

## Effect of counseling-based program on technical nursing students' perception regarding reproductive health

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### Abstract

**Background:** Premarital counseling (PMC) is vital element in health sector strategies, educating university students about premarital issues is a key event needed for reducing the high health hazards in the society. Aim: evaluate the effectiveness of counseling-based program on technical nursing students' perception regarding reproductive health. **Methods:** a quasi-experimental (pre-posttest,) design was used. The study was conducted at technical institute of nursing of Ain shams University. The study involved a purposive sample of 245 female students. **Tools:** data were collected through two tools. A structured interviewing questionnaire is divided into two parts to include general characteristics of the study simple, students' knowledge regarding reproductive health, second tool was Likert scale to assess female students' attitude regarding reproductive health. **Results:** It showed that 73.5% of female students had a positive attitude towards their premarital care after the program's implementation, Despite the fact that 41.2% of female students feel negatively about premarital care before program implementation Conclusion: Following the implementation of a counseling-based program, there was a highly statistically significant improvement in knowledge scores and positive attitude scores among female students regarding reproductive health and premarital counseling. **Conclusion:** the current study revealed a statistically significant difference between the total knowledge score and the total attitude score with a positive correlation between the post interventions. The study **recommended** reproductive health should be included in the nursing curriculum, according to the study, in order to better prepare students for marriage.

**Keywords:** program-based counseling, technical nursing students, reproductive health

### Introduction

Counseling is the professional guidance that a counselor offers to a client to assist in resolving any medical, social, emotional, or psychological issues as well as to assist in modifying one's attitudes and conduct. Individual and group counseling are also options for providing care. Counseling can also be categorized as directive counseling, in which the counselor gives the counselee specific directives. or give instructions do certain things and non-directive counseling as counselor does not issue directions but observe the behavior and attitude of the counselee and then give counseling to correct wrong behaviors (Al-Shafai et al., 2022).

Premarital counseling is considered to be one of the health promotion activities provided in the maternal and child health services to young couples before marriage in order to guide, educate and get them ready for starting a strong family. Premarital Counseling is provided as a

routine ongoing process in health centers as a part of the primary health care preventive measures based on the protocols and guidelines.

The service is provided by physicians, trained paramedics or other health care providers such as nurses (Al-Qahtani et al., 2019).

The best function of premarital counseling is to help couples better understand their own motivations for building own family, increasing commitment to each other and creating a future together. Premarital Counseling aimed to provide baseline assessment for couples, increasing their awareness regarding marital stage, identifying, and reducing the incidence of reproductive and genetic health problems in addition to improving couples' compliance to healthy habits and decreasing their psychological stress and anxiety (Al-Shafai et al., 2021).

Premarital Counseling (PMC) intervention involves a consultation through history assessment, medical examination as well as

laboratory investigations done to couples preparing for getting married to detect any hereditary and transmissible diseases. The components of pre-marital screening program include vaccination, counseling, nutrition, genetic counseling, advice regarding contraception, modification of chronic disease, treatment of infection and medication to decrease teratogenic risk. Family life education, which teaches couples about each other's sexualities, is another fundamental element of premarital counseling. (Altaany et al., 2021).

Genetic disorders occur in about 2%-5% of all live births, account for up to 30% of pediatric hospital admissions and cause about 50% of childhood deaths in industrialized countries. Because consanguineous marriages are so common in Arab nations, the issue of PMC is extremely important to prevent congenital malformations. Premarital counseling (PMC) has a significant impact on individuals who want to learn how to be in a successful and stable marriage. Additionally, PMC has preventive, educational and therapeutic aspects (Parhizgar et al., 2017).

Counseling before marriage can be a valuable and a very indispensable component of preventive medicine. Premarital counseling is one of the most crucial methods for preventing genetic abnormalities, congenital deformities, and a number of medical and psychosocial marital issues. Premarital examinations can particularly be important in the prevention of the spread of disease through identifying, modifying and management of some behavioral, medical, and other health risk factors known to impact pregnancy outcomes. Absence of premarital genetic counseling increases the probability of children that might be affected by a disorder and increase the risk of abnormality (Ali et al., 2018).

The nurse is heart of health care system as the nurse plays a significant role in providing PMC services that include assessment of genetic risk, providing information, discussing available testing options and provision of appropriate supportive counseling. Nurses should also educate couples and provide them with accurate and unbiased information. Premarital counseling and education appear to strengthen marriages and

are certainly beneficial. In addition, nurses ensure that the couples are aware of all components and activities of PMC to apply and increase the wellbeing (Aga et al., 2021).

### Significance of the Study

Egypt records a case of divorce every two minutes and two marriages per minute, the number of marriages in 2020 reached 876,000, while divorce cases of the same year reached 213,000. Number of marriages across Egypt increased to 928,800 contracts in 2019 compared to 887,300 in 2018 with increase of 4.6 percent while divorce certificates meanwhile reached 225,900 in 2019 compared to 211,500 certificates in 2018 with an increase of 6.8 percent (Central Agency for Public Mobilization and Statistics, 2020).

Studies reported that consanguinity rates among the Egyptians throughout the last 40 years ranges between 29% and 39%. Include Hearing impairment, mental retardation, autosomal recessive osteoporosis, and blood disorders such as thalassemia are among diseases which may result from marriage among relatives and can be identified and prevented via premarital counseling. In addition, premarital exposure to some infectious diseases such as hepatitis B virus, and rubella during pregnancy which are simply prevented by premarital vaccination which may result in physical or mental disorders in the newborn (Hanoon et al., 2021). So the current study will be done to evaluate the effect of counseling based program on nursing students' perception regarding premarital counseling.

### Aim of the Study

The study aimed to evaluate the effectiveness of counseling-based program on females' knowledge and attitude regarding reproductive health.

### The aim will be accomplished through the following objectives:

1. Assess existing female students' knowledge and attitude toward pre-marital care and reproductive health issues.
2. Implement counseling-based program for female students regarding premarital education.

- Evaluate the effectiveness of counseling based program on female students' knowledge and attitude regarding reproductive health.

### Operational definition

Students' perception: in our study perception is referred to assessment of students' knowledge and attitude related to premarital counseling

### Research Hypothesis

1. Implementing counseling-based program will enhance female students' knowledge scores and attitude regarding pre-marital counseling 2. There will be positive correlation between female students' total knowledge scores and total attitude in relation to premarital counseling

### Materials and Methods

#### Research Design:

A quasi-experimental design (one group pretest posttest design) was utilized to fulfill this study's aim. A quasi experiment is an empirical interventional study used to estimate an intervention's causal impact on the target population without random assignment. Quasi experimental research shares similarities with the traditional experimental design or randomized controlled trial, but it specifically lacks the element of random assignment to treatment or control (Dinardo, 2008; Iowa State University of Science and Technology, 2020). The dependent variable is measured twice in a pretest posttest design: once before and once after the therapy. (Posternak & Miller, 2001; Spurlock, 2018).

#### Setting:

The study was conducted at technical institute of nursing, Ain Shams University, it is an institute affiliated to the faculty of nursing, for both males and females students' duration of the study is two years, and all nursing specialties are taught. It is consisting of two floors, two classrooms and four lab sections for practical training

#### Subjects:

One group pre and post, of 2<sup>nd</sup> academic year female students were included at previously mentioned settings.

#### Sample Type:

Purposive sample was used by the researchers for selecting the study sample of female students it is a non-probability sample that is selected based on a characteristic of a population and objective of the study. (Crossman, 2020)

#### Inclusion Criteria:

- Female students at the 2nd year at academic year.
- Unmarried female students.
- Students who didn't previously attend pre-marital counseling.

#### Sampling:

#### Sample Size:

The sample size recruited according to Steven Thompson Equation (Khuanbai, 2019).

$N = \dots!(..(1 \dots)..2$  Where, - N = Sample size - Z: Statistics for a level of confidence. (For the level of confidence of 95%, which is conventional, Z value is

1.96). - P = the population's anticipated proportion based on earlier research. - d=error percentage = (0.05). So, - N=245

Based on the above formula, the sample size required for the study was 245 female students.

#### Tools of data collection:

Two tools were used in the study to achieve the aim as the following:

**Tool I: A self-administered questionnaire** including multiple choice questions which was developed by the researchers after reviewing of recent related literature (AlShafai et al., 2022 & Al-Qahtani et al., 2019), it included two parts:

**Part 1:** Female students' general characteristic 14 questions such as (age, place of residence, state of engagement, type of family, family income, family size and family history of hereditary disease). This part of tool was used once pre intervention

**Part 2:** Investigate female students' knowledge about premarital counseling, as well as reproductive health issues 13 multiple choice questions such as (concept of PMC, importance of PMC, methods of PMC,

Laboratory investigations needed before marriage, contraceptive methods, sexually transmitted diseases, Knowledge of pregnancy and antenatal care). this tool was used twice pre and post intervention, this part of tool was used twice pre and post intervention

**Scoring system:** Each question will be scored (3) for the correct and complete answer and (2) for correct and incomplete answer and (1) for incorrect answer while the total knowledge score was calculated as the following:

- $\geq 60\%$  satisfactory level
- $\leq 50\%$  unsatisfactory knowledge level

**Tool II: Female students' attitude regarding PMC Likert scale,** It was adapted from (Kabbash et al., 2019 & Al-Kindi et al., 2019) and modified by the researchers to match the aim of the study investigating female students' attitude toward premarital counseling, it included about 22 questions such as (pre-marital counseling is important to raise awareness about PMC before marriage to reduce genetic and STDs, premarital counseling can detect hereditary disease, pre-marital screening can prevent hereditary disease, premarital counseling help in selecting the best contraceptive method .....etc.) this tool was used twice pre and post intervention

**Scoring System:** Each statement will be scored as Strongly Agree (5), Agree (4), Uncertain (3), Disagree (2) and strongly disagree (1)

• **While the following formula was used to determine the overall attitude score:**

- $\geq 70\%$  Positive attitude.
- $<70\%$  negative attitude.

**Content validity and reliability:**

Research process was evaluated for feasibility and the tools' content validity were assessed by five experts from the Maternity-Gynecological Nursing Department, and the Public Health Department, Faculty of Nursing, and Obstetrics and Gynecology Department, Faculty of Medicine, Ain Shams University. According to the comments, modifications were made by "rephrasing and cancelling for three questions."

The reliability coefficient for the study tool will be calculated using the correlation coefficient Cronbach's alpha test.

**Pilot Study:**

It was carried out in three weeks on 10 % of the sample (24 students). The pilot study conducted to assess the validity, clarity, comprehensiveness of the tools and to test the feasibility of the study process. No necessary modifications were done based on the pilot study findings, so these groups were included in the study sample.

**Supportive material**

Simple illustrative booklet was designed by the researcher after reviewing related national and international literatures such as (Ibrahim et al., 2011 & Parhizgar et al., 2017) and included the following (introduction about premarital counseling, definition, importance of premarital counseling, .....etc.), it was done in simple Arabic language and supported by figures.

**Administrative design:**

Approvals to conduct the study was obtained by submission of an official letter issued from the Dean of faculty of Nursing / Ain-Shams University to the director of Ain-Shams technical institute of nursing and objectives, tools and study technique was illustrated to gain their cooperation and trust.

**Ethical considerations:**

Ethical approval was obtained from the Scientific Research Ethical committee of Faculty of Nursing at Ain Shams University before starting the study. Informed consent obtained from participants after explaining the purposes of the study. No harmful methodology used with participants. Every participant had the option to leave the research at any time. Human rights were granted. A data coding scheme was utilized, and data was confidential

**Field work**

The study was conducted in three stages: the assessment, implementation, and evaluation phases. These phases were carried out from the beginning of March 2021 to June 2021, covering three months. The researchers visited the previously mentioned setting three days per week

in until the sample size was completed. The researchers took into consideration safety precautions against COVID19 infection followed by WHO guidelines (World Health Organization, 2020) during the data collection period; for example, wearing masks, keeping a one-meter distance, hand washing and using the antiseptic solution (alcohol 70%)

### 1. Assessment phase:

This phase was involved interviews with the studied sample. The researcher was available at the previously mentioned settings for three days weekly from March to June (2021) in the morning to the afternoon entering for students during free classes or between lectures. First, the researchers introduced themselves and briefly explained the nature and the purpose of the study and obtaining the acceptance from the students to participate in the study, the researcher provided an overview and clarification about the data collection tools questions then the students were given a questionnaire to fill it (first tool). to assess female students' knowledge and attitude regarding premarital counseling. The time that required for finishing this tool was around 20 minutes. The data obtained during this phase constituted the baseline for further comparisons to assess the effect of the intervention.

Based on data obtained from assessment phase, the counseling-based program was developed by the researcher. Also, supportive materials construction was done in a form of printed Arabic form to improve the students' knowledge and attitude regarding premarital counseling.

### 2. Implementation phase:

Firstly, the researcher visited the previously mentioned study setting 3days/week., The counseling-based program was implemented through using group counseling divided students into 16 small group each group contained around 15 female students allow adequate understanding, discussion and asking questions, Pre-marital counseling was conducted through 4 sessions, **as following:**

**First session:** included the knowledge regarding (introduction and definition of premarital counseling, importance of premarital counseling.....etc).

**Second session:** included knowledge regarding (pre-marital counseling interventions, hereditary disease that may developed due to absence of pre-marital counseling.....etc).

**Third session:** included knowledge regarding (Contraceptive methods, female personal hygiene..... etc).

**Fourth session:** included knowledge regarding (healthy lifestyle, healthy diet, importance of exercise.....etc).

- The duration of each session was about 45minute, the researcher followed various method of teaching such as discussion, and demonstration, then the booklet was distributed after counseling sessions ended.
- The researcher used colored illustrated booklet, videos, and illustrative posters during counseling for better understanding.
- At the end of the final session post-test was done by using the same questionnaires that will be distributed at the pre-test and results will be compared.

### 3. Evaluation phase:

This phase was utilized to evaluate the effect of counseling-based program on females' students' knowledge and attitude regarding premarital counseling. It was done by using the same format of tool that will be used for pre-test. All tools of data collection were used pre- and 4 week's post- intervention except demographic characteristics was used only once pre intervention. The effect of counseling-based program on females' students was done through comparing between the pre and post intervention including knowledge and attitude regarding premarital counseling.

**Statistical Design:** The collected data were organized, categorized, tabulated, and statistically analyzed using the Statistical Package for Social Science (SPSS 20.0). Descriptive statistics were used to calculate percentages and frequencies for qualitative variables, mean and standard deviations for quantitative variables. The statistical tests such as chi-square test (X<sup>2</sup>) were used to estimate the statistically significant differences. For normally distributed data, a comparison between pre and post intervention was made using independent (t) test. Reliability

was measured using Cronbach's Alpha coefficient test. A significant level value was considered when  $p < 0.05$ , a highly significant level value was considered when  $p < 0.01$ , and not statistically significant difference when  $p > 0.5$ .

## Results

**Table (1)** showed that concerning age, 60% of them age ranged from 16 to 17 years. While 88.2% of female are unmarried. Fifty-six-point three percent (56.3%) of them number of family members less than five member.

Concerning their Parental consanguinity 96.3% of female student don't have consanguinity. In addition, 98.8% of female student don't have family history of genetic diseases. Concerning their educational level, 47.8% of fathers have high education. On other hand, 42% of mothers have basic education. As regard their father work 55.5% of fathers have work. While 52.7% of mothers have work.

**Table (2):** Points out that there is a highly statistically significant improvement postintervention compared to preintervention regarding students' knowledge of premarital care inform of Having information about premarital care program, Concept of Premarital care program,, Component of Premarital care program, Lab investigations among Premarital care program , Immunizations included in Premarital care program, Places presenting premarital care services, as well as

Legislations in your country about premarital care program

**Figure (1)** reveals that 60.0%, 56.3% and 26.9% of female students have their sources of information regarding premarital care from curriculum, relatives & friends, TV, and radio respectively.

**Table (3)** showed that there is a highly statistically significant difference between female student knowledge regarding **reproductive health knowledge** and their genetic diseases,

contraceptive methods, sexual transmitted disease, and antenatal care post program implementation.

**Figure (2):** illustrated that 89.9% of female student had satisfactory level of knowledge about premarital care post program implementation, and 51.8% had unsatisfactory level of knowledge regarding premarital care post program implementation

**Figure (3):** shows that 73.5% of female students have a positive attitude towards their premarital care after the program's implementation. **Whereas 41.2%** of female students have a negative attitude towards premarital care

**Table 4:** illustrated that nearly three quadrants of female students have positive attitude regarding their premarital care after program implementation. Compared to less than half of female students have negative attitude regarding their premarital care preprogram implementation with highly statistically significant differences between pre and post intervention as regard to their attitude, in form of premarital screening (PMS) is against religious roles, PMS will contribute to reduction of prevalence of some genetic and STDs.

Religious and community leaders should adopt the ideas of PMS in their discussion. The law that obligates all future couples to do PMS is important and Test results that shows presence of genetic diseases should change marriage decision

**Table (5):** shows that there is highly statistically significant difference between knowledge and attitude among female students regarding premarital care after program implementation. Meanwhile, there is no statistically significant difference between knowledge and attitude among female students regarding premarital care before program implementation also there is positive correlation between knowledge and attitude among female students.

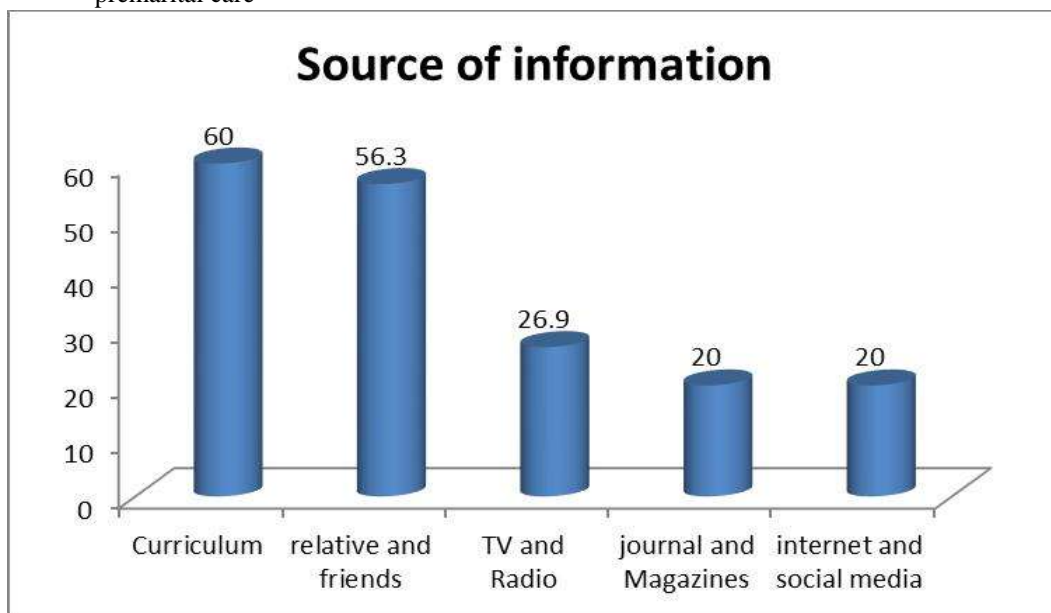
**Table (1):** Number and percent distribution of female students regarding to socio-demographic characteristics

| Parameter                                 | Female Students |      |
|---|-----------------|------|
|   | N=245           | %    |
| <b>Age group(years):</b>                  |                 |      |
| 16-17                                     | 147             | 60   |
| 17-18                                     | 81              | 33.1 |
| < 18                                      | 17              | 6.9  |
| <b>Marital status:</b>                    |                 |      |
| Unmarried                                 | 216             | 88.2 |
| “Engaged/fiancé”                          | 29              | 11.8 |
| <b>No. of family members</b>              |                 |      |
| <5  | 138             | 56.3 |
| 5-8                                       | 98              | 40   |
| >8  | 9               | 3.7  |
| <b>Parental consanguinity</b>             |                 |      |
| Yes                                       | 9               | 3.7  |
| No  | 236             | 96.3 |
| <b>Family history of genetic diseases</b> |                 |      |
| Yes                                       | 3               | 1.2  |
| No  | 242             | 98.8 |
| <b>Father education</b>                   |                 |      |
| Illiterate                                | 3               | 1.2  |
| Basic                                     | 60              | 24.5 |
| Secondary and diploma                     | 65              | 26.5 |
| High                                      | 117             | 47.8 |
| <b>Mother education</b>                   |                 |      |
| Illiterate                                | 27              | 11.1 |
| Basic                                     | 103             | 42   |
| Secondary and diploma                     | 49              | 20   |
| High                                      | 66              | 26.9 |
| <b>Father work</b>                        |                 |      |
| Governmental                              | 136             | 55.5 |
| Private                                   | 58              | 23.7 |
| Don't work and retirement                 | 51              | 20.8 |
| <b>Mother work</b>                        |                 |      |
| Work                                      | 129             | 52.7 |
| Housewife                                 | 116             | 47.3 |

**Table (2):** Knowledge difference among female students regarding premarital care pre and post program implementation (N=245)

| Parameter   | Pre |      | Post |      | $\chi^2$ | Sig   |
|---|-----|------|------|------|----------|-------|
|   | N   | %    | N    | %    |          |       |
| <b>Having information about premarital care program</b>           |     |      |      |      |          |       |
| Satisfactory  | 108 | 44.1 | 211  | 86.1 | 95.298   | 0.000 |
| Unsatisfactory  | 137 | 55.9 | 34   | 13.9 |          |       |
| <b>Concept of Premarital care program</b>                         |     |      |      |      |          |       |
| Satisfactory  | 87  | 35.5 | 225  | 91.8 | 168.027  | 0.000 |
| Unsatisfactory  | 158 | 64.5 | 20   | 8.2  |          |       |
| <b>Importance of Premarital care program</b>                      |     |      |      |      |          |       |
| Satisfactory  | 130 | 53.1 | 216  | 88.2 | 72.737   | 0.000 |
| Unsatisfactory  | 115 | 46.9 | 29   | 11.8 |          |       |
| <b>Component of Premarital care program</b>                       |     |      |      |      |          |       |
| Satisfactory  | 107 | 43.7 | 212  | 86.5 | 99.035   | 0.000 |
| Unsatisfactory  | 138 | 56.3 | 33   | 13.5 |          |       |
| <b>Lab investigations among Premarital care program</b>           |     |      |      |      |          |       |
| Satisfactory  | 83  | 33.9 | 193  | 78.8 | 100.383  | 0.000 |
| Unsatisfactory  | 162 | 66.1 | 52   | 21.2 |          |       |
| <b>Immunizations included in Premarital care program</b>          |     |      |      |      |          |       |
| Satisfactory  | 113 | 46.1 | 235  | 95.9 | 147.587  | 0.000 |
| Unsatisfactory  | 132 | 53.9 | 10   | 4.1  |          |       |
| <b>Places presenting premarital care services</b>                 |     |      |      |      |          |       |
| Satisfactory  | 160 | 65.3 | 245  | 100  | 102.840  | 0.000 |
| Unsatisfactory  | 85  | 34.7 | 0    | 0    |          |       |
| <b>Legislations in your country about premarital care program</b> |     |      |      |      |          |       |
| Satisfactory  | 57  | 23.3 | 225  |      | 235.777  | 0.000 |
| Unsatisfactory  | 188 | 76.7 | 20   | 91.8 |          |       |
|   |     |      |      | 8.2  |          |       |

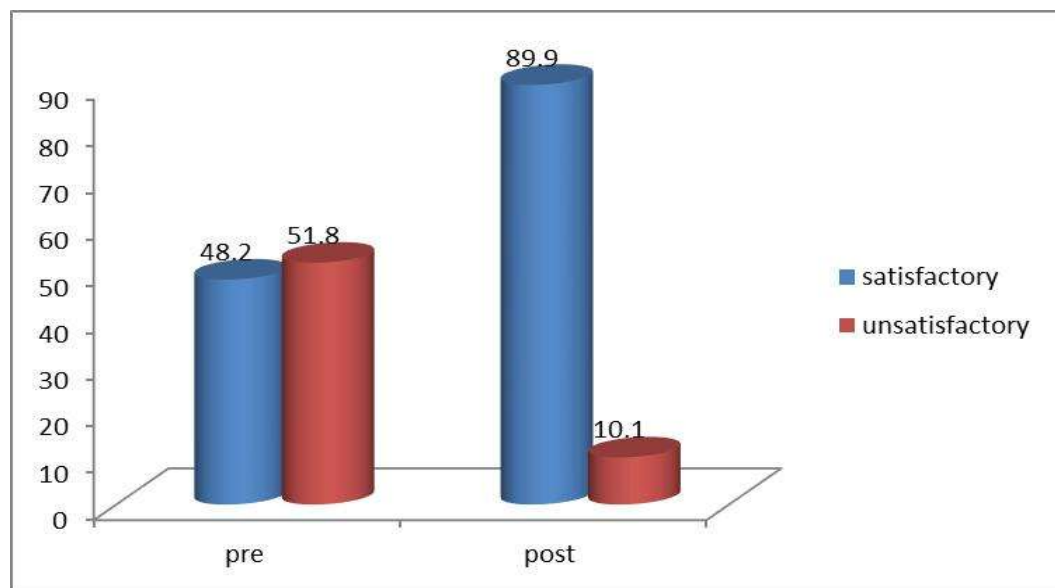
**Figure (1):** Percent distribution regarding Sources of information among female students regarding premarital care





**Table (3):** Knowledge difference among female students regarding reproductive health knowledge pre and post program implementation

| Parameter   | Pre |      | Post |      | $\chi^2$ | Sig   |
|---|-----|------|------|------|----------|-------|
|   | N   | %    | N    | %    |          |       |
| <b>Knowledge of genetic diseases</b>              |     |      |      |      |          |       |
| Satisfactory                                      | 74  | 30.2 | 188  | 76.7 | 106.603  | 0.000 |
| Unsatisfactory                                    | 171 | 69.8 | 57   | 23.3 |          |       |
| <b>Knowledge of contraceptive methods</b>         |     |      |      |      |          |       |
| Satisfactory                                      | 154 | 62.9 | 230  | 93.9 | 69.532   | 0.000 |
| Unsatisfactory                                    | 91  | 37.1 | 15   | 6.1  |          |       |
| <b>Knowledge of sexually transmitted diseases</b> |     |      |      |      |          |       |
| Satisfactory                                      | 166 | 67.8 | 220  | 89.8 | 35.593   | 0.000 |
| Unsatisfactory                                    | 79  | 32.2 | 25   | 10.2 |          |       |
| <b>Knowledge of pregnancy</b>                     |     |      |      |      |          |       |
| Satisfactory                                      | 169 | 69   | 235  | 95.9 | 61.433   | 0.000 |
| Unsatisfactory                                    | 76  | 31   | 10   | 4.1  |          |       |
| <b>Knowledge of antenatal care</b>                |     |      |      |      |          |       |
| Satisfactory                                      | 127 | 51.8 | 228  | 93.1 | 104.298  | 0.000 |
| Unsatisfactory                                    | 118 | 48.2 | 17   | 6.9  |          |       |

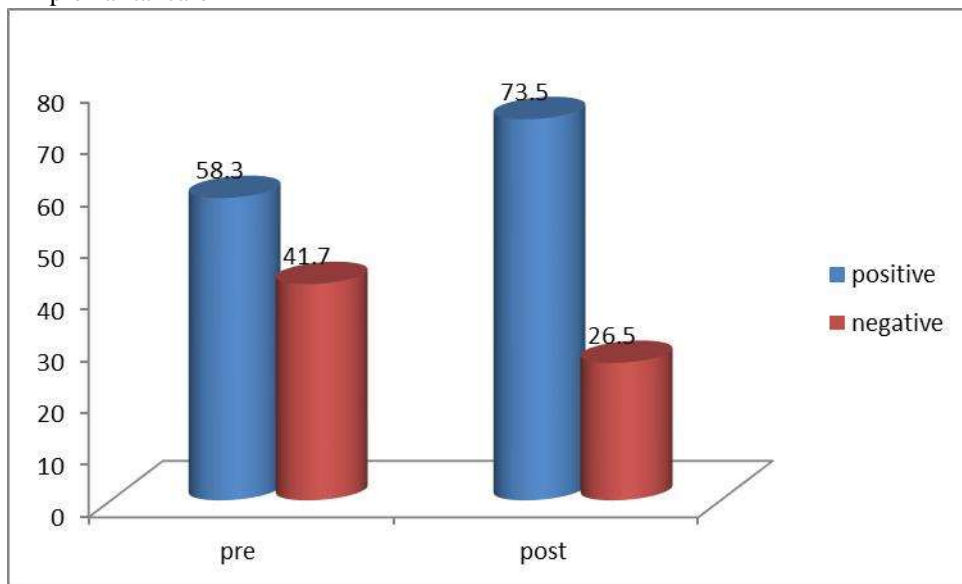
**Figure 2:** Percent distribution of total knowledge difference among female students regarding premarital care $\chi^2(99.228)$ 

sig (0.000)

**Table (4):** Attitude difference among female students regarding premarital screening program pre and post program implementation

| Parameters   | Pre   |      |          |      |          |      | Post  |      |          |      |          |      | $\chi^2$ | Sig   |
|--|-------|------|----------|------|----------|------|-------|------|----------|------|----------|------|----------|-------|
|  | Agree |      | Not sure |      | Disagree |      | Agree |      | Not sure |      | Disagree |      |          |       |
|  | N     | %    | N        | %    | N        | %    | N     | %    | N        | %    | N        | %    |          |       |
| PMSis important  | 202   | 82.4 | 23       | 9.4  | 20       | 8.2  | 232   | 94.7 | 10       | 4.1  | 3        | 1.2  | 19.760   | 0.000 |
| PMSis against religious roles  | 0     | 0    | 5        | 2.1  | 240      | 97.9 | 0     | 0    | 5        | 2.1  | 240      | 97.9 | --       | --    |
| Consanguinitycan increasetheriskof hereditarydiseases  | 205   | 83.7 | 6        | 2.4  | 34       | 13.9 | 222   | 90.6 | 12       | 4.9  | 11       | 4.5  | 14.432   | 0.001 |
| PMSwillcontribute to reductionof prevalence of somegeneticand STDs   | 191   | 78   | 44       | 18   | 10       | 4    | 235   | 95.9 | 8        | 3.3  | 2        | 0.8  | 34.801   | 0.000 |
| It is importantto raise awareness aboutPMS beforemarriage toreduce geneticand STDs   | 200   | 81.6 | 39       | 15.9 | 6        | 2.5  | 222   | 90.6 | 16       | 6.5  | 7        | 2.9  | 10.842   | 0.004 |
| Religiousand community leaders shouldadopt the ideasof PMSintheir discussion   | 79    | 32.2 | 10       | 4    | 156      | 63.7 | 202   | 82.4 | 23       | 9.4  | 20       | 8.2  | 164.052  | 0.000 |
| Authorizedperson who carries outthereligious marriagesshouldhas the rightto acceptconducting marriagecontractonly if futurecouple didPMS | 137   | 55.9 | 35       | 14.3 | 73       | 29.8 | 147   | 60   | 15       | 6.1  | 83       | 33.9 | 8.993    | 0.011 |
| Thelawthat obligateall futurecouples todo PMS is important   | 153   | 62.4 | 8        | 3.3  | 84       | 34.3 | 205   | 83.7 | 12       | 4.9  | 28       | 11.4 | 36.353   | 0.000 |
| No oneshouldobligate anyonestoconduct geneticesting, but only encourage todo   | 166   | 67.8 | 15       | 6.1  | 64       | 26.1 | 219   | 89.4 | 16       | 6.5  | 10       | 4.1  | 46.734   | 0.000 |
| In a caseof discovery havingor carryingSTDs, marriagedecisionmustbe left forfreedom of the couple  | 94    | 38.4 | 52       | 21.2 | 99       | 40.4 | 15    | 6.1  | 48       | 19.6 | 182      | 74.3 | 81.933   | 0.000 |
| In thecase of discovery havingor carrying inheriteddiseasein PMS, marriagedecisionmustbe left forfreedom of couple                       | 98    | 40   | 15       | 6.1  | 132      | 53.9 | 15    | 6.1  | 48       | 19.6 | 182      | 74.3 | 86.212   | 0.000 |
| Test results that shows presenceof genetic diseases shouldchange marriagedecision  | 147   | 60   | 12       | 4.9  | 86       | 35.1 | 219   | 89.4 | 16       | 6.5  | 10       | 4.1  | 74.902   | 0.000 |
| It is importantto applya lawthatstop marriage upon discoverypresence of a genetic disease  | 138   | 56.3 | 48       | 19.6 | 59       | 24.1 | 235   | 95.9 | 8        | 3.3  | 2        | 0.8  | 107.059  | 0.000 |
| PMSbreaks personal privacy   | 19    | 7.8  | 27       | 11   | 199      | 81.2 | 10    | 4.1  | 27       | 11   | 208      | 84.9 | 2.992    | 0.224 |

**Figure 3:** Percent distribution of total attitude difference among female students regarding premarital care



$\chi^2(12.436)$  sig (0.000)

**Table 5:** Correlation between knowledge and attitude among female students regarding premarital care

| Items               | Pearson correlation | Attitude     |
|---------------------|---------------------|--------------|
| <b>Pre program</b>  |                     |              |
| Knowledge           | R                   | <b>0.312</b> |
|                     | P value             | 0.015        |
| <b>Post program</b> |                     |              |
| Knowledge           | R                   | 0.366        |
|                     | P value             | 0.004        |

**Discussion**

Premarital counseling (PMC) has a significant impact on individuals who want to learn how to be in a successful and stable marriage. Additionally, PMC has preventive, educational and therapeutic aspects (Parhizgar et al., 2017). In the light of the previous outline, a quasi-experimental research design was used in this study to evaluate the effectiveness of counseling-based program on females’ knowledge and attitude regarding reproductive health school students regarding premarital counseling

Regarding the personal characteristics of the studied sample, the current study revealed that

nearly half of them age ranged from 16 to 17 years. While the majority of female are unmarried. Half of them of them number of family members less than five member. Concerning their Parental consanguinity almost all of them don’t have consanguinity or have any family history of genetic diseases. Concerning their educational level, less than half of them their fathers have high education. On other hand, less than half of them their mothers have basic education. As regard their father work nearly half of fathers and mothers have work.

The current study results were in the same line with (Mahmoud, El-Ganzory2, Abd El Fattah,2021) on examining the Effect of

Premarital Counseling on Faculty of Nursing Students at Helwan University illustrated that near to three quarters of the participants were resident in urban area. This finding might be due to the most of students live in Cairo and Giza governorates and many of these places located in urban areas. This result agreed with (Ali M., Elshabory, Elzeblawy, 2018) who studied "Perception about Premarital Screening and Genetic Counseling Among Males and Females Nursing Students" and reported that more than half of the participants were resident in urban area.

The present study also was similar to (Mahmoud, et al 2021) results who reported that slightly more than half of participants' family size ranged from 3-5. This finding might be due to the most of small size families are interested in education and occupation of their children so first choice is nursing. This result was in incongruent with (Saleh W., 2020) Who studied "Effect of Emotional Intelligence Program on Nursing Students Behavior at Helwan University" and reported that most of the participants were from large-sized families.

These results were not in accordance with a study done by (Sedek, Emam, Abd Elrahim.,2022) to investigate Effect of Educational Program for Premarital Counseling among technical school student who revealed that less than one half of participants were in the age group 18 years. In terms of residence, more than half of them lived in rural areas; half of the studied students were employed; and more than half had some degree of kinship, these differences may be due to the differences in study settings as this study was conducted in upper Egypt in rural area that has certain customs in social life including consanguine marriage.

Regarding to Knowledge differences among female students regarding premarital care pre and post program implementation, The current study clarified that before the counseling program implementation, half of the studied sample had unsatisfactory level of knowledge about the concept and importance of PMC components, Immunizations included in Premarital care program and lab investigation

while more than three quadrants of them did not know about Legislations in country about premarital care program as well as about one third of them have unsatisfactory knowledge regarding places presenting premarital care. And regarding to source of information among study sample revealed that majority of female students have their sources of information regarding premarital care from curriculum, relatives & friends, and less percentage of sources was from TV, and radio.

In a study done by (Mahmoud., et al 2021) clarified that before the program implementation, half of the studied sample gave incomplete correct answers about the concept and importance of PMC, While half as well as more than one-third of them were unaware of the components and locations that provide PMC, one-half of the studied sample of students provided an incomplete correct answer regarding the groups that require counselling and investigation prior to marriage. In the researcher opinion this is because the illiteracy about premarital counseling and ignorance about the places providing it.

Regarding the effect of implementing counseling based program on students' knowledge, the current study Points out that there was a highly statistically significant improvement post-intervention compared to pre-intervention regarding students' knowledge of premarital care in form of Having information about premarital care program, Concept of Premarital care program, Component of Premarital care program, Lab investigations among Premarital care program , Immunizations included in Premarital care program, Places presenting premarital care services, as well as Legislations in your country about premarital care program.

In the same line the current study followed a study done by (Pushpa, Nisha, Clement., 2019) to assess the Effectiveness of STP on Knowledge and Attitude Regarding Premarital Counselling Among Degree Students illustrated that, during post-test, majority of the respondents had adequate knowledge, and none of them had inadequate knowledge. The findings reveal that, in pre-test, overall mean

percentage of knowledge score was less than that of the post-test with an enhancement rate. It shows that, the STP on premarital counseling significant difference in the knowledge and was effective, this accordance highlight the positive effect of such programs on enhancement of knowledge.

The current study findings also were congruent with (Mahmoud., et al 2021) the study clarified that before the program implementation, half of the studied sample gave incomplete correct answers about the concept and importance of PMC, while half as well as more than one third of them did not know about component and places provide PMC, while one half of the studied sample of the students had an incomplete correct answer about the groups that need counseling and investigation done before marriage. According to the researcher, this is a result of people's ignorance of premarital counselling and the locations where it is offered.

These results were in congruence with (AlFarsi., 2014) who stated that few of participants reported a complete correct answer about the groups that need counseling and investigation done before marriage and they also were willing to use free premarital counseling and express their awareness of premarital investigations and knew about places providing premarital counseling and investigations. Also, agreed with (Al Kindi et al., 2012), who demonstrated that their participants' knowledge of premarital screening tests was inadequate. These results disagree with (Kabbash et al., 2019) who mentioned that the majority among participants reported a complete correct answer about the groups that need counseling and examination done before marriage and they also were ready to use allowed premarital counseling.

As regard to reproductive health knowledge among female students pre and post intervention, the current study showed a significant improvement in level of knowledge post intervention compared to pre intervention as he majority of students have satisfactory level of knowledge as regard to genetic diseases, contraceptive methods, sexual

transmitted disease, and antenatal care post program , also there was a highly statistically significant differences between female student knowledge regarding reproductive health in all items related to reproductive health .

This result parallel to the study of (Osman et al., 2021) who examined the Awareness and attitude of university students regarding premarital counseling and examination, discovered that pre intervention the most of studied students had incomplete information about reproductive health issues which include check health status of both couples, detection of hereditary and genetic diseases, production of healthy offspring, decrease transmission of STDs & infectious diseases and saving marriage. also, this result was matching with a study done by (Mahmoud, et al 2021) clarified that more than half of studied students reported that they did not know about diseases that transmitted sexually, methods used to delay pregnancy in early marriage, and diseases transmitted through genes before the program implementation. In the researcher opinion because of the illiteracy about premarital counseling and testing these services were uncommon among our societies and developing countries.

Changing premarital care misbelieves among our students tends to be important key factor in reducing subsequent hazards that may arise in the later life ,positive attitude towards these issues brings us to engage in such program and highlight the number of utilization of its services widely,

Concerning female students attitude toward premarital counseling, the current study revealed that there was remarkable improvement of all items related to students' attitude after implementing counseling program with highly statistically differences pre and post intervention in all items of attitude except in authorized person who carries out the religious marriage should has the right to accept conducting marriage contract only if future couple did PMS as well as PMS breaks personal privacy

In sequence of the same point, the current study pointed out that nearly three quadrants of female student have positive attitude regarding their premarital care post program implementation. Compared to less than half of female student have negative attitude regarding their premarital care pre-program implementation with highly statistically significant differences between pre and post intervention as regard to their attitude. This result was correspondent to a study done by **(Keshavarz, Amrgha, Melatkhah.,2013)** who investigated the Effectiveness of Marriage Education Before Marriage Change Irrational Beliefs Girls reviled that pre-marriage education meaningfully improves misbelieves about marriage among girls

Similarity, in a study done by **(Pushpaet., al,2019)** illustrated that there was significant difference between mean pretest and posttest in attitude scores among degree students this similarity assured the positive effect of educational program in changing man's attitude and beliefs specially when it was focused on their inquiries and interest of neglected topics using The constant encouragement and guidance by the guide and expects, personnel co-operation and interest of respondents in the study contributed to the completion of the study positively.

On accordance, **(Mahmoud., et al 2021)** revealed that more than three quarter of studied students had positive attitude regarding premarital counseling after the implementation of education program. In the researcher point of view this similarity may be due to the favorable effect of increasing knowledge and information level after program that affects the attitude level of the individuals

These findings were similar to **(Mohamed et al., 2015)** in a study entitled' Improving knowledge and attitude of medical and nonmedical students at El Minia University regarding premarital screening and counseling proved that half participants were expressed favorable and positive attitude toward premarital screening and counseling. Where the majority agreed to continue premarital counseling in the future and thought it was

important.. Many of the participants reported that they will perform premarital counseling to prevent transmission of diseases to their children. As a result of the program's implementation, the participants clearly understood the preventive benefits of premarital counseling.

These findings were similar to **Mohamed et al.**, and Also were similar to **(Razavi et al., 2018)** who Comparing the effectiveness of premarital prepare counseling based on Olson model and native premarital counseling package on problems of couples in engagement period stated that majority of the participants had a good score of attitude regarding premarital counseling, The majority of students felt that premarital counseling and testing can identify inherited illnesses and sexually transmitted infections, and the majority were willing to use free premarital counseling.

On investigating correlation between students' knowledge and attitude pre and post intervention, the current study revealed that there was highly statistically significant difference between knowledge and attitude among female students regarding premarital care after program implementation.

Prior to the start of the program, there was no statistically significant difference in the knowledge and attitudes of female students on premarital care.

This result come in accordance with **(Matney., 2019)** who assessed A knowledge framework for the philosophical underpinnings of research: There was a positive correlation between the knowledge and attitude of the analyzed participants at the post-educational test, according to implications for music therapy.

Identical to previous findings and in a study done by **(Pushpa, et., al 2019)** There was a significant difference between mean pre-test and post-test knowledge attitude score of premarital counseling. Hence structured teaching program regarding premarital counseling is an effective method to improve knowledge and attitude Post-test knowledge scores are positively correlated with post-test

attitude scores. Hence it can be concluded that better is the knowledge better is the attitude

In conclusion, the present study emphasized important evidence concerning the remarkable effect of counseling-based program as it was effective in improving the knowledge and attitude regarding premarital counseling among female students, this finding emphasized the importance of such education using counseling program in promoting positive attitudes and correct beliefs regarding reproductive health as well as their knowledge related issues.

### Conclusion

The study concluded that; there was a highly statistically significant improvement in knowledge scores as well as positive attitude scores among female students regarding reproductive health and premarital counseling after implementing counseling-based program, also the current study revealed statistical significance difference between total score of knowledge and total score of attitudes with positive correlation between the post intervention, and these findings proved and support the research hypothesis.

### Recommendations

**Based on the results of the present study, the subsequent recommendations are suggested:**

- Reproductive health and Premarital counseling must be included into the nursing curriculum to prepare students for marriage
- Provide health education about reproductive health and premarital counseling to all couples during their presence for the health certification prior to getting married.
- Preparing for marriage should be required of all university and school seniors as well as everyone who is about to tie the knot.
- Further research is specified to implement an analysis on the effect of premarital counseling on health consequences among couples and children, after application of premarital counseling for further support the evidence of its effectiveness.

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