



The effectiveness of an Integrated Counseling Program about Women's Reproductive Rights on Knowledge and Attitudes of Nursing Students

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ABSTRACT

Background Counseling is a professional service that allows clients to explore their worries, identify difficulties, and select the best solutions from a choice of alternatives. **Aim:** The study was conducted to evaluate the effect of an integrated counseling program on women's reproductive rights regarding knowledge and attitudes among nursing students. **Research design:** A quasi-experimental design was utilized to achieve the aim of the study. **Setting:** All students enrolled in the second grade at two technical nursing institutes in Damietta (rural) and Port Said (urban) were included in the study **Sample:** The total number was 166 students. **Tools:** There were two tools employed. The first tool is an interview questionnaire, which has two parts: socio-demographic characteristics of the women being examined and socio-demographic features of the women being studied. The second section focuses on women's understanding of reproductive health rights. The second tool is the women's attitudes scale about the reproductive rights assessment scale. **Results:** The results showed that there was a highly statistically significant difference between the urban and rural groups regarding their total scores of knowledge and attitude pre, post, and follow-up program implementation where $P < 0.001$. **Conclusion** The understanding and awareness of reproductive and women's rights among nursing students has significantly improved. The comprehensive counseling program was effective in increasing students' knowledge and attitudes. **Recommendations:** Continuous various educational programs to generalize the findings, the study needs to be duplicated on a large sample of women and conducted in a variety of institutional and community settings.

Keywords: Counseling, Knowledge, Attitudes, Reproductive Health Rights.

Introduction

Reproductive health rights include the rights to life, health, liberty, and security, as well as the right to marry and start a family. Right to Education and Participation in Scientific Growth and Research; Right to Be Free of Sexual Assault and Sexual Exploitation;

and Right to Be Free of Sex Discrimination Tyson is a boxer (2019). Furthermore, reproductive rights include the right not to be tortured or subjected to other forms of cruel, inhuman, or degrading treatment or punishment; the right to change discriminatory practices; the right to privacy; and the right to decide

on the number and spacing of children, as well as the right to receive appropriate expertise. Egypt's national strategy, development framework, and policy frameworks all include human rights, reproductive health, and reproductive rights. Furthermore, human rights protection institutions and participatory processes are being improved to defend teenage girls' reproductive rights, particularly the right to be free from violence (Stern et al., 2015; McGranahan et al., 2021). Official Egyptian authorities understand the importance of supporting and exercising reproductive rights for the advancement of women and community development, as evidenced by this (Widyatuti et al. 2018).

Maternal and newborn health care, as well as family planning, require counseling. It is a collaborative approach in which nursing professionals work with women and their families to provide information and provide support so that they can make educated decisions. They must devise and implement plans to improve their health. Dehingia and its associates (2019). From Mwakawanga et al., consultation is also a professional service that allows clients to assess their concerns, identify difficulties, and choose the best available solution from a choice of options (2021). Counseling helps determine current choices by providing a full grasp of the teen's or client's experience. It also aids in the development of abilities that allow one to accept responsibility for one's choices and actions in life. , Henry et al., (2020).

World Health Organization (WHO) Overview (2016). Integrated care includes the input, delivery, management, and organization of services related to diagnosis, treatment, nursing, rehabilitation, and health promotion. Integration is a technique that boosts the availability, quality, and efficiency of services. Baxter et al. (2018) assess and assess individual requirements, determine eligibility for services, execute care plans,

administer services, and monitor and re-examine needs as part of an integrated care management process. Through integrative health at various levels and locations of care within the health system, women have access to a continuum of health promotion, health protection, and disease prevention, as well as diagnosis, treatment, long-term care, rehabilitation, and palliative care, as well as diagnosis, treatment, long-term care, rehabilitation, and palliative care according to their needs, through integrated health service delivery (Holt et al.2017).

The Comprehensive Counselling Program is a long-term care management program managed by a care manager who collaborates with GPs and other members of the nursing team in primary care settings. Nurses, social workers, pharmacists, community resource specialists, and, if necessary, community health professionals made up the Nursing Team (WHO) and Hajizadevalokolae, (2018).

Attitudes of women's rights are one of the most significant aspects to consider when designing reproductive health plans or future actions. Women's health will not be promoted or enhanced unless reproductive health and human rights issues are addressed, because women believe these rights to be the most essential to them. (2019) and Rasoulzadeh et al. (2020). Reproductive health rights must be explained at all levels of reproductive health care, such as family planning and antenatal care, to make it easier for women to use reproductive health terminology.

Community health nurses (CHNs) can play a significant role in satisfying women's healthcare needs by assisting and supporting their clients. CHNs must assist women in gaining greater control over health-

related determinants to enhance their health, since a woman gets the ability to not only manage but also to change her environment, allowing her to feel more powerful. CHN can serve as a mentor for pregnant women and their families, assisting them in improving their health (Mattebo, 2015; Duru et al., 2018).

Significance of the study:

The state of women's and girls' sexual and reproductive health and rights around the world is alarming: More than 800 women die each year from pregnancy causes; approximately 200,000 pregnant women die each year due to lack of or ineffective contraception; 70,000 women die each year from unsafe abortions, and an unknown number suffer from infections and other health implications. Women and girls all across the world, particularly those living in poverty, have little or no access to reproductive health and rights information and services. The teaching of health education to student nurses will be guided by an understanding of the needs and issues of student nurses. Nurses can play a significant role in providing, promoting, and upgrading reproductive health and women's rights as counselors and health educators. As a result, the goal of this research was to see how a thorough counseling program on female reproductive rights influences nursing students' knowledge and attitudes.

Aim of the study

The study was conducted to evaluate the effect of an integrated counseling program about women's reproductive rights regarding knowledge and attitudes among nursing student

Research hypothesis:

Nursing students' knowledge and attitudes of women's reproductive rights will be increased after the implementation of the comprehensive counseling program.

2. Subject and Method

The subject and methods of current research included four categories: technical design, operational design, administrative design, and statistical analysis.

1- Technical design

The technical design for the study involved four main categories, research design, setting, subjects, and tools used for data collection.

Setting:

This research was applied at two nursing technical institutes, in Damietta (rural) and Port Said (urban). Nursing technical institutes in Port Said were Al- Amery and in Damietta setting of technical Institutes of nursing was Faraskour.

Research Design:

A quasi-experimental design was used.

Target population

The study's target group was female second-year nursing students in rural and urban nursing technical institutes.

Sampling:

Sample size:

All students enrolled in the second class of the above institutions were included in the study sample. The total number of students in the urban is 83, while the total number of students in the rural is 83. In both settings, there were a total of 166 girls. The sample size was sufficient to demonstrate an improvement in nursing students' knowledge and attitude.

Sample technique:

The research was conducted in Damietta's two technical nursing institutes (rural) and Port Said (urban). Port Said consists of three educational districts (Al- Amery - Al Nasr and Al Mabara)

that were randomly selected one technical Institute of nursing of them was (Al- Amery). While Damietta consists of three educational districts (Fareskour – EL-Zarqa and Kafr Sad) were randomly selected one technical Institute of nursing of them was (Fareskour)

Type of sample:

A purposive sample was obtained from the previously mentioned setting.

Tools of data collection:

Data were collected by two tools, these tools were developed based on the review of related literature. Data was collected by the following two tools: the first tool: The structured Interview Questionnaire and the second tool: The women's perception scale.

The first tool: -

A Structured interviewing questionnaire Sheet: The interviewing sheet consisted of 67 questions and was classified into two parts; socio-demographic characteristics and knowledge concerning women's reproductive health.

The first part is concerned with: nurses' demographics (age, marital status, income, student status in the family, adolescent family members, reproductive rights information, and sources).

The second part (Nurses' knowledge regarding women's reproductive health and rights. It included 16 closed-ended questions developed by researchers after reviewing relevant literature Adinew, Worku, and Mengesha, (2013) and Skogsdal, (2019), as well as Rajapaksa, Piercy, Salway S, and Samarage (2015), To reflect knowledge of women's reproductive health, including reproductive health as a concept,

components of reproductive health programs, the relevance of reproductive health and its purpose, issues related to reproductive health neglect, factors affecting reproductive health, reproductive rights issues, reproductive health Elements of rights services, reproductive health and pregnancy rights services, adolescent reproductive rights services, reproductive racial discrepancies, and reproductive racial discrepancies. In addition, a standardized questionnaire was used. Right to reproductive health care, right to marry and have a family, right to the best health possible, right to scientific advancement, right of women to choose the length of their pregnancy after marriage, right to physical integrity, reproductive control; freedom from coercion Sterilization and contraception, the right to non-discrimination and equal treatment, the right to information and education, and the right to life are all issues that need to be addressed.

Scoring system:

Knowledge score for each answer was given as follows:

1 = satisfied answer

0 = unsatisfied & no answer

If the total knowledge score was equal to or greater than the entire knowledge score, the total knowledge score was judged accurate.were classified into two levels:

Satisfied ($\geq 60\%$)

Unsatisfied knowledge ($< 60\%$)

The second tool (II): Women's attitudes scale

Rajapaksa et al., 2015 developed this scale. It was modified by researchers to assess students' opinions about female reproductive rights. It's a

two-point Likert scale with options ranging from agree to disagree. It contained five statements, each of which requires students to choose one of the options. What topics are covered (four points for female circumcision or mutilation, seven points for reproductive health education, five points for family planning, six points for marriage, and eight points for pregnancy)? (Gynecology, Obstetrics, and Postpartum Care)

Scoring system:

A score of 2 was given to agree; and a score of 1 for disagree. Each statement scored, and the aggregate attitude score was classified into two levels: negative attitude (<60%), and positive attitude ($\geq 60\%$).

II. Operational Design:

The operational design included validity, reliability of the tool, pilot study, and field of work.

Content validity:

After studying relevant literature and similar techniques, the researchers developed these tools. The study included five specialists, two from community care and three from obstetrics and gynecology care, who tested the devices' effectiveness. Its goal is to see if the tool is appropriate, complete, relevant, clear, understandable, and useful. Solicit your feedback on the tool's structure, layout, and consistency. After studying relevant literature and similar techniques, the researchers developed these tools. Its goal is to see if the tool is appropriate, complete, relevant, clear, understandable, and useful. Solicit your feedback on the tool's structure, layout, and consistency.

Reliability:

The Cronbach's alpha coefficient for the knowledge and retest scores of the evacuation system efficiency evaluation section was 0.85; $r = 0.779$ respectively.

Pilot Study:

The pilot study included 10% (8) of students from urban and rural nursing schools. These were chosen at random prior to the beginning of the data collection phase on October 1, 2018. The pilot study's purpose is to test applicability and feasibility, ensure tool clarity, and estimate the time needed to use the tool and deploy the procedure. It also aids in the identification and clarification of issues and barriers that may impede data collection. Students who took part in the pilot study were excluded from the main sample after the tool was modified.

Field Work:

The study was conducted in four phases: assessment, planning, implementation, and evaluation. The data collection period was 14 weeks, from October 1, 2018, to mid-January 2019. Data collection was carried out simultaneously at both (urban) and (rural) nursing specialist facilities. The researchers were divided into 10 groups of nursing students, each consisting of 8-9 students. The comprehensive tutoring course is conducted for each group of students for five weeks, two sessions per week, a total of 10 sessions, each saving 45-60 minutes. Each day, researchers visit two days a week at the two (urban) and (rural) School of Nursing campuses, depending on their availability and location, usually starting between 9 am and 1 March until Show on April 22nd at 12:30 pm. The study lasted 10 months.

Integrated counseling program session:

An integrated counseling program session was developed in a simple Arabic language.

The objective of the program

The aim of the program was to improve students' knowledge and attitudes related to their women's reproductive health and rights.

The content of the program

Knowledge about reproductive health, such as reproductive health as a concept, components of reproductive health program, the importance of reproductive health and its goal, problems related to reproductive health, factors affecting reproductive health, reproductive rights problems, reproductive rights services during pregnancy, reproductive rights services during adolescence, reproductive rights services during menopause, and definitions were part of a counselling program for study groups, aim of premarital counseling and test, types of premarital examinations, services for women in the childbearing stage, as well as prevention and treatment of genital and sexually transmitted diseases definition, mode of transmission of sexual transmitted disease, mode of prevention of sexual transmitted disease, family planning definition, types of contraceptive, important, definition of exclusive breastfeeding, important of breastfeeding to mother, important of breastfeeding to neonate, The advantages of contraceptive sexual transmitted disease via contact, methods of prevention, circumcision procedures, circumcision problems, Precautions that every pregnant woman should take during her pregnancy, pregnancy problems, and so on are all part of a balanced diet. Benefits of breastfeeding for the mother. Furthermore, female genital mutilation or against circumcision, education on

reproductive health, women's reproductive rights concept, family planning, marriage, pregnancy (antenatal, natal, and postnatal care).

First phase preparatory or assessment phase

To develop research tools for data collecting, review advanced national and international relevant literature, guidelines, and available published information utilizing books, papers, journals, and the Internet. Using tool (1) and tool (2), a pre-test phase was conducted to examine nurses' knowledge and perceptions of women's reproductive health and rights. A questionnaire sheet was filled out by student nurses that took approximately 25-35 minutes to be filled. The data collected constituted a pretest for baseline comparisons. Researchers meet with each group at their institution and can choose from a variety of courses to explain and clarify tools.

Phase II: planning

The researchers developed the curriculum content of a comprehensive counseling program to meet the needs of student nurses based on the results of the evaluation phase and the statistical results of a pilot study in which 10% (8) of students in each technical college participated in nursing in urban and rural areas. A complete consultation planning session was established after reviewing the necessary research. The counseling plan includes explaining and addressing identified needs, criteria for student caretakers, and the most recent relevant literature. Its main purpose is to raise nurses' awareness and comprehension of reproductive health and women's rights.

Teaching methods and aids

To construct a clear, brief educational plan that focuses on learning objectives, a variety of teaching methods were utilized, including short lectures, slide presentations, group discussions, brainstorming, role-playing, demonstrations, and repetition. Furthermore, the researcher prepared physical objects, distributed them to the participants, and provided brochure media during the teaching process, so that each student could hear the researcher's illustrations and also hand-held Formats, images, and posters to facilitate the teaching of any subject. By asking questions and collecting opinions, researchers encouraged students to actively interact during and after presentations.

Phase (III): Implementation of Integrated Counselling Program

Nursing students are divided into ten groups of eight to nine students for a complete counseling program with target groups. The class schedule is broken down into ten 45-60 minute lessons that are held twice a week. So it appears to be five weeks. Each session begins with a recap of the previous session's content and the aims of the upcoming session, using simple language to ensure that student nurses grasp the course material. Adapting to the student's educational level; motivation and learning are increased through encouragement and reinforcement tactics such as praise and acknowledgment during sessions. All students teach the same subjects using the same teaching approaches, conversations, and media to guarantee that all students have the same learning experience in all areas. The conference was supplemented with brochures, brief lectures, PowerPoint slides,

handouts, pictures, and posters. The sessions were done according to the following schedule:

1st session :(Time: 45-60 min). During the initial session, the researcher explained the aim of the study, determine the meeting time was one time/week and give a pre-assessment.

2nd session :(Time: 45-60 min). This session focused on the reproductive health concept, the components of a reproductive health program, the importance of reproductive health and its goal, and reproductive health concerns are all discussed.

3rd session :(Time: 45-60 min). The focus of this session was to provide knowledge about factors affecting reproductive health, reproductive rights problems, and reproductive rights services during pregnancy, reproductive rights services during teenage, reproductive rights services during menopause.

4th session:(Time: 45-60 min). The focus of this session was to explain the definition and type of female genital mutilation, the complication of female genital mutilation, the legal age of girl marriage, risks of early marriage.

5th session:(Time: 45-60 min). This session focus on knowledge concerning the aim of premarital counseling and test, types of premarital examinations, care for women in childbearing stages, as well as genital infection prevention and treatment.

6th session:(Time: 45-60 min). This session focuses on the knowledge importance of the sexually transmitted disease, its definition, the mode of transmission of sexually transmitted disease, mode of prevention of sexually transmitted disease.

7th session:(Time: 45-60 min).This session focus on knowing the contraceptive definition, types, importance, definition of exclusive breastfeeding, the importance of breastfeeding to the mother, and the importance of breastfeeding to the neonate.

8th session :(Time: 45-60 min). This session focuses on knowledge, scientific method for the advantage of contraceptives, diseases transmitted by sexual contact, prevention methods of these diseases, circumcision means, and its complications.

9th session :(Time: 45-60 min). This session focuses on learning how to prepare nutritious food, as well as the measures that every pregnant woman should take during her pregnancy and pregnancy difficulties.

10th sessions :(Time: 45-60 min): This session focus on continuing health education for information about the benefits of breastfeeding for the mother. Furthermore, female genital mutilation or circumcision educates reproductive health, women's reproductive rights concept, family planning, marriage, pregnancy (antenatal, natal, and postnatal care).

Evaluation phase:

Using the same pre-test and attitude rating scales, the comprehensive counseling program choices were evaluated immediately and five weeks after the implementation phase to assess prospective nurses' level of knowledge, attitudes, and efficacy of the comprehensive counseling program. Pre-/post-test and employment rating scales, as well as student grades reported by the researchers, were completed by each student. This was accomplished

by comparing the pre-test and post-test results after conducting the study at both sites using the program implementation.

III. ADMINISTRATIVE DESIGN:

The relevant authorities have given their formal permission to undertake this study. Before beginning the research, the Dean of the Faculty of Nursing at the University of Port Said wrote an official letter to the directors of both urban and rural sites to get their permission. Research.

Ethical Consideration:

The Scientific Research Ethics Committee of the Faculty of Nursing at the University of Port Said accepted the study procedure. The School of Nursing received official approval by writing a formal letter to the research environment's administrator, requesting permission to gather data. Orally, the study's goal and benefits were described, and all questions were attached in writing. After being advised to choose or withdraw at any moment, participants gave their informed oral agreement to participate in the study. The data is exclusively used for research purposes, and the confidentiality of the information supplied is guaranteed. The subjects experienced no real or prospective damage as a result of the research techniques.

IV. STATISTICAL DESIGN:

The Statistical Products and Services Solutions (SPSS) program version 20 was used for data entry and statistical analysis. Data were categorized, coded, and input into a computer before and after the test. The arithmetic mean is a term used to express the observed central tendency of a categorical or tabular variable. For qualitative data,

descriptive statistics in the form of frequencies, numbers, and percentages are employed; for quantitative variables, mean, standard deviation, and the median is used. Quantities and percentages are used to describe qualitative data. Mean and standard deviation are used to describe quantitative data. The independent t-test and the chi-square test were used for comparisons between two independent groups with normally distributed data, while the F-test (ANOVA) was performed for comparisons between more than two groups and between pre, post, and post-treatment groups. A repeated-measures ANOVA using the escalation process was used to make the comparison. Fisher's exact test for probability (F ETP) is employed if X^2 is invalid (more than 20% of projected units have counts less than 5). A P value of less than 0.05 was deemed statistically significant, while a P value of less than 0.001 was deemed extremely significant.

3. Results

Table (1) shows that the age range of the sample is 18 – 20 years; the mean age of the rural group was 19.01 ± 0.56 compared to the urban group was 19.14 ± 0.061 . Also, most rural groups and urban groups 78.3 %, 96.4% were single respectively. Additionally, the study results revealed that the order of the student in the family of the rural group was 44.6 % as compared to the urban group 50.6 % was second? The study result also found that 87.9% of the rural group was teenage family members compared to the urban group was 92.8 %. Also, this table found that the rural group 91.6 % was false information about reproductive rights compared to the urban group was 89.2%.

Table 2 shows that there are significant differences between urban groups and rural groups regarding

their knowledge of women's reproductive rights throughout the program Intervention.

A highly statistically significant difference was found between pre, post, and follow-up program after implementation concerning the concepts: right to life, information and education, respect for privacy and family life, equality and non-discrimination and equal treatment, access to good-quality reproductive healthcare, early preventive measures, right to menstrual health and protection from practices such as female genital mutilation, marrying and starting a family, physical integrity, legal and safe abortion, receiving education about sexually transmitted infections, and the right to decide the number of birth control; freedom from coerced sterilization and contraception with $p = (0.001)$ respectively. It is also noted in this table that most of the studied samples had incorrect the rural group, which was more incorrect, and after implementation of the program there was improvement in knowledge during the post-test intervention and follow-up more in the urban group compared to the rural group.

Table 3 shows the differences between rural groups compared to urban groups regarding their knowledge of reproductive health and reproductive rights services throughout the program intervention. A highly statistically significant difference between pre, post, and follow-up program after implementation was ($P < 0.001$) concerning reproductive health definition, objective, importance, factors affecting reproductive health, and reproductive health problems. As it is obvious from the table, there is a highly statistically significant association between pre, post, and follow-up program after implementation concerning reproductive rights

services elements during adolescence, pregnancy, and menopause. It is also noted in this table that most of the studied sample had improvement in knowledge during immediate post-intervention and follow-up more than in the urban group compared to the rural group

Table (4) shows the comparison between the urban group and rural group, this table revealed that there is a highly significant difference was reported between pre and follow-up programs after implementation in all items related to their knowledge about premarital counseling, family planning, and breastfeeding. In areas related to, the legal age of marriage, risks of early marriage, aim of premarital counseling and test, types of premarital examination, definition, importance, and methods of family planning. In addition definition of exclusive breastfeeding and the importance of breastfeeding to mother and baby at $P < 0.001$. It is also noted in this table most of the studied sample had incorrect knowledge during pre-intervention assessment in urban compared to the rural group was more incorrect and after implementation, the program there had improvement of knowledge about premarital counseling, family planning, and breastfeeding during immediate post-intervention and follow up more than in urban group compared to the rural group.

Table (5) indicates that there was a highly statistically significant difference between the urban group and the rural group among pre, after, and follow-up programs after implementation in all items regarding their knowledge of sexually transmitted diseases and female genital

mutilation. In areas related to the definition of sexually transmitted diseases, types of transmission, mode of transmission, complications, and prevention of STD, definition, types of female genital mutilation, and complications of female genital mutilation at $P < 0.001$. It is also noted in this table that most of the studied samples had improvement in knowledge during immediate post-intervention and follow up more than in the urban group compared to the rural group.

Table (6) shows that there was a statistically significant difference between the urban group and the rural group between pre and post-implementation in all items regarding their attitude towards reproductive health. In areas related to high-quality health services, follow-up reproductive health, discrimination regarding social status, and the couple's right to reproductive health services at $P < 0.001$, 0.039, 0.010, and 0.010 respectively. While there was a highly statistically significant difference between the urban and rural groups after the follow-up program in having privacy at $P < 0.001$. It is also noted in this table that most of the studied sample had negative attitudes during pre-intervention and after implementation of the program there was a positive attitude toward reproductive health during immediate post-intervention and follow-up more than in the urban group compared to the rural group.

Table (7) indicates that there was a statistically significant difference between the urban and rural groups between pre and post-implementation in all

items regarding their attitude towards contraceptives, female genital mutilation, and premarital examination. In areas related to early detection and screening of cancer, female genital mutilation, and risks of early marriage, $P < 0.018$, 0.041 , and 0.010 , respectively. It is also noted in this table that most of the studied sample had negative attitudes during pre-intervention and after implementation of the program. There was an improvement in positive attitudes about contraceptives, female genital mutilation, and premarital examination during immediate post-intervention and follow-up more than in the urban group compared to the rural group.

Table (8) shows that there was a highly statistically significant difference between the urban group and rural group in different phases of the program regarding their total score of knowledge and total score of attitude. It was found between pre, post, and follow-up program implementation were $P < 0.001$. It is also noted in this table that most of the studied sample had incorrect knowledge during pre-intervention assessment in the urban compared to the rural group, which was more incorrect, and after implementation, the program showed improvement in knowledge during immediate post-intervention and follow-up more than in the urban group compared to the rural group. Furthermore, the studied sample had a negative attitude prior to intervention, but after program implementation, there was a greater improvement in positive attitude during immediate post-intervention and follow-up in the urban group than in the rural group.

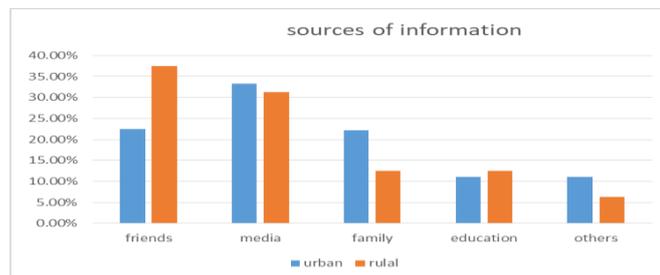
Table 1: Distribution of the Studied Sample According to Socio-Demographic Characteristics (rural n = 83 and urban n = 83)

	Rural		Urban	
	No.	%	No.	%
Age	19.01 ± 0.56		19.14 ± 0.061	
Marital status				
Married	18	21.7	3	3.6
Single	65	78.3	80	96.4
Order of the student in family				
First	24	28.9	16	19.3
Second	22	26.5	42	50.6
Third and more	37	44.6	25	30.1
Teenage family member				
Yes	73	87.9	77	92.8
No	10	13.2	6	7.2
Information about reproductive rights				
True *	16	19.3	9	10.8
False	67	91.6	74	89.2
Source of information *				
Friends	6	37.5	2	22.2
Media	5	31.3	3	33.3
Family	2	12.5	2	22.2
Education	2	12.5	1	11.1
Other	1	6.3	1	11.1

Table 2: urban & rural groups regarding their knowledge about women's reproductive rights

p1: p-value for Paired t-test for comparing between pre and post-program and follow up p2: p-value for Student t-test for comparing between the two studied groups in each period (pre, post and follow up of program)
*: Statistically significant at $p \leq 0.05$

Items	Urban (n = 83)			Rural (n = 83)		
	Pre-program	Post-program	Follow up	Pre-program	Post-program	Follow up
Women reproductive rights concept	31.75 ± 17.41	98.57 ± 3.16	95.18 ± 5.82	30.70 ± 30.33	99.28 ± 2.83	93.53 ± 7.97
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to Life	38.18 ± 19.55	98.87 ± 3.88	98.31 ± 4.65	33.65 ± 21.09	96.80 ± 6.01	95.32 ± 7.27
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to Information and Education	34.97 ± 14.29	98.72 ± 2.50	96.74 ± 3.70	32.17 ± 17.52	98.04 ± 3.30	94.43 ± 5.51
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to respect for privacy and family life	29.31 ± 45.92	100.0 ± 0.0	96.05 ± 19.60	30.26 ± 46.24	100.0 ± 0.0	87.93 ± 32.86
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to equality and non-discrimination and equal treatment	34.48 ± 21.60	94.74 ± 12.24	93.42 ± 14.42	25.88 ± 22.18	94.83 ± 12.17	85.63 ± 16.65
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to access good-quality reproductive healthcare	32.76 ± 47.34	93.42 ± 24.96	100.0 ± 0.0	34.21 ± 47.76	94.83 ± 22.34	100.0 ± 0.0
P value		<0.001*	<0.001*		<0.001*	<0.001*
Early preventive measure	5.92 ± 19.95	100.0 ± 0.0	93.42 ± 18.87	3.45 ± 15.84	100.0 ± 0.0	91.38 ± 19.05
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to menstrual health and protection from practices such as female genital mutilation	25.0 ± 19.13	97.04 ± 7.03	95.72 ± 7.64	24.07 ± 19.28	97.41 ± 6.09	91.24 ± 11.06
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to marry and to found a family	21.98 ± 31.44	73.68 ± 10.72	75.0 ± 0.0	16.12 ± 27.90	70.69 ± 11.60	75.0 ± 0.0
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to Physical Integrity	32.47 ± 26.57	100.0 ± 0.0	95.18 ± 11.81	28.95 ± 28.20	100.0 ± 0.0	94.83 ± 7.78
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to legal and safe abortion	15.09 ± 23.85	94.74 ± 13.11	95.07 ± 12.92	12.50 ± 21.41	95.26 ± 12.79	84.91 ± 20.91
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to receive education about sexually transmitted infections	23.18 ± 20.40	89.47 ± 5.99	88.41 ± 5.90	19.19 ± 19.78	88.65 ± 5.34	84.91 ± 7.56
P value		<0.001*	<0.001*		<0.001*	<0.001*
Right to decide the number of birth control; freedom from coerced sterilization and contraception	27.72 ± 13.71	95.08 ± 2.54	93.63 ± 3.17	25.14 ± 14.56	94.70 ± 3.04	90.19 ± 5.14
P value		<0.001*	<0.001*		<0.001*	<0.001*



In this figure, the comparison of the source of information in the rural group 37.5 % was friends compared to the urban group 33.3% was media.

Table (3) Distribution of urban & rural groups regarding their knowledge of reproductive health and reproductive rights services

Items	Urban (n = 83)			Rural (n = 83)		
	Pre-program	Post-program	Follow-up	Pre-program	Post-program	Follow-up
Definition and objective of reproductive health	0.0 ± 0.0	100.0 ± 0.0	97.81 ± 5.67	0.0 ± 0.0	96.55 ± 7.49	90.52 ± 1.30
p1		<0.001*	<0.001*		<0.001*	<0.001*
Importance and factors affecting on reproductive health	0.0 ± 0.0	100.0 ± 0.0	99.74 ± 2.29	0.0 ± 0.0	95.86 ± 9.74	93.79 ± 11.37
p1		<0.001*	<0.001*		<0.001*	<0.001*
Reproductive-health problems	0.0 ± 0.0	100.0 ± 0.0	98.68 ± 3.22	0.0 ± 0.0	96.24 ± 6.82	92.01 ± 8.18
p1		<0.001*	<0.001*		<0.001*	<0.001*
Reproductive-rights services elements	0.0 ± 0.0	100.0 ± 0.0	98.90 ± 2.99	0.0 ± 0.0	96.10 ± 6.90	91.72 ± 8.18
p1		<0.001*	<0.001*		<0.001*	<0.001*
Reproductive-rights services during teenage, pregnancy and Menopause	27.06 ± 21.81	96.03 ± 1.68	90.23 ± 5.22	0.0 ± 0.0	100.0 ± 0.0	94.73 ± 2.95
p1		<0.001*	<0.001*		<0.001*	<0.001*

p1: p-value for Paired t-test for comparing between pre and post-program and follow up p2: p-value for Student t-test for comparing between the two studied groups in each period (pre, post and follow up of program)
 *: Statistically significant at $p \leq 0.05$

Table (4) Distribution of urban and rural groups regarding their knowledge of premarital counseling, family planning, and breastfeeding

Items	Urban (n = 83)			Rural (n = 83)		
	Pre-program	Post-program	Follow-up	Pre-program	Post-program	Follow-up
legal age of marriage	22.17 ± 9.42	94.73 ± 2.90	92.84 ± 3.19	19.55 ± 10.49	93.37 ± 5.11	89.85 ± 3.73
p1		<0.001*	<0.001*		<0.001*	<0.001*
Risks of early marriage	28.85 ± 14.52	95.46 ± 2.41	93.64 ± 3.31	27.06 ± 21.81	95.22 ± 2.53	90.33 ± 5.56
p1		<0.001*	<0.001*		<0.001*	<0.001*
Aim of premarital counseling and test	27.57 ± 13.47	93.70 ± 2.40	94.28 ± 2.48	25.14 ± 14.56	94.07 ± 2.92	90.03 ± 4.92
p1		<0.001*	<0.001*		<0.001*	<0.001*
Types premarital examination	33.21 ± 14.44	95.77 ± 1.78	92.23 ± 3.81	30.97 ± 19.53	94.11 ± 5.38	89.48 ± 4.32
p1		<0.001*	<0.001*		<0.001*	<0.001*
Family planning definition and importance	27.54 ± 13.56	94.97 ± 2.63	93.69 ± 3.09	23.92 ± 14.29	94.73 ± 2.95	90.23 ± 5.22
p1		<0.001*	<0.001*		<0.001*	<0.001*
Family planning methods	29.74 ± 16.49	94.95 ± 2.34	93.46 ± 2.73	26.59 ± 8.51	96.03 ± 1.68	87.70 ± 10.10
p1		<0.001*	<0.001*		<0.001*	<0.001*
Definition of exclusive breast feeding	27.76 ± 13.91	95.12 ± 2.61	93.68 ± 3.31	23.72 ± 13.75	94.65 ± 3.08	90.28 ± 5.03
p1		<0.001*	<0.001*		<0.001*	<0.001*
Important of breastfeeding to mother and baby	22.17 ± 9.42	94.73 ± 2.90	92.84 ± 3.19	19.55 ± 10.49	93.37 ± 5.11	89.85 ± 3.73
p1		<0.001*	<0.001*		<0.001*	<0.001*

p1: p-value for Paired t-test for comparing between pre and post-program and follow up p2: p-value for Student t-test for comparing between the two studied groups in each period (pre, post and follow up of program)
 *: Statistically significant at $p \leq 0.05$

Table (5) Distribution of urban & rural groups regarding their knowledge of sexually

Items	urban (n = 83)			rural (n = 83)		
	Pre-program	Post-program	Follow-up	Pre-program	Post-program	Follow-up
Definition of sexual transmitted diseases	0.0 ± 0.0	100.0 ± 0.0	99.17 ± 2.74	0.0 ± 0.0	96.10 ± 7.15	93.51 ± 10.12
p₁		<0.001*	<0.001*		<0.001*	<0.001*
Types of transmission	0.0 ± 0.0	100.0 ± 0.0	98.97 ± 2.91	0.0 ± 0.0	95.45 ± 7.68	90.40 ± 8.40
p₁		<0.001*	<0.001*		<0.001*	<0.001*
Mode of transmission	0.0 ± 0.0	100.0 ± 0.0	96.97 ± 4.48	0.0 ± 0.0	98.18 ± 3.76	95.15 ± 5.82
p₁		<0.001*	<0.001*		<0.001*	<0.001*
Complications and prevention STD	0.0 ± 0.0	100.0 ± 0.0	98.18 ± 3.83	0.0 ± 0.0	96.97 ± 5.25	87.88 ± 13.89
p₁		<0.001*	<0.001*		<0.001*	<0.001*
Definition and types of female genital mutilation	0.0 ± 0.0	100.0 ± 0.0	98.76 ± 3.14	0.0 ± 0.0	96.20 ± 6.93	92.23 ± 7.91
p₁		<0.001*	<0.001*		<0.001*	<0.001*
Complication of female genital mutilation	0.0 ± 0.0	100.0 ± 0.0	97.98 ± 3.89	0.0 ± 0.0	100.0 ± 0.0	100.0 ± 0.0
p₁		<0.001*	<0.001*		<0.001*	<0.001*

transmitted diseases and female genital mutilation

p₁: p-value for Paired t-test for comparing between pre and post-program and follow up p₂: p-value for Student t-test for comparing between the two studied groups in each period (pre, post and follow up of program)

*: Statistically significant at p ≤ 0.05

Table (6): The studied sample's attitude towards reproductive health in rural and urban groups.

Items	Before				After				Follow up			
	Urban		rural		Urban		rural		urban		rural	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
High-quality health services												
Disagree	40	48.2	42	50.6	79	95.2	80	96.4	75	90.4	77	92.8
Slightly agree	24	28.9	22	26.5	4	4.8	3	3.6	3	3.6	5	6.0
Agree	19	22.9	19	22.9	0	0.0	0	0.0	5	6.0	1	1.2
Test of sig.	$\chi^2 p < 0.001^*$				FE _p = 1.000				MC _p = 0.784			
Have privacy												
Disagree	49	59.0	35	42.2	79	95.2	77	94.8	73	88	34	41.0
Slightly agree	17	20.5	8	9.7	3	3.6	4	4.8	8	9.6	0	0.0
Agree	17	20.5	15	18.1	1	1.2	2	2.4	2	2.4	49	59.0
Test of sig.	$\chi^2 p = 0.541$				MC _p = 1.000				$\chi^2 p < 0.001^*$			
Have safe security												
Disagree	30	36.1	39	47	2	2.4	3	3.6	6	7.2	2	2.4
Slightly agree	19	22.9	15	18.1	8	9.6	4	4.8	6	7.2	8	9.6
Agree	34	41	29	34.9	73	88	76	91.6	71	85.6	73	88
Test of sig.	$\chi^2 p = 0.125$				FE _p = 1.000				MC _p = 0.369			
Follow on reproductive health												
Disagree	28	33.7	20	24.1	0	0.0	2	2.4	4	4.8	3	3.6
Slightly agree	17	20.5	22	26.5	2	2.4	1	1.2	3	3.6	8	9.6
Agree	38	45.8	41	36.2	81	97.6	80	96.6	76	91.6	72	86.4
Test of sig.	$\chi^2 p = 0.039^*$				MC _p = 0.193				MC _p = 0.729			
Protection and treatment of sexually transmitted disease												
Disagree	47	56.6	43	51.8	80	96.4	76	91.6	74	89.2	70	84.4
Slightly agree	21	25.3	23	27.7	2	2.4	5	6	2	1.2	6	7.2
Agree	15	18.1	17	20.5	1	1.2	2	2.4	7	8.4	7	8.4
Test of sig.	$\chi^2 p = 0.774$				MC _p = 1.000				MC _p = 0.108			
Violence at reproductive health service												
Disagree	37	44.6	40	48.2	80	96.4	78	94	71	85.6	64	77.1
Slightly agree	28	33.7	28	33.7	1	1.2	3	3.6	6	7.2	10	12
Agree	18	21.7	15	18.1	2	2.4	2	2.4	6	7.2	9	10.9
Test of sig.	$\chi^2 p = 0.068$				FE _p = 0.578				MC _p = 0.277			
Reproductive health												
Disagree	50	60.2	45	54.2	79	95.2	76	91.6	77	92.8	65	78.3
Slightly agree	30	36.2	15	30.1	2	2.4	4	4.8	5	6	10	12
Agree	3	3.6	23	27.7	2	2.4	3	3.6	1	1.2	8	9.7
Test of sig.	$\chi^2 p = 0.962$				FE _p = 1.000				MC _p = 0.793			
Discrimination regarding social status												
Disagree	21	25.3	18	21.7	1	1.2	1	1.2	3	3.6	3	3.6
Slightly agree	18	21.7	25	30.1	2	2.4	1	1.2	5	6	10	12
Agree	44	53.0	40	48.2	80	96.4	81	97.6	75	90.4	70	84.4
Test of sig.	$\chi^2 p = 0.010^*$				FE _p = 0.433				MC _p = 0.338			
A couple has the right to reproductive health service												
Disagree	4	4.8	14	16.9	3	3.6	3	3.6	3	3.6	10	12
Slightly agree	17	20.5	22	26.5	3	3.6	5	6	10	3.6	10	12
Agree	62	74.7	47	56.6	77	92.8	75	90.4	70	84.4	63	76
Test of sig.	$\chi^2 p = 0.010^*$				MC _p = 0.336				MC _p = 0.674			

p: p-value for comparing the studied groups
 χ^2 : Chi-square test MC: Monte Carlo test FE: Fisher Exact test *: Statistically significant at $p \leq 0.05$

Table (7): The studied sample's attitude towards contraceptives, female genital mutilation, and premarital examination in rural and urban groups.

	Before				After				Follow up			
	Urban		rural		Urban		rural		urban		rural	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Right use suitable contraceptive												
Disagree	11	10.5	25	25.9	1	0.0	1	0.0	3	6.6	3	6.9
Slightly agree	43	53.9	24	41.4	2	0.0	1	0.0	10	1.3	12	6.9
Agree	29	35.5	34	32.8	80	100.0	81	100.0	70	92.1	68	86.2
Test of sig.	$\chi^2 p=0.059$				-				$MC p=0.306$			
Utilize suitable contraceptive knowledge												
Disagree	22	26.5	12	14.5	0	0.0	0	0.0	5	6.2	6	7.2
Slightly agree	25	30.1	21	35.3	0	0.0	0	0.0	4	4.8	8	9.6
Agree	36	43.4	50	60.2	83	100.0	83	100.0	74	89.0	69	83.2
Test of sig.	$\chi^2 p=0.458$				-				$MC p=0.497$			
Breastfeeding is the best natural contraceptive												
Disagree	19	22.9	20	24	0	0.0	0	0.0	9	10.8	10	12
Slightly agree	33	39.8	33	39.8	0	0.0	0	0.0	5	6	4	4.8
Agree	31	37.3	30	36.2	83	100.0	83	100.0	69	83.2	51	83.2
Test of sig.	$\chi^2 p=0.431$				-				$MC p=0.796$			
Early detection and screening of cancer												
Disagree	10	12	11	13.3	0	0.0	0	0.0	8	9.6	6	7.2
Slightly agree	5	6	16	19.3	0	0.0	0	0.0	0	0.0	7	8.4
Agree	68	82	56	67.4	83	100.0	83	100.0	75	90.4	70	84.4
Test of sig.	$\chi^2 p=0.018^*$				-				$MC p=0.162$			
Pregnancy and family planning												
Disagree	31	37.3	24	28.9	0	0.0	0	0.0	6	3.9	10	12
Slightly agree	22	26.5	32	38.6	0	0.0	3	3.6	3	2.6	4	4.8
Agree	30	36.2	27	32.6	83	100.0	80	96.4	74	93.4	69	83.2
Test of sig.	$\chi^2 p=0.232$				$FE p=0.433$				$MC p=0.566$			
Female genital mutilation												
Disagree	62	74.7	53	63.9	83	100.0	83	100.0	75	90.4	75	90.4
Slightly agree	11	13.3	16	19.2	0	0.0	0	0.0	4	4.8	5	6
Agree	10	12	14	16.9	0	0.0	0	0.0	4	4.8	3	3.6
Test of sig.	$\chi^2 p=0.041^*$				-				$MC p=0.379$			
Risks of early marriage												
Disagree	4	4.8	14	16.9	3	3.6	3	3.6	3	3.6	10	12
Slightly agree	17	20.5	22	26.5	3	3.6	5	6	10	3.6	10	12
Agree	62	74.7	47	56.6	77	92.8	75	90.4	70	84.4	63	76
Test of sig.	$\chi^2 p=0.010^*$				$MC p=0.336$				$MC p=0.674$			
Encourage premarital examination												
Disagree	25	30.1	21	25.3	0	0.0	1	1.2	6	7.2	6	7.2
Slightly agree	26	31.3	22	26.5	0	0.0	2	2.4	4	4.8	8	9.6
Agree	32	38.6	40	48.2	83	100.0	80	95.4	73	88	69	83.2
Test of sig.	$\chi^2 p=0.868$				$MC p=0.080$				$MC p=0.297$			

p: p-value for comparing between the studied groups χ^2 : Chi-square test MC: Monte Carlo test FE: Fisher Exact test
 *: Statistically significant at $p \leq 0.05$

Table (8): Distribution of rural and urban groups according to total knowledge and total attitude scores at different phases of the program.

	Urban (n = 83)			Rural (n = 83)		
	Pre-program	Post-program	Follow-up	Pre-program	Post-program	Follow-up
Knowledge	27.72 ± 13.71	95.08 ± 2.54	93.63 ± 3.17	25.14 ± 14.56	94.70 ± 3.04	90.19 ± 5.14
p₁		<0.001*	<0.001*		<0.001*	<0.001*
Attitude	67.96 ± 12.85	99.30 ± 1.79	93.46 ± 5.47	63.08 ± 11.24	98.63 ± 2.71	87.27 ± 7.32
p₁		<0.001*	<0.001*		<0.001*	<0.001*

p₁: p-value for Paired t-test p₂: p-value for Student t-test for comparing the two studied groups in each period (pre, post and follow up of program)*: Statistically significant at p ≤ 0.05

4. Discussion

Reproductive health rights are a relatively recent notion. Individuals' reproductive health human rights ensure that they can have a healthy and safe sex life, as well as the freedom to reproduce when and how often they want (Sylvest et al., 2018). Today's nursing students will become tomorrow's nurses, who will be in charge of preventing and maintaining health throughout one's lifetime. As a result, the goal of this study is to give evidence to better inform reproductive health and well-being counseling and counseling design (Duru et al., 2018). The goal of this study was to see how

effective a complete counseling program was at increasing nursing students' knowledge and

Awareness of women's reproductive rights in both rural and urban settings.

More than one-third of the knowledge acquired in the current study came from a variety of sources for rural groups, including mass media and friends, as well as mass media for urban groups. This could be due to nursing students spending the majority of their time with friends and on the Internet, where information is frequently inadequate or incorrect. This conclusion is in line with Ali et al., (2019). In Cairo, more than three-quarters of student information comes from a variety of sources. Similarly, Asio (2019) demonstrated that most people prefer to get reproductive health information from a variety of sources, including friends.

According to the findings of the current investigation, **Kotecha et al. (2009)** discovered that the most significant source of knowledge was friends as reported by 83% of the students in India. Moreover, in Ethiopia **Tafa et al. (2020)** reported that seventy percent of respondents were knowledgeable about reproductive health rights was media such as TV/radio. This result was similar to **El-Tholoth et al. (2018)** who conducted in Saudi Arabia the main source of information from the internet was (71.7%).

Regarding women's reproductive rights, the findings of this study, greater than two-thirds of the sample had lack and insufficient knowledge during pretest intervention in urban compared to the rural group was more incorrect knowledge

about its various aspects and there is a highly statistically significant difference after implementation the program concerning as concept, right to life, information and education, respect for privacy and family life, to equality and non-discrimination and equal treatment, access good-quality reproductive healthcare, early preventive measure, right to menstrual health and protection from practices, marry and to found a family, physical integrity, legal and safe abortion, receive education about freedom from coerced sterilization and contraception after implementation the program intervention had improvement of knowledge during posttest and follow up more than in urban group compared to the rural group. This may be due to Egyptian society didn't reveal the culture of women's reproductive rights, most Egyptian women belief that only men had all decisions in reproductive rights.

This result was agree with **Holt et al. (2017)** and in the same line with **Zakaria et al. (2020)** who examined reproductive rights and found that just a small percentage of them were knowledgeable of women's rights. In the same respect with the study in Bangladesh by **Tegegn et al. (2008)** who performed research on "Knowledge, Attitudes, and Practices on Reproductive Health and Rights among Urban and Rural Women in Bangladesh" and found that only 25% of her study participants had heard the phrase "reproductive health" and only comprehended the idea after brief talks. Furthermore, she noted that 61.8 percent of her respondents are unaware of the term reproductive rights. Moreover. Moreover, in Egypt, **Rashad et**

al. (2013) limited information and bad attitudes, according to researchers who conducted a study on "Assessment of women's understanding of reproductive rights." This outcome was comparable to **Goicolea et al. (2008)** who investigated "Iranian college students" reproductive health knowledge, attitudes, and practices" They discovered that the vast majority of persons in the study had accurate information regarding reproductive health. This might be attributed to women's lack of awareness of reproductive health and its components. Furthermore, In Eritrea **Tafa et al. (2020)** they discovered that just around a fifth of the participants in the study had a good understanding of reproductive health rights. On the other hand, this result is contradicted by the results of a study done by **Bodin et al. (2018)** and **Zaied et al. (2017)** found that more than three-quarters of the participants in the study had a good understanding of reproductive health rights, according to the researchers.

When it comes to reproductive health and rights services, the results of this study show that there is a large statistically significant difference between the rural and urban groups in terms of their understanding of reproductive health, including definitions, objectives, importance, variables affecting reproductive health, and reproductive health concerns. On the other hand, there was a highly statistically significant difference in connection to reproductive rights services aspects during adolescence, pregnancy, and menopause between pretest, posttest, and follow up and after the program in the urban group compared to the

rural group. These findings might be explained by the fact that the substance of reproductive health information is lacking, as well as the researcher's lack of experience in this sector. It might also be explained by the rural group's lack of interest in instructional techniques and audiovisual materials. Various studies have emphasized the importance of students' reproductive health as well as the design and implementation of reproductive health programs to improve their reproductive health knowledge, attitude, and behaviors (**Bostani & Ghanbari, 2015**).

The present study result was in agreement with **Chen et al. (2020)**, in China, who said that a large number of teenagers had little knowledge of reproductive health concerns before the test. The findings are consistent with several earlier research that found poor levels of awareness among teenage females in underdeveloped countries, such as metropolitan Nepal, about reproductive health concerns. (**Shrestha et al,2013**), in India, (**Kotecha et al,2009**) and **Adinew et al (2013)**, Ibrahimiah District Sharkia Governorate, Egypt (**Mohamed et al. 2014**); (**Mahmoud & Ibrahim, 2020**) and in Jharkhand (**Banerjee et al, 2015**).

These findings were also supported by **Haque et al. (2015)** who found that poor knowledge of reproductive health was more among rural women (84%). Urban girls were more informed about reproductive health than rural girls. Thus overall knowledge of reproductive health among urban women was better than rural girls. In the same line **Kotecha et al. (2009)** and **Premkumar (2018)** In India, just a small percentage of students said they had heard about contraception. and the significant

increase in knowledge on each aspect of reproductive health and more pronounced among urban reproductive women than rural. These findings go in the same way as **Mahmoud & Ibrahim (2020)** who advised that all students, even those in special schools, get health education and training on reproductive health.

Regarding the relationship between premarital counseling and family planning, the present study found that there was a very significant difference in all categories related to their knowledge of premarital counseling, family planning, and breastfeeding before and after the program was implemented. In topics such as the legal age of marriage, the hazards of early marriage, the purpose of premarital counseling and testing, the many forms of premarital examinations, the definition, importance, and techniques of family planning, and so on. Also included is a description of exclusive breastfeeding as well as the importance of breastfeeding for both mother and infant. Furthermore, when the program was implemented, they improved their understanding of premarital counseling, family planning, and breastfeeding more than the urban group compared to the rural group. As a result, the researchers believe that there are numerous

These findings go in distinguish with **Haque et al. (2015)** According to the study, 58 percent of rural women had good family planning knowledge, whereas 68 percent of urban women had good family planning and premarital counseling knowledge This finding agreed with the study in Yemen by **Masood & Alsonini (2017)** and in Pakistan by **Hackett et al. (2020)** who reported

that more than three-quarters recognized contraception methods. A similar finding was conducted in Tehran by **Roudsari et al. (2006)**, the study in Ethiopia by **Tegegn et al. (2008)**, and the study in Yemen by **Dureab et al. (2015)**. On the other hand, these results are contradicted by the results of a study done by **Tork & Al hosis (2015)** who pointed out that adolescent girls in Saudi Arabia remain largely unaware of many aspects of RH, especially concerning contraceptive methods and rural areas were less likely than urban women about counseling. These findings were supported in Egypt by **Ebrahim et al. (2017)** who accomplished that there was a lack of understanding, especially in the areas of pregnancy, premarital counseling, and contraception.

There was a highly statistically significant difference in association in all items related to the definition of sexually transmitted diseases, types of transmission, mode of transmission, complications, and prevention of STD, definition, and types of female genital mutilation, and complication of female genital mutilation after the program, in addition to their improvement of knowledge during posttest intervention and fo This might be explained by the fact that rural areas have their own culture, beliefs, customs, and traditions.

These findings go in the same line as **Mahmoud & Ibrahim (2020)** mentioned that the high level of score knowledge of female genital mutilation and sexually transmitted diseases was 98.4%. It is also in line with the study done by **Zaied et al. (2017)**, who reported that high levels of score knowledge of students' were 89.2% in Upper Egypt. These

findings go in the same way as **Alomair et al. (2021)** who found that over half of the adolescent students correctly identified the main mechanisms of HIV/AIDS transmission. In Tanzania **Madeni et al. (2016)** stated that the reproductive health program increased students' sexuality understanding and behavior. These findings are consistent with previous research. **Mou et al. (2016)** in Dhaka, Bangladesh, and the United Arab Emirates by (**Gańczak et al. (2007)**). All of this research shows that educated women are well-versed in the subject. female genital mutilation and sexually transmitted diseases. Conversely, based the findings of **Tork & Al hosis (2015)** in Saudi Arabia and **Zamani et al. (2019)** in Iran concluded that they were largely unaware of many aspects such as genital mutilation and STDs. And also, China by **Chen et al. (2020)** reported poor reproductive health situation and low level of health knowledge in rural areas. These findings go in the same way as those (**Meen et al., 2016**) who recommended that, training of students in sexual education.

In terms of the surveyed sample's attitudes toward reproductive health and rights, this study discovered that the majority of the samples had a negative attitude during the project's pre-test, but then switched to a positive attitude after the project was implemented, with a statistically significant percentage difference between the two. After aftercare initiatives, there are significant statistical differences between urban and rural privacy groups in terms of high-quality health services, reproductive health aftercare, social status discrimination, and couples' right to reproductive

health services. This can be explained by educational programs having a positive impact on students' attitudes, encouraging them to take an active role in their reproductive health.

These results agree with the results of many other studies as the study done by **Ibrahim et al. (2020)**, who reported that there is an overall positive attitude towards reproductive health was 99% of female students at King Saud University, Riyadh, As well, in Egypt **Mahmoud & Ibrahim (2020)** reported that two-thirds (66%) of the nursing students expressed a positive attitude and a significant improvement in most items of attitude scale during the post-test. On the other hand, in Indonesia **Susantoa et al. (2016)** indicated that in the rural region, there was a substantial difference between before and after the intervention. Before and after the intervention, there was a considerable difference, but there was no difference among the teenagers in the city.

This finding goes in the same way as **Farrag et al.(2020)** who reported that the lack of women's knowledge of the benefits of family planning and women's reproductive health in rural more than urban also in the same line with **Bitzer et al.(2016)** who found that knowledge deficits and needs for education about family planning .and also in India the finding goes in consistence with **Tiwari et al. (2016)** He pointed out that before and after the intervention, teenagers' knowledge and attitudes in rural and urban regions changed. Moreover, this finding is supported by **Ojong et al. (2014)** who indicated that rural girls obtained lower scores than urban girls. This result is contradicted with the results of a study in

Bangladesh done by **Zakaria et al. (2020)** who mentioned that a higher than average level of sexual and reproductive health knowledge and practice and better status of attitude in this regard. And also, the present study result was in agreement with **Njuki et al. (2015)** in Kenya, who found that teenagers in rural areas have improved their views toward family planning more than those in urban areas.

In terms of general knowledge and attitudes about reproductive health and rights services. The findings of this study revealed that most rural groups in the surveyed sample had more false and missing knowledge and negative attitudes than the urban group and that their knowledge and positive attitudes increased in the short term after the project was implemented. The urban group had better follow-up and aftercare than the rural group. Furthermore, the findings revealed that the total knowledge and attitudes scores of the urban and rural groups differed significantly between pre-treatment, post-treatment, and post-treatment at various stages of the project.

Various studies have shown the effectiveness of interventions in increasing knowledge of RH. **Zakaria et al. (2020)** pointed out that not knowing everything there is to know about reproductive rights and problems is understandable. This suggests that the family, as well as health care providers, including the school health team, do not place a high priority on this critical problem in the lives of teenagers. In this respect, **Widyatuti et al. (2018)** noted a difference in students' knowledge before and after health education about sexual behaviors and reproductive health and the better

education received by students in urban areas compared with those in rural areas. These results were supported by the study in Indonesia by **Widyatuti et al. (2018)** in Egypt by **Moustafa & Muhammad (2018)**, in Olongapo City by **Asio (2019)** and in Iran **Pourkazemiet al. (2020)** they recommended that health education and training program about reproductive health be provided to all students. The present results were congruent with the study in Bareilly by **(Kumar et al.2019)** who found that the overall knowledge of reproductive health among urban women was better than in rural women. The finding goes in consistence with the study in Egypt by **Ibraheim et al. (2020)** who indicated a highly statistically significant improvement in nursing students.

On the other hand, this result is contradicted by the results of a study done by the **Ministry of Health Indonesia (2013)**, which mentioned that the attitudes of students in the rural area significantly differed before and after the intervention, but no difference was observed among students in the urban area. This finding is consistent with that of a previous study, which reported that the attitudes of students about reproductive health in the rural area showed greater improvements there than in the urban area **Alishah et al. (2019)**.

5. Conclusion

Considering the results of the current study, it was concluded that there was a significant increase in female-related nursing students' knowledge of reproductive rights and perceptions. In addition, before the project intervention, their lack of knowledge and wrong response to women's reproductive health rights and negative attitudes. After the project implementation, the rural

group's knowledge has improved, and their enthusiasm is higher than that of the urban group. Post-intervention attitudes and follow-up were more in the urban group than in the rural group.

6. Recommendations

Based on the findings of the current study, it could be recommended that:

- Nursing students should be taught regularly about reproductive health and rights.
- To generalize the findings, the study should be replicated on a large sample and in a variety of institutional and community settings.
- Establishing teacher training programs in institutes of nursing to enable them to deal with "sensitive" reproductive health topics presented to students and making this element of the curriculum the first part of the curriculum in rural and urban areas.
- A media effort focused on boosting community knowledge regarding reproductive health rights should be carried out.
- Educators at all levels should recognize the importance of including reproductive health education in formal academic curricula and fostering a human rights-focused environment.
- Medical and community health nursing education institutions' curricula should be expanded and upgraded to include reproductive health, reproductive rights, and counseling.

Future research:

More research is needed in future studies. The study should be conducted on nursing students to assess their understanding of women's reproductive health and rights.

Further research is needed to investigate adolescents' barriers to utilization of reproductive health services in rural and urban.

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