Effect of counselling-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 for helping couples to learn skills about better understanding of marriage, improving social relationship as well as health of both couples and their coming children, 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 counselling-based program on females’ knowledge and attitude 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. A purposive sample of 245 female students were included in the study. Data were collected through two tools. A structured interviewing questionnaire is divided into two parts to include sociodemographic data, students’ knowledge regarding premarital counselling and reproductive health, And Female students’ attitude regarding PMC Likert scale Results: It revealed 60% of them age ranged from 16 to 17 years reveals that 73.5% of female student have positive attitude regarding their premarital care post program implementation. While 41.2% of female student have negative attitude regarding their premarital care pre-program implementation Conclusion: there was a highly statistically significant improvement in knowledge scores as well as positive attitude scores among female students regarding premarital counselling after implementing counselling-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. The study recommended Premarital counseling should be added into the nursing curriculum to prepare students for marriage

Keywords: Premarital, reproductive health, program-based counselling, technical nursing students

Introduction

Counseling is a professional advice given by a counselor to an individual to help in dealing with any medical, social, personal, or psychological problems and help in changing personal attitudes and behavior. Counseling can be done either individualized or in group-based manner in addition, counseling can be classified as directive counselling in which the counsellor issues certain instructions to the counselee or give instructions do certain things and non-directive counselling as counsellor 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 prepare them for the establishment of a healthy 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,
The modification of chronic disease, treatment of infection and medication to decrease teratogenic risk. Also, one of the basic components of premarital counseling is family life education which provides the couples with knowledge about individuals sexual being. (Altaany et al., 2021).

Counseling before marriage can be a valuable and a very indispensable component of preventive medicine. Premarital counseling is one of the most important strategies for prevention of genetic disorders congenital anomalies, and several medical psychosocial marital problems. 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 increase 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 education and counseling seem to be effective in strengthening marriages and have clearly been shown to be beneficial. In addition, nurses ensure that the couples are aware of all components and activities of PMC to apply and increase the well-being (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).

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. The issue of PMC is of immense significance to prevent congenital malformation in Arab Nations because of the high occurrence of consanguineous marriages. 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).

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 counselling based program on nursing students' perception regarding premarital counselling.

Aim of the Study

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

The aim will be achieved through the following objectives:

1. Assess existing female students’ knowledge and attitude toward pre-marital care and reproductive health issues.
2. Implement counselling-based program for female students regarding premarital education
3. Evaluate the effectiveness of counselling-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 counselling-based program will enhance female students’ knowledge scores and attitude regarding pre-marital counselling.

2. There will be positive correlation between female students’ total knowledge scores and total attitude in relation to premarital counselling.

**Materials and Methods**

**Research Design:**

A quasi-experimental design (one group pre-test 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). In a pretest-posttest design, the dependent variable is measured once before the treatment is implemented and once after it is implemented (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 female’s students' duration of the study is two years, all nursing specialties are taught. It is consist of two floors, two classrooms and four lab sections for practical training.

**Subjects:**

One group pre and post, of 2nd 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.

**Inclusion Criteria:**

- Female students at the 2nd year at academic year.
- Unmarried female students.
- Students who didn’t previously attend premarital counseling.

**Exclusion Criteria:**

- 1st year academic year student.
- Male academic year students.
- Married female students.
- Students who previously attend pre-marital counseling.

**Sampling:**

**Sample Size:**

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

\[ N = \frac{1}{(1 - \alpha)(1 - \beta)} \times \left( \frac{Z_{1-\alpha/2}^2 \cdot \sigma^2}{d^2} \right) \]

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 expected proportion in population-based on previous studies. - \( d = \) 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 1:** A self-administered questionnaire including multiple choice questions which was developed by the researchers after reviewing of recent related literature (Al-Shafai 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.
Egyptian Journal of Health Care, 2022 EJHC Vol. 13. No.2

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, pre-marital 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 total attitude score was calculated as the following:
- \( \geq 70\% \) 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. Modifications were done according to the comments "rephrasing and cancelling for three questions". The reliability coefficient for the study tool will 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) under the guidance of the supervisors 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. Each participant had the right to withdraw from the study at any time. Human rights were granted. Data was confidential, and a coding system for data was used.

Field work
The study was carried out through three phases: assessment, implementation, and evaluation phase. 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%)
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 them selves 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 counselling-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 counselling.

2. Implementation phase:

Firstly, the researcher visited the previously mentioned study setting 3days/week., The counselling-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 counselling 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 counselling-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 counselling-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 (X2) 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 post-intervention 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): reveals that 73.5% of female student have positive attitude regarding their premarital care post program implementation.

While 41.2% of female student have negative attitude regarding their premarital care preprogram implementation.

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 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Female Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=245</td>
</tr>
<tr>
<td><strong>Age group(years):</strong></td>
<td></td>
</tr>
<tr>
<td>16-17</td>
<td>147</td>
</tr>
<tr>
<td>17-18</td>
<td>81</td>
</tr>
<tr>
<td>&lt; 18</td>
<td>17</td>
</tr>
<tr>
<td><strong>Marital status:</strong></td>
<td></td>
</tr>
<tr>
<td>Unmarried</td>
<td>216</td>
</tr>
<tr>
<td>“Engaged/fiancé”</td>
<td>29</td>
</tr>
<tr>
<td><strong>No. of family members</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;5</td>
<td>138</td>
</tr>
<tr>
<td>5-8</td>
<td>98</td>
</tr>
<tr>
<td>&gt;8</td>
<td>9</td>
</tr>
<tr>
<td><strong>Parental consanguinity</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9</td>
</tr>
<tr>
<td>No</td>
<td>236</td>
</tr>
<tr>
<td><strong>Family history of genetic diseases</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>242</td>
</tr>
<tr>
<td><strong>Father education</strong></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>3</td>
</tr>
<tr>
<td>basic</td>
<td>60</td>
</tr>
<tr>
<td>Secondary and diploma</td>
<td>65</td>
</tr>
<tr>
<td>High</td>
<td>117</td>
</tr>
<tr>
<td><strong>Mother education</strong></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>27</td>
</tr>
<tr>
<td>basic</td>
<td>103</td>
</tr>
<tr>
<td>Secondary and diploma</td>
<td>49</td>
</tr>
<tr>
<td>High</td>
<td>66</td>
</tr>
<tr>
<td><strong>Father work</strong></td>
<td></td>
</tr>
<tr>
<td>Governmental</td>
<td>136</td>
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<tr>
<td>Private</td>
<td>58</td>
</tr>
<tr>
<td>Don't work and retirement</td>
<td>51</td>
</tr>
<tr>
<td><strong>Mother work</strong></td>
<td></td>
</tr>
<tr>
<td>Work</td>
<td>129</td>
</tr>
<tr>
<td>Housewife</td>
<td>116</td>
</tr>
</tbody>
</table>

1912
Table (2): Knowledge difference among female students regarding premarital care pre and post program implementation (N=245)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pre</th>
<th>Post</th>
<th>χ²</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Having information about premarital care program</td>
<td>108</td>
<td>44.1</td>
<td>211</td>
<td>86.1</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>137</td>
<td>55.9</td>
<td>34</td>
<td>13.9</td>
</tr>
<tr>
<td>Concept of Premarital care program</td>
<td>87</td>
<td>35.5</td>
<td>225</td>
<td>91.8</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>158</td>
<td>64.5</td>
<td>20</td>
<td>8.2</td>
</tr>
<tr>
<td>Importance of Premarital care program</td>
<td>130</td>
<td>53.1</td>
<td>216</td>
<td>88.2</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>115</td>
<td>46.9</td>
<td>29</td>
<td>11.8</td>
</tr>
<tr>
<td>Component of Premarital care program</td>
<td>107</td>
<td>43.7</td>
<td>212</td>
<td>86.5</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>138</td>
<td>56.3</td>
<td>33</td>
<td>13.5</td>
</tr>
<tr>
<td>Lab investigations among Premarital care program</td>
<td>83</td>
<td>33.9</td>
<td>193</td>
<td>78.8</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>162</td>
<td>66.1</td>
<td>52</td>
<td>21.2</td>
</tr>
<tr>
<td>Immunizations included in Premarital care program</td>
<td>113</td>
<td>46.1</td>
<td>235</td>
<td>95.9</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>132</td>
<td>53.9</td>
<td>10</td>
<td>4.1</td>
</tr>
<tr>
<td>Places presenting premarital care services</td>
<td>160</td>
<td>65.3</td>
<td>245</td>
<td>100</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>85</td>
<td>34.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Legislations in your country about premarital care program</td>
<td>57</td>
<td>23.3</td>
<td>225</td>
<td>91.8</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>188</td>
<td>76.7</td>
<td>20</td>
<td>8.2</td>
</tr>
</tbody>
</table>

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

![Source of information](chart.png)
Table (3): Knowledge difference among female students regarding reproductive health knowledge pre and post program implementation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pre</th>
<th>Post</th>
<th>$\chi^2$</th>
<th>Sig</th>
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<tbody>
<tr>
<td>Knowledge of genetic diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfactory</td>
<td>74</td>
<td>30.2</td>
<td>188</td>
<td>76.7</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>171</td>
<td>69.8</td>
<td>57</td>
<td>23.3</td>
</tr>
<tr>
<td>Knowledge of contraceptive methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfactory</td>
<td>154</td>
<td>62.9</td>
<td>230</td>
<td>93.9</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>91</td>
<td>37.1</td>
<td>15</td>
<td>6.1</td>
</tr>
<tr>
<td>Knowledge of sexually transmitted diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfactory</td>
<td>166</td>
<td>67.8</td>
<td>220</td>
<td>89.8</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>79</td>
<td>32.2</td>
<td>25</td>
<td>10.2</td>
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<tr>
<td>Knowledge of pregnancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Satisfactory</td>
<td>169</td>
<td>69</td>
<td>235</td>
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<tr>
<td>Unsatisfactory</td>
<td>76</td>
<td>31</td>
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<td>Knowledge of antenatal care</td>
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<td>51.8</td>
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<td>93.1</td>
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<tr>
<td>Unsatisfactory</td>
<td>118</td>
<td>48.2</td>
<td>17</td>
<td>6.9</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Pre</th>
<th>Post</th>
<th>$\chi^2$</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMS is important</td>
<td>Agree 202 82.4 23 9.4 20 8.2</td>
<td>Not sure 232 94.7 10 4.1 3 1.2</td>
<td>19.760</td>
<td>0.000</td>
</tr>
<tr>
<td>PMS is against religious roles</td>
<td>0 0 5 2.1 240 97.9</td>
<td>0 0 5 2.1 240 97.9</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Consanguinity can increase the risk of hereditary diseases</td>
<td>205 83.7 6 2.4 34 13.9</td>
<td>222 90.6 12 4.9 11 4.5</td>
<td>14.432</td>
<td>0.001</td>
</tr>
<tr>
<td>PMS will contribute to reduction of prevalence of some genetic and STDs</td>
<td>191 78 44 18 10 4</td>
<td>235 95.9 8 3.3 2 0.8</td>
<td>34.801</td>
<td>0.000</td>
</tr>
<tr>
<td>It is important to raise awareness about PMS before marriage to reduce genetic and STDs</td>
<td>200 81.6 39 15.9 6 2.5</td>
<td>222 90.6 16 6.5 7 2.9</td>
<td>10.842</td>
<td>0.004</td>
</tr>
<tr>
<td>Religious and community leaders should adopt the ideas of PMS in their discussion</td>
<td>79 32.2 10 4 156 63.7</td>
<td>202 82.4 23 9.4 20 8.2</td>
<td>164.052</td>
<td>0.000</td>
</tr>
<tr>
<td>Authorized person who carries out the religious marriage should has the right to accept conducting marriage contract only if future couple did PMS</td>
<td>137 55.9 35 14.3 73 29.8</td>
<td>147 60 15 6.1 83 33.9</td>
<td>8.993</td>
<td>0.011</td>
</tr>
<tr>
<td>The law that obligate all future couples to do PMS is important</td>
<td>153 62.4 8 3.3 84 34.3</td>
<td>205 83.7 12 4.9 28 11.4</td>
<td>36.353</td>
<td>0.000</td>
</tr>
<tr>
<td>No one should obligate any person to conduct genetic testing, but only encourage to do</td>
<td>166 67.8 15 6.1 64 26.1</td>
<td>219 89.4 16 6.5 10 4.1</td>
<td>46.734</td>
<td>0.000</td>
</tr>
<tr>
<td>In a case of discovery having or carrying STDs, marriage decision must be left for freedom of the couple</td>
<td>94 38.4 52 21.2 99 40.4</td>
<td>15 6.1 48 19.6 182 74.3</td>
<td>81.933</td>
<td>0.000</td>
</tr>
<tr>
<td>In the case of discovery having or carrying inherited disease in PMS, marriage decision must be left for freedom of couple</td>
<td>98 40 15 6.1 132 53.9</td>
<td>15 6.1 48 19.6 182 74.3</td>
<td>86.212</td>
<td>0.000</td>
</tr>
<tr>
<td>Test results that shows presence of genetic diseases should change marriage decision</td>
<td>147 60 12 4.9 86 35.1</td>
<td>219 89.4 16 6.5 10 4.1</td>
<td>74.902</td>
<td>0.000</td>
</tr>
<tr>
<td>It is important to apply a law that stop marriage upon discovery presence of a genetic disease</td>
<td>138 56.3 48 19.6 59 24.1</td>
<td>235 95.9 8 3.3 2 0.8</td>
<td>107.059</td>
<td>0.000</td>
</tr>
<tr>
<td>PMS breaks personal privacy</td>
<td>19 7.8 27 11 199 81.2</td>
<td>10 4.1 27 11 208 84.9</td>
<td>2.992</td>
<td>0.224</td>
</tr>
</tbody>
</table>
Figure 3: Percent distribution of total attitude difference among female students regarding premarital care

![Percent distribution of total attitude difference among female students regarding premarital care](image)

\[ \chi^2 (12.436) \quad \text{sig} (0.000) \]

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

<table>
<thead>
<tr>
<th>Items</th>
<th>Pearson correlation</th>
<th>Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>R</td>
<td>0.312</td>
</tr>
<tr>
<td>P value</td>
<td></td>
<td>0.015</td>
</tr>
<tr>
<td>Post program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>R</td>
<td>0.366</td>
</tr>
<tr>
<td>P value</td>
<td></td>
<td>0.004</td>
</tr>
</tbody>
</table>

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 counselling-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-Ganzory, 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. As regards the
residence more than one half of them were live
in rural area, one half of the studied students
were engaged and more than one half of them
had a 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 premartial
care pre and post program implementation,
The current study clarified that before the
counselling 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 premartial 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 premartial 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 did not
know about component and places provide
PMC, also one half of the studied sample of
the students give an incomplete correct answer
about the groups that need counseling and
investigation done before marriage. In the
researcher opinion this is because the illiteracy
about premartial counseling and ignorance
about the places providing it.

Regarding the effect of implementing
counselling based program on students
knowledge, the current study Points out that
there was a highly statistically significant
improvement post-intervention compared to
preintervention regarding students’ knowledge
of premartial care in form of Having
information about premartial 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 premartial care
services, as well as Legislations in your
country about premartial 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 premartial 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. In the researcher opinion this is because the illiteracy about premarital counseling and ignorance about the places providing it.

These results were in congruence with (Al-Farsi, 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 showed that their participants had inadequate knowledge about premarital screening test. 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 investigation done before marriage and they also were willing to use free 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 counselling, the current study revealed that there was remarkable improvement of all items related to students’ attitude after implementing counselling 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.

Similarly, 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 counselling 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 non-medical 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 believed that premarital counseling is important and agreed to carry it out in the future. Many of the participants reported that they will perform premarital counseling to prevent transmission of diseases to their children. This reflects that the participants had a good understanding of the preventive value of premarital counseling after implementation of the program.

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 were willing to use free premarital counseling and the majority of them agreed that premarital counseling and testing can detect hereditary diseases and sexually transmitted infections.

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. Meanwhile, there is no statistically significant difference between knowledge and attitude among female students regarding premarital care before program implementation.

This result come in accordance with (Matney., 2019) who assessed A knowledge framework for the philosophical underpinnings of research: Implications for music therapy reported there were a positive correlation between knowledge and attitude of the studied students at post educational test.

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 counselling. Hence structured teaching program regarding premarital counselling 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 counselling-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 counselling 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 premarital counselling after implementing counselling-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 findings of the current study, the following recommendations are suggested:

- Premarital counseling should be added into the nursing curriculum to prepare students for marriage
- Provide health education about premarital counseling to all couples during their attendance for the health certification before the marriage
- Preparation for marriage must be mandatory for all final year students in the schools and universities and every person who is nearly to get married.
- Further research is indicated to implement an analysis on the effect of premarital counseling on health outcomes among couples and children, after implementation of premarital counseling for further support the evidence of its effectiveness

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