them. Establish of youth friendly reproductive health services with consulting unit in the all universities were proposed.
- Book/magazine is one of the most important sources that selected and preferred by students. Supply of educational text about reproductive health as the students those are out of health related field can read and understand the content of them and presented of these materials in library and bookshop of universities was proposed.
- Computer/ Internet were one of the preferred sources of information about RH by students. Designing of a website, special to reproductive and sexual health problem of students in the universities was proposed.
- Only a few of students think that the content of demography and family planning course is completely adequate for reproductive health related knowledge needs. It seems that the content of this course can't to reply of the students' knowledge needs. Revised of content of this course and use of professional educators for them was proposed.
- The taking of this course as compulsory for all university students in Iran is a opportunity for youth. Presented the demography and family planning course in the first semester (as soon as to entrance of youth to university) by force can be effect to prevent of high risk sexual behavior in this period.

- Students replied to "What topics do you interested learning in this course?" most of them suggested to have: family planning, pregnancy, genital tract hygiene and sexual issues. Increasing in correct answer of students to question about Family planning concept and contraception methods and Genital tract infections, sexual transmitted disease, AIDS and preventive behavior are more than other parts, so this educational model is appropriate for student's knowledge needs and carrying of similar educational model was proposed.
- The present study found the students that live in dormitories and lived in small cities or villages until 15 years achieve lower score than the other students, so Presenting of special education program in dormitories for students those live far from family and came of from small cities or village because of these students are exposed to higher sexual behavioral risk strongly was proposed.

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APPENDIX

Appendix.1. Pre test

The Questionnaire of Female Student's Knowledge In Related To Their Sexual and Reproductive Health

Dear student

This tool designed to assessment of your sexual and reproductive health knowledge and I hope the answers to these questions will help university to improve reproductive health education and counseling services and to empower students in this field as a result. If you agree to participate in the survey, please answer to this questionnaire carefully. Please don't write down your name. Your answers will be kept strictly confidential. Your contribution is appreciated.

I- Demographic data

Date:

Date of your entry to university

Field of study.....

Please answer questions no 1-14 about you.

1- Your age in completed years [][]

2- Your marital status?

- Never married
- Married
- Engaged
- Widowed or Divorced
- Other (please specify).....

3- For most of the time until 15 years old where you live in?

Province.....

City.....

Village.....

4- Your settling status?

- Alone
- With family (relatives) in house

- With peers/friends/ students in dormitory
- with peers/friends/ students in house
- Other (please specify).....

5- Educational status of your mother?

- Illiterate
- Only literate/Primary school
- Secondary school
- High school/ diploma
- University degree

6- Job status of your mother?

- Employed
- Retired
- Housewife
- Other (please specify)

7- Educational status of your father?

- Illiterate
- Only literate/Primary school
- Secondary school
- High school/ diploma
- University degree

8- Job status of your father?

- Employed
- Retired
- Unemployed
- Other (please specify)

9- Is there anyone in your family /relatives that you can comfortably talk about puberty, menstruation and other reproductive health-related matters with him/her?

- YES
- NO

10- Would you please specify them? (Mother, father, sister or)

11- Would you please specify their profession?

12- Would you please determine your knowledge level of reproductive health?
(Please answer separately for each issue.)

	It is adequate	It is fairly adequate	It isn't adequate
Reproductive health concept and reproductive health problem in youth			
Sexual organs and their structure and function, menstruation and pregnancy			
Family planning concept and contraception methods			
Genital tract infections, sexual transmitted disease, AIDS and preventive behavior			

13- Do you receive any information about reproductive and sexual health issues up to now?

- Yes
- Yes but a few
- No

14- Would you please ordinate four of the most important informational sources on reproductive and sexual health from the list below? (The most important with number 1 and then 2, 3 and 4)

- School teacher Mother
- Father Brother
- Sister Other family members/Relatives
- Friends Doctors
- Nurses/other health worker Books/magazines
- Films/Videos Computer/Internet

Other (Specify) I don't ask everybody

15 -Are you interested in learning about reproductive health?

Very much Slightly Not at all

16 - From whom, or how, would you prefer to have received more information on this topic? Would you please ordinate four of the most important informational sources from the list below? (The most important with number 1 and then 2, 3 and 4)

- | | |
|---|---|
| <input type="checkbox"/> School teacher | <input type="checkbox"/> Mother |
| <input type="checkbox"/> Father | <input type="checkbox"/> Brother |
| <input type="checkbox"/> Sister | <input type="checkbox"/> Other family members/Relatives |
| <input type="checkbox"/> Friends | <input type="checkbox"/> Doctors |
| <input type="checkbox"/> Nurses/other health worker | <input type="checkbox"/> Books/magazines |
| <input type="checkbox"/> Films/Videos | <input type="checkbox"/> Computer/Internet |
| <input type="checkbox"/> Other (Specify) | |
| <input type="checkbox"/> I don't ask everybody | |

17 -In your opinion what is the best time for starting reproductive health training?

- Primary school Guide school High school
- University Other (please specify)

18- Are you interested in having a formal course about reproductive health in the university?

Yes No

19- If yes what topics do you interested learning in this course? Please write them down.

.....

20- Did you ever take the demography and family planning course in the university ?

Yes No

21- If yes, do you think it is adequate the content of this course for your reproductive health related knowledge needs?

Completely adequate Fairly adequate Not adequate

From question number 22 to 68 please select only one choice for each question.

II- Reproductive health concept and reproductive health problem in youth

22 - Which of the following is the target group for reproductive health services?

- Adolescence
- Woman aged 15-49years.
- Pre- and post menopausal women
- All men and women through their lives.
- Women through their lives.

23- Which of the following **isn't** a common reproductive health problem in youth?

- Early pregnancy
- Illegal abortion
- Sexual transmitted infections
- Low level of young people's knowledge about reproductive and sexual health
- Gynaecological cancer

24- Which of the following **is not** a reproductive right of young people?

- The right to freedom of thought
- The right to protect oneself and to be protected by others.
- The right to know reproductive and sexual health issues.
- The right to receive reproductive health services.
- The right to conceal of genital tract infection from sexual partner.

25 - Which one is true about the fertility situation in IRAN?

- Fertility rate is increasing
- Fertility rate is decreasing
- Fertility rate is not changing
- Population number is decreasing
- The birth and death rate are increasing.

III- Sexual organs and their structure and function, menstruation and pregnancy

26- Which of the following **is not** a structure of external genital of women?

- Ovaries
- Clitoris
- Labia major
- Labia minor
- Hymen

27- Which of the following organ is responsible for secretion of female sexual hormones (oestrogen and progesterone) and ovulation?

- Uterus
- Ovaries
- Uterine tube
- Vagina
- Clitoris

28- Where does conception happened?

- Uterine tube
- Ovaries
- Uterus
- Vagina
- Abdominal cavity

29- How many hours can sperm be alive in women reproductive organs maximum?

- 12 hours
- 24 hours
- 36 hours
- 48 hours
- 72 hours

30- How many hours can ova be alive after ovulation maximum?

- 12 hours
- 24 hours
- 36 hours
- 48 hours
- 72 hours

31- Which of the following organ controlles menstruation in women?

- Heart
- Kidney
- Liver

- Lungs
- Brain

32- Where does menstruation happened?

- Uterine tube
- Ovaries
- Uterus
- Vagina
- Abdominal cavity

33- Which of the following is correct about the upper normal limit of menarche?

- 12 years
- 13 years
- 14 years
- 15 years
- 16 years

34- Which of the following is correct about the normal duration of menstrual bleeding?

- 1-2 days
- 3-7 days
- 8-10 days
- 12-13 days
- 14-15 days

35- Which of the following organ is responsible for secretion of male sexual hormone (testosterone) and production of sperm?

- vasa deferentia
- scrotum
- seminal vesicle
- testis
- prostate

36- Which of the following is not from the symptoms of premenstrual syndrome?

- Increasing appetite
- Acne
- Abdominal distension
- Enlargement and increasing of breast sensitivity.
- Nausea and vomiting

37- Which of the following is correct about the normal duration of pregnancy?

- 20 weeks
- 25 weeks
- 30 weeks

35 weeks

40 weeks

38- In which time of period the probability of conception is the highest?

2 weeks before next menstruation

As soon as terminating of menstrual bleeding.

The first day of menstruation

During of menstruation

Before beginning of menstrual bleeding

39 - Which of the following is the most suitable age range for pregnancy?

16-20 years

17-21 years

22-34 years

26-38 years

35-40 years

40- Which of the following is not a high risk pregnancy?

The first pregnancy at 30 years old

Less than 2 years interval between two pregnancy

Pregnancy before 18 and after 35 years old

4 or more than 4 pregnancies

Obese and excessive thinness pregnant women

41- What is the most hazardous time for teratogenicity of drugs in pregnancy?

The last trimester

In the middle of pregnancy

The first trimester

The last two month of pregnancy

The last month of pregnancy

42- When the antenatal care of pregnancy must be start?

When there is a problem

As soon as pregnancy diagnosed

Only for delivery

It is unnecessary for a healthy pregnant mother

the last trimester

43- Which of the following way is better for normal delivery?

Vaginal Delivery

Caesarean with general anaesthesia

Operative vaginal delivery(vantoz, forceps)

Caesarean with spinal anaesthesia

I don't know

Family planning concept and contraception methods

44- Which of the following is correct about the family planning concept?

- Women should not to born more than two children
- Having desired number and desired time of child birthing.
- Attempt to reducing of country population
- Attempt to resolve family problem
- Attempt to increase contraception usage.

45- Which of the following is not a goal of family planning?

- Preventing of unwanted pregnancy
- Adequate birth spacing
- Treatment of infertility
- Promotion of sexual health
- Resolving of family problem

46- Which of the following **is not** an effective contraceptive method?

- Intra uterine device (IUD)
- Condom
- Coitus interrupts
- Oral contraceptive pill
- Tubectomy

47- Which of the following **is not** from the advantage of IUD ?

- It is an effective method of contraception
- It has not any interfere with sex
- It is long acting contraception method
- It causes inter menstruation bleeding
- Fertility is become normal as soon as after removing of IUD

48- Which of the following **is not** an advantage of vasectomy?

- Hospitalization and general anesthesia is not needed.
- It does not affect sexual health ,desire and ability of men
- It is a reliable and safe method
- It is not any interfere with intercourse.
- its effect begins as soon as after operation

49- Which of the following contraception method **can** prevent from sexual transmitted disease too?

- Tubectomy
- Vasectomy
- Oral contraceptive pill
- Condom

Intra uterine device

50- Which of the following **is** an advantage of tubectomy?

- Prevention of uterine cancer
- Treatment of irregular menstruation
- Regulation of ovulation
- Prevention of sexually transmitted disease
- Elimination of worry about another pregnancy.

51- Which of the following **is** a male contraception method?

- Injectable hormonal contraception
- Intra uterine device
- Oral contraceptive pill
- Condom
- Spermicide

52- Which of the following **is not** correct about the condom usage?

- It is necessary to use a new condom for each sex
- It is necessary to use condom before penetration
- It is necessary to control expiry date of condom
- It is necessary to remove condom before ending of erection.
- It is necessary to use Vaseline with the condom for lubricating.

53- Which of the following **is not** an advantage of oral contraceptive pill?

- In case of regular taking it is an effective contraceptive method
- It can prevent uterine and ovarian cancer
- It regulates menstruation cycle.
- It reduces dysmenorrhea
- It prevents sexually transmitted disease

54- Which of the following **is** correct about mechanism of oral contraceptive pill?

- Inhibition of ovulation
- Destruction of ova
- It can block entering of sperms into vagina.
- It can block the sperms movement in vagina
- Destruction of sperm

55- Which method do you think is most suitable for young new married couple?

- Norplant
- Intra uterine device
- Tubectomy
- Oral contraceptive pill
- Vasectomy

56- Which of the following **is** correct about the contraception mechanism of condom?

- It is destroying the sperms
- It can block entering of sperm to vagina
- It can reduce sexual desire
- It can inhibited ovulation
- It can shorten life period of ovum in the uterus

57- Which of the following **is** incorrect about infertility?

- Only women responsible to infertility.
- Infertility can be treated.
- It is necessary to referring the couple with together to physician in order to treat infertility.
- In vitro fertilization is a progressive technique for treatment of infertility.
- Emotional stress can be cause infertility too.

Genital tract infections, sexual transmitted disease, AIDS and preventive behavior

58- Which of the following **is** incorrect about vaginal discharge?

- There is some secretion in vagina from puberty to menopause normally.
- Amount and characteristic of vaginal secretion was changed during a cycle.
- Bad odor of secretion is normal.
- Amount of secretion increase in the middle of cycle.
- Secretion is colorless and shining.

59- Which of the following **is not** from sexual transmitted infections?

- Syphilis
- Hepatitis A
- Hepatitis B
- AIDS
- Human Papiloma Virus

60- Which of the following **is** incorrect about genital tract infections?

- Untreated infections can be caused serious complication
- They are affected only married women
- Vagina has defensive mechanism against them normally.
- Yellow to green vaginal discharge is a sign of genital tract infection.
- Untreated infections can cause infertility.

61- Which of the following **is** not a common symptom of sexual transmitted infections?

- Abnormal vaginal discharge

- Nausea and vomiting
- Dysuria
- Redness and inflammation of genital tract
- Disparunia

62- Which of the following **is** not a sign of AIDS?

- Continuous fatigue and weakness
- Notable weight loss during a month
- Continuous or intermittent fever
- Continuous headache
- Continuous or intermittent diarrhea

63- In which of the following body fluid was not found HIV?

- Vaginal discharge
- Mouth secretion
- Mother milk
- Semen
- Blood

64- Which of the following **is** incorrect about AIDS?

- There isn't any way to diagnose HIV carrier status before appearing of symptom.
- Aids can be transmitted from a mother to her child in pregnancy.
- It is possible that there isn't any symptom until 8-10 years after HIV contamination.
- The safest way for preventing of HIV from sexual relation is condom use.
- It can not be transmitted by sharing the dishes.

65- Which of the following **is not** correct on preventing of AIDS and sexual transmitted infections?

- Avoid sex with people that have sexual transmitted infections
- Avoid sex with prostitutes
- Have only one sex partner
- Use condom
- Use drugs that prevent sexual transmitted infections

66- Which of the following behaviour **is not** necessary for genital hygiene?

- Hand washing before and after toilet.
- Washing of internal part of vagina in toilet.
- Drying of genitalia with toilet paper after washing
- Washing of genitalia from front to back
- Avoid touching of fore genitalia after washing of back part of perinea.

67- Which of the following **is** not correct about under wear in women?

- It is better that underwear is made from cotton.
- Stretch and tight underwear is not suitable.
- It must be washed by water and without any detergent.
- It must be changed everyday.
- It is better that to dry by sunlight or to iron after drying.

68- Which of the following **is** correct about genital hygiene?

- Playing sport can be harmful during a period.
- During periods, taking a shower after going to the toilet can cause disease.
- During their period, girls should not take showers.
- Pads must be changed after each toilet if possible.
- Weekly change of under wear is adequate.

69- Are you attended in any informal student society in the university?

Yes (please write name of them and duration that you actively participated in them).....

No

70- Are you interested attending in this work as peer educator of your friends?-

Yes

No

71- If yes please write your telephone number and what time that you can attend in this work.

.....

Thank you

Appendix.2. Post Test

The Questionnaire of Female Student's Knowledge In Related To Their Sexual And Reproductive Health.

Dear student

This tool designed to assessment of your sexual and reproductive health knowledge and I hope the answers to these questions will help university to improve reproductive health education and counseling services and to empower students in this field as a result. If you agree to participate in the survey, please answer to this questionnaire carefully. Please don't write down your name. Your answers will be kept strictly confidential. Your contribution is appreciated.

I- Demographic data

Date:

Date of your entry to university

Field of study.....

Please answer questions no 1-14 about you.

1-Your age in completed years [__|__]

2- Your marital status?

- Never married
- Married
- Engaged
- Widowed or Divorced
- Other (please specify).....

3- For most of the time until 15 years old where you live in?

Province.....

City.....

Village.....

4- Your settling status?

- Alone
- With family (relatives) in house

- With peers/friends/ students in dormitory
- with peers/friends/ students in house
- Other (please specify).....

5- Educational status of your mother?

- Illiterate
- Only literate/Primary school
- Secondary school
- High school/ diploma
- University degree

6- Job status of your mother?

- Employed
- Retired
- Housewife
- Other (please specify)

7- Educational status of your father?

- Illiterate
- Only literate/Primary school
- Secondary school
- High school/ diploma
- University degree

8- Job status of your father?

- Employed
- Retired
- Unemployed
- Other (please specify)

9- Is there anyone in your family /relatives that you can comfortably talk about puberty, menstruation and other reproductive health-related matters with him/her?

- YES
- NO

10- Would you please specify them? (Mother, father, sister or)

11- Would you please specify their profession?

12- Would you please determine your knowledge level of reproductive health?
(Please answer separately for each issue.)

	It is adequate	It is fairly adequate	It isn't adequate
Reproductive health concept and reproductive health problem in youth			
Sexual organs and their structure and function, menstruation and pregnancy			
Family planning concept and contraception methods			
Genital tract infections, sexual transmitted disease, AIDS and preventive behavior			

13- Do you receive any information about reproductive and sexual health issues up to now?

- Yes
- Yes but a few
- No

14- Would you please ordinate four of the most important informational sources on reproductive and sexual health from the list below? (The most important with number 1 and then 2, 3 and 4)

- School teacher Mother
- Father Brother
- Sister Other family members/Relatives
- Friends Doctors
- Nurses/other health worker Books/magazines
- Films/Videos Computer/Internet

- Other (Specify) I don't ask everybody

15 -Are you interested in learning about reproductive health?

- Very much Slightly Not at all

16 - From whom, or how, would you prefer to have received more information on this topic? Would you please ordinate four of the most important informational sources from the list below? (The most important with number 1 and then 2, 3 and 4)

- School teacher Mother
 Father Brother
 Sister Other family members/Relatives
 Friends Doctors
 Nurses/other health worker Books/magazines
 Films/Videos Computer/Internet
 Other (Specify) I don't ask everybody

17 -In your opinion what is the best time for starting reproductive health training?

- Primary school Guide school
 High school University
 Other (please specify)

18- Are you interested in having a formal course about reproductive health in the university?

- Yes
 No

19- If yes what topics do you interested learning in this course? Please write them down.....

20- Did you ever take the demography and family planning course in the university ?

- Yes No

21- If yes, do you think it is adequate the content of this course for your reproductive health related knowledge needs?

- Completely adequate Fairly adequate Not adequate

From question number 22 to 68 please select only one choice for each question.

II- Reproductive health concept and reproductive health problem in youth

22 - Which of the following is the target group for reproductive health services?

- Adolescence
- Woman aged 15-49years.
- Pre- and post menopausal women
- All men and women through their lives.
- Women through their lives.

23- Which of the following **isn't** a common reproductive health problem in youth?

- Early pregnancy
- Illegal abortion
- Sexual transmitted infections
- Low level of young people's knowledge about reproductive and sexual health
- Gynaecological cancer

24- Which of the following **is not** a reproductive right of young people?

- The right to freedom of thought
- The right to protect oneself and to be protected by others.
- The right to know reproductive and sexual health issues.
- The right to receive reproductive health services.
- The right to conceal of genital tract infection from sexual partner.

25 - Which one is true about the fertility situation in IRAN?

- Fertility rate is increasing
- Fertility rate is decreasing
- Fertility rate is not changing
- Population number is decreasing
- The birth and death rate are increasing.

III- Sexual organs and their structure and function, menstruation and pregnancy

26- Which of the following **is not** a structure of external genital of women?

- Ovaries
- Clitoris
- Labia major
- Labia minor
- Hymen

27- Which of the following organ is responsible for secretion of female sexual hormones (oestrogen and progesterone) and ovulation?

- Uterus
- Ovaries
- Uterine tube
- Vagina
- Clitoris

28- Where does conception happened?

- Uterine tube
- Ovaries
- Uterus
- Vagina
- Abdominal cavity

29- How many hours can sperm be alive in women reproductive organs maximum?

- 12 hours
- 24 hours
- 36 hours
- 48 hours
- 72 hours

30- How many hours can ova be alive after ovulation maximum?

- 12 hours
- 24 hours
- 36 hours
- 48 hours
- 72 hours

31- Which of the following organ controlles menstruation in women?

- Heart
- Kidney
- Liver

- Lungs
- Brain

32- Where does menstruation happened?

- Uterine tube
- Ovaries
- Uterus
- Vagina
- Abdominal cavity

33- Which of the following is correct about the upper normal limit of menarche?

- 12 years
- 13 years
- 14 years
- 15 years
- 16 years

34- Which of the following is correct about the normal duration of menstrual bleeding?

- 1-2 days
- 3-7 days
- 8-10 days
- 12-13 days
- 14-15 days

35- Which of the following organ is responsible for secretion of male sexual hormone (testosterone) and production of sperm?

- vasa deferentia
- scrotum
- seminal vesicle
- testis
- prostate

36- Which of the following is not from the symptoms of premenstrual syndrome?

- Increasing appetite
- Acne
- Abdominal distension
- Enlargement and increasing of breast sensitivity.
- Nausea and vomiting

37- Which of the following is correct about the normal duration of pregnancy?

- 20 weeks
- 25 weeks
- 30 weeks

35 weeks

40 weeks

38- In which time of period the probability of conception is the highest?

2 weeks before next menstruation

As soon as terminating of menstrual bleeding.

The first day of menstruation

During of menstruation

Before beginning of menstrual bleeding

39 - Which of the following is the most suitable age range for pregnancy?

16-20 years

17-21 years

22-34 years

26-38 years

35-40 years

40- Which of the following is not a high risk pregnancy?

The first pregnancy at 30 years old

Less than 2 years interval between two pregnancy

Pregnancy before 18 and after 35 years old

4 or more than 4 pregnancies

Obese and excessive thinness pregnant women

41- What is the most hazardous time for teratogenicity of drugs in pregnancy?

The last trimester

In the middle of pregnancy

The first trimester

The last two month of pregnancy

The last month of pregnancy

42- When the antenatal care of pregnancy must be start?

When there is a problem

As soon as pregnancy diagnosed

Only for delivery

It is unnecessary for a healthy pregnant mother

the last trimester

43- Which of the following way is better for normal delivery?

Vaginal Delivery

Caesarean with general anaesthesia

Operative vaginal delivery(vantoz, forceps)

Caesarean with spinal anaesthesia

I don't know

Family planning concept and contraception methods

44- Which of the following is correct about the family planning concept?

- Women should not to born more than two children
- Having desired number and desired time of child birthing.
- Attempt to reducing of country population
- Attempt to resolve family problem
- Attempt to increase contraception usage.

45- Which of the following is not a goal of family planning?

- Preventing of unwanted pregnancy
- Adequate birth spacing
- Treatment of infertility
- Promotion of sexual health
- Resolving of family problem

46- Which of the following **is not** an effective contraceptive method?

- Intra uterine device (IUD)
- Condom
- Coitus interrupts
- Oral contraceptive pill
- Tubectomy

47- Which of the following **is not** from the advantage of IUD ?

- It is an effective method of contraception
- It has not any interfere with sex
- It is long acting contraception method
- It causes inter menstruation bleeding
- Fertility is become normal as soon as after removing of IUD

48- Which of the following **is not** an advantage of vasectomy?

- Hospitalization and general anesthesia is not needed.
- It does not affect sexual health ,desire and ability of men
- It is a reliable and safe method
- It is not any interfere with intercourse.
- its effect begins as soon as after operation

49- Which of the following contraception method **can** prevent from sexual transmitted disease too?

- Tubectomy
- Vasectomy
- Oral contraceptive pill
- Condom

Intra uterine device

50- Which of the following **is** an advantage of tubectomy?

- Prevention of uterine cancer
- Treatment of irregular menstruation
- Regulation of ovulation
- Prevention of sexually transmitted disease
- Elimination of worry about another pregnancy.

51- Which of the following **is** a male contraception method?

- Injectable hormonal contraception
- Intra uterine device
- Oral contraceptive pill
- Condom
- Spermicide

52- Which of the following **is not** correct about the condom usage?

- It is necessary to use a new condom for each sex
- It is necessary to use condom before penetration
- It is necessary to control expiry date of condom
- It is necessary to remove condom before ending of erection.
- It is necessary to use Vaseline with the condom for lubricating.

53- Which of the following **is not** an advantage of oral contraceptive pill?

- In case of regular taking it is an effective contraceptive method
- It can prevent uterine and ovarian cancer
- It regulates menstruation cycle.
- It reduces dysmenorrhea
- It prevents sexually transmitted disease

54- Which of the following **is** correct about mechanism of oral contraceptive pill?

- Inhibition of ovulation
- Destruction of ova
- It can block entering of sperms into vagina.
- It can block the sperms movement in vagina
- Destruction of sperm

55- Which method do you think is most suitable for young new married couple?

- Norplant
- Intra uterine device
- Tubectomy
- Oral contraceptive pill
- Vasectomy

56- Which of the following **is** correct about the contraception mechanism of condom?

- It is destroying the sperms
- It can block entering of sperm to vagina
- It can reduce sexual desire
- It can inhibited ovulation
- It can shorten life period of ovum in the uterus

57- Which of the following **is** incorrect about infertility?

- Only women responsible to infertility.
- Infertility can be treated.
- It is necessary to referring the couple with together to physician in order to treat infertility.
- In vitro fertilization is a progressive technique for treatment of infertility.
- Emotional stress can be cause infertility too.

Genital tract infections, sexual transmitted disease, AIDS and preventive behavior

58- Which of the following **is** incorrect about vaginal discharge?

- There is some secretion in vagina from puberty to menopause normally.
- Amount and characteristic of vaginal secretion was changed during a cycle.
- Bad odor of secretion is normal.
- Amount of secretion increase in the middle of cycle.
- Secretion is colorless and shining.

59- Which of the following **is not** from sexual transmitted infections?

- Syphilis
- Hepatitis A
- Hepatitis B
- AIDS
- Human Papiloma Virus

60- Which of the following **is** incorrect about genital tract infections?

- Untreated infections can be caused serious complication
- They are affected only married women
- Vagina has defensive mechanism against them normally.
- Yellow to green vaginal discharge is a sign of genital tract infection.
- Untreated infections can cause infertility.

61- Which of the following **is** not a common symptom of sexual transmitted infections?

- Abnormal vaginal discharge
- Nausea and vomiting
- Dysuria
- Redness and inflammation of genital tract
- Disparunia

62- Which of the following **is** not a sign of AIDS?

- Continuous fatigue and weakness
- Notable weight loss during a month
- Continuous or intermittent fever
- Continuous headache
- Continuous or intermittent diarrhea

63- In which of the following body fluid was not found HIV?

- Vaginal discharge
- Mouth secretion
- Mother milk
- Semen
- Blood

64- Which of the following **is** incorrect about AIDS?

- There isn't any way to diagnose HIV carrier status before appearing of symptom.
- Aids can be transmitted from a mother to her child in pregnancy.
- It is possible that there isn't any symptom until 8-10 years after HIV contamination.
- The safest way for preventing of HIV from sexual relation is condom use.
- It can not be transmitted by sharing the dishes.

65- Which of the following **is not** correct on preventing of AIDS and sexual transmitted infections?

- Avoid sex with people that have sexual transmitted infections
- Avoid sex with prostitutes
- Have only one sex partner
- Use condom
- Use drugs that prevent sexual transmitted infections

66- Which of the following behaviour **is not** necessary for genital hygiene?

- Hand washing before and after toilet.
- Washing of internal part of vagina in toilet.
- Drying of genitalia with toilet paper after washing

- Washing of genitalia from front to back
- Avoid touching of fore genitalia after washing of back part of perinea.

67- Which of the following **is** not correct about under wear in women?

- It is better that underwear is made from cotton.
- Stretch and tight underwear is not suitable.
- It must be washed by water and without any detergent.
- It must be changed everyday.
- It is better that to dry by sunlight or to iron after drying.

68- Which of the following **is** correct about genital hygiene?

- Playing sport can be harmful during a period.
- During periods, taking a shower after going to the toilet can cause disease.
- During their period, girls should not take showers.
- Pads must be changed after each toilet if possible.
- Weekly change of under wear is adequate.

69- Are you attended in this research as peer educator?-

Yes

No

70- Are you received educational text that prepare for this research?-

Yes

No

71- Have you consulted by researcher during this research?-

Yes

No

72- Are you received any information about reproductive health from peer educator?-

No, I am not received any information from peer educator

Only I received educational text but there isn't any conversation between us

I received educational text and information from peer educator

I didn't receive educational text but I receive information from peer educator

73- Where or when are you received this information from educator?-

In dormitory

In school between

In self services

Other

74- How are you assess this research on your reproductive health enabling?-

More effective Effective Not effective

Thank you

Appendix. 3.

Educational Plan of Reproductive Health For Students

Goal:

Empowering of Oromieh university female students in related to their sexual and reproductive health.

Objectives:

- 1- Determining of female students knowledge in relating to reproductive health concept and reproductive health problem in young people, before and after intervention.
- 2- Determining of female students knowledge in relating to their sexual organs and their structure and function, menstruation and pregnancy, before and after intervention.
- 3- Determining of female students knowledge in relating to family planning concept and contraception methods, before and after intervention.
- 4- Determining of female students knowledge in relating to genital tract infections, sexual transmitted disease, AIDS and preventive behavior about them, before and after intervention.

Part 1: Reproductive health concept and reproductive health problem in young people

Goal: Education of reproductive health concept and reproductive health problem in young people to female students of non health related fields.

Objective:

- 1- The students able to define health correctly.
- 2- The students able to define reproductive health correctly.
- 3- The students able to describe the aims of reproductive health.
- 4- The students able to describe high risk groups in reproductive health.
- 5- The students able to describe reproductive rights of young people.
- 6- The students able to describe why youth have more risk for reproductive health related problems.

7- The students able to define correctly gender identity, sexual norms and values.

8- The students able to describe the effect of sexual norms and values on sexual behavior of young people.

9- The students able to describe the effects of social gender and development of gender identity on sexual behavior of young people.

Educational method:

-Lecture

-Team work

-Question and answer

-Groupe discussion

Time: 90-100 minute

Part 2: Sexual organs and their structure and function, menstruation and pregnancy

First goal: education of sexual organs and their structure and function

Objectives:

1- The students able to describe name of women's external genital organs.

2- The students able to show women's external genital organs on the picture.

3- The students able to describe name of women's enternal genital organs.

4- The students able to show women's enternal genital organs on the picture.

5- The students able to describe name of men's genital organs.

6- The students able to show men's genital organs on the picture.

7- The students able to describe function of women and men's genital organ that are followed:

Vagina

Uterus

Uterin tube

Ovaries

Penis

Scrotom

Testis

Epididim

Sperm channel

Prostate

urethra

Educational method:

-Lecture

-Team work

-Demonstration

-Question and answer

Time: 40-50 minute

Second goal: education of menstruation and pregnancy

Objectives:

- 1- The students able to describe how to control of menstruation.
- 2- The students able to describe what happened in the uterus and ovaries in each cycle.
- 3- The students able to describe normal range of menarche.
- 4- The students able to describe normal duration of menstrual bleeding.
- 5- The students able to describe normal range of each cycle.
- 6- The students able to describe normal amount of menstrual bleeding.
- 7- The students able to describe the symptoms of premenstrual syndrome.
- 8- The students able to describe how reduce the symptoms of premenstrual syndrome.
- 9- The students able to describe 3 behaviors for reducing of dysmenorrheal.
- 10- The students able to describe hygiene of menstruation period.
- 11- The students able to describe the time of cycle that there is the most probable of pregnancy.
- 12- The students able to describe what ages are appropriate for pregnancy in women.
- 13- The students able to describe normal range of weight gain in pregnancy.
- 14- The students able to describe how many and how interval are necessary for prenatal care.
- 15- The students able to describe high risk pregnancy.

16- The students able to describe what time is able to alive an sperm in women's genital tract.

17- The students able to describe what time is able to alive an ovum after ovulation.

18- The students able to describe in where does happen conception.

19- The students able to describe in which organ does grow fetus.

20- The students able to describe in what time of pregnancy is there the most chance of tratogenicity.

21- The students able to describe 4 signs of pregnancy at least.

22- The students able to describe why prenatal care is necessary.

23- The students able to describe 3 of the most important health problem in pregnancy at least.

Educational method:

-Lecture

-Question and answer

-Group discussion

-Demonstration

Time: 80-100 minute

Part 3: Family planning concept and contraception methods

Goal: education of family planning concept and contraception methods to students.

Objectives:

1- The students able to define family planning.

2- The students able to describe 3 of family planning facility goals.

3- The students able to describe the risks of too many, too close, too early and too late pregnancy.

4- The students able to describe causes of unwanted pregnancies.

5- The students able to describe the risks of unwanted pregnancies and illegal abortion.

- 6- The students able to describe the modern female contraception methods.
- 7- The students able to describe the modern male contraception methods.
- 8- The students able to describe contraception method that are appropriate for birth spacing.
- 9- The students able to describe the mechanism of contraception methods that are followed:
 - Oral contraceptive pill
 - Inject able contraception
 - Norplant
 - Intra uterine device
 - Tubectomy
 - Condom
 - Vasectomy
- 10- The students able to describe one advantage for each contraception method at least.
- 11- The students able to describe one disadvantage for each contraception method at least.
- 12- The students able to define infertility
- 13- The students able to describe 5 causes of infertility at least.

Educational method:

- Lecture
- Question and answer
- Group discussion
- Demonstration

Time: 80-90 minute

Part 4: Genital tract infections, sexual transmitted disease, AIDS and preventive behavior about them.

First goal: Education of genital tract infections and preventive behavior about them.

Objectives:

- 1- The students able to describe characteristic of normal vaginal discharge.
- 2- The students able to describe characteristic of abnormal vaginal discharge.
- 3- The students able to describe signs and symptoms of genital tract infections.
- 4- The students able to describe the preventive behavior about genital tract infections.

Second goal: Education of sexual transmitted disease, AIDS and prevention of them.

Objectives:

- 1- The students able to describe 5 of sexual transmitted infections at least.
- 2- The students able to describe 5 of signs and symptoms of sexual transmitted infections at least.
- 3- The students able to describe non sexual transmission of sexual transmitted infections.
- 4- The students able to describe name of virus that get AIDS.
- 5- The students able to describe which system of body was damaged by HIV.
- 6- The students able to describe the symptoms of AIDS.
- 7- The students able to describe how HIV is transmitted.
- 8- The students able to describe how are prevented from AIDS and sexual transmitted disease.
- 9- The students able to describe non safe (high risk) sexual behavior.
- 10- The students able to describe why women have more risk than men in AIDS and sexual transmitted infections.
- 11- The students able to describe short time and long time complications of sexual transmitted infections.

Educational method:

-Lecture

-Question and answer

-Group discussion

-Demonstration

Time: 90-100 minute

Appendix. 4.

Summary of Statistically Significancy of Female Students Knowledge Scores to Reproductive Health Questions Based On Independent Factors

Independent factors	Significant difference in female students knowledge scores	
	Before intervention	After intervention
Student age (years)	*	*
Field of study	*	*
Marital status		*
Living location until 15 years		*
Settling status	*	*
Educational status of student's mother	*	
Educational status of student's father		
Job status of student's mother	*	
Self assessment knowledge of reproductive health concept and reproductive health problem in youth	*	*
Self assessment knowledge of sexual organs and their structure and function, menstruation and pregnancy	*	*
Self assessment knowledge of family planning concept and contraception methods	*	*
Self assessment knowledge of genital tract infections, sexual transmitted disease, AIDS and preventive behavior	*	*
Receiving any information about reproductive health issues up to now	*	*
Taking the demography and family planning course	*	
Receiving educational text that prepare for this research by students		*
Receiving any information about reproductive health from peer educator by students		*

*p<0.05 and there is statistically significancy.