



## INTERVENTION PROGRAM OF PRE- MARITAL COUNSELING ON NURSES WORKING IN PRIMARY HEALTH CARE SERVICES

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### ABSTRACT

**Background:** Pre- marital counseling are a panel of tests in which couples that are going to get married are tested to prevent any risk of transmitting any disease to their children. **The aim of this study:** is to evaluate the effectiveness of intervention program of pre- marital counseling on nurses working in primary health care services. **Design:** A quasi experimental design was used. **Setting:** This study was conducted at primary health care services at Menuofia Governorate. **Sample:** A purposive sample of 61 nurses who provide pre-marital care services at primary health care services. **Tools:** two tools were used for data collection, tool I: nurses' structured interviewing questionnaire who working in primary health care services it includes; demographic characteristics of nurses and their knowledge regarding pre-marital counseling. tool II: pre-marital counseling observation checklist for nurses working in primary health care services to assess nurses' practice. **Results:** the study denoted that there was an improvement of nurses' knowledge and practice at the post and follow-up intervention program than pre-program with statistically significant difference. Eighty percent of studied sample scored high level of total correct knowledge at post program intervention than pre-program intervention (10%) and at follow-up program intervention (65%). Also, nurses scored high level of total done practice (85%) at the post program intervention and at follow-up program intervention (75%) than (20%) pre-program intervention. **Conclusion:** there was an improvement of nurses' knowledge and practice at post and follow-up program with statistically significant difference. **Recommendation:** Improving nurse's role in pre-marital counseling by specific descriptive role for each level. Conduct training program regarding pre-marital counseling for the newly appointed in the work and continuous training for nurses working in pre-marital counseling and clinic and should be periodic at least every two years with the new trends in this field.

**Key words:** Nurses, pre-marital counseling intervention program

## INTRODUCTION

The most widely recognized genetic disorders includes: mental retardation, down syndrome, marfan syndrome, tay-sachs diseases, cystic fibrosis, haemophilia, Color vision deficiency, prader-willi syndrome, crouzons syndrome, canavan syndrome, spina bifida, thalassemia, sickle cell anaemia and cancer. There are more than 6000 known genetic disorders. In Egypt, hereditary disorders and congenital malformation are rapidly becoming a major public health concern. The prevalence of congenital and genetic disorders in Egypt is estimated to range from 2.8% in urban areas to 4.8% in rural areas **(Mohamdy et al., 2017)**.

Pre-marital counseling is defined as conducting examination before marriage in order to identify if there is any genetic blood diseases such as sickle-cell anemia (SCA) , thalassemia, and some infectious diseases such as hepatitis B, C and HIV "Aids". This is in order to provide medical consultation to the future couples and to give options and alternatives before soon-to-be married with the aim of helping them to plan for a healthy family **(Ibrahim et al., 2014)**.

The main objectives of pre-marital counseling are limitation of the frequency and spread of inherited genetic disorders. In addition, decreasing the burden of having newly affected children and raising the awareness and knowledge of the community regarding the pattern of inheritance and genetic disorders in addition to appropriate methods for selection of the equitable services. Moreover, pre-marital counseling helps families to avoid psychosocial problems that result from the presence of the affected child in the family. Furthermore, it disseminates awareness regarding the concept of comprehensive and healthy marriage **(Abedel-Azim et al., 2015)**

Nurses in primary health care services help individual prevent hereditary disorders and consequential morbidity and mortality. They play an integral role in providing genetic counseling services that include assess genetic risk, provide information, discuss available testing options and provide appropriate supportive counseling **(AbdElfattah et al., 2015)**. In addition, they ensure that the couples are aware of concerns relevant to their situation and help them make decisions that fit lifestyle and belief system **(Rahman, 2012)**.

Community health nurses is an integral part of the health care system and direct energies towards the promotion, maintenance & restoration of health and play a valuable role in providing health education about premarital counseling, discussing the benefits of premarital counseling, identify couples at high risk, by subjecting all couples intending to marry for screening by history taking, physical examination and laboratory investigations. Advice is provided in the form of further investigation or referral to secondary level if needed, treatment advice, health education, promotion, and counseling regarding their health status . Intervention program of pre- marital counseling on nurses working in primary health care services can help to enhance nurses' knowledge, and improve practice regarding premarital counseling **(Mohamady, Said & EL Sayed, 2017).**

#### **Significance of the problem:**

The prevalence of congenital and genetic disorders among infants and young children in Egypt is estimated to range from 2.8% in urban areas in metropolitan governorates to 8.4% in rural areas this is mainly due to high rate of consanguineous marriage **(Mohamdy et al., 2017) (Isah et al., 2016).**

According to studies developed on fetal medicine unit in Cairo University hospitals where its result revealed that, in Egypt Consanguineous marriage is still high 35.3%, especially among first cousins 86%, however the frequency varies by region and it is higher in upper Egypt 42.2%. Also it was higher in rural areas 59.9%, than in semi-urban and urban areas 23.5 % .In addition, throughout the last 40 years, it was found an average consanguinity rate above 30% **(Abd El Hamid et al., 2011)&(Abedel-Azim et al., 2015).**

Nurse must play an integral role in providing genetic services that include assess genetic risk, provide information, discuss available testing options and provide appropriate supportive counseling, also can facilitate the process and offer individuals the option of support groups for families with genetic disease **(Abdelfatahetal., 2015).** This study will provide basic and specific information about nurses knowledge and practice regarding pre-marital counseling program in primary health care services.

#### **Aim of the Study:**

The aim of this study is to evaluate the effectiveness of intervention program of pre- marital counseling on nurses

working in primary health care services through:

- Assessing knowledge and practice of nurses regarding pre-marital counseling in primary health care service
- Planning and implementation of pre-marital counseling intervention program according to nurse's needs
- Evaluation of the intervention program of pre-marital counseling on nurses working in primary health care services.

#### **Research hypothesis:-**

1. Intervention program of pre-marital counseling will be improving the nurses' knowledge score working in primary health care services after intervention.
2. Intervention program of pre-marital counseling will be improving the nurses' practice score working in primary health care services after intervention.
3. Nurses' work in pre-marital counseling in primary health care services will be improved after program intervention

#### **Subjects and Methods**

**Research Design:** Quasi experimental research design was used to fulfill the aim of the study.

**Research Setting:** The study was conducted at primary health care services at Menuofia Governorate which include 10 health care centers and is divided into 21 primary health care services as follow: three from (Shepin- Elkowm & Elshohada), two from (Qwesna-Ashmoon- Berkt Elsaba-Menouf-Elsadat-Talla- Elbagor), one from (Cers Elian)

#### **Sample**

A purposive sample of 61 nurses who are responsible for conducting pre-marital counseling was selected from health care service at Menuofia Governorate. They was selected from 2982 nurses were working in the primary health care centers in previous setting.

**Tools for data collection:**Two tools used for data collection in the present study:

**Tool I:** Nurses structured interviewing questionnaire who working in primary health care services it includes; demographic characteristics of nurses and their knowledge regarding pre-marital counseling.

**Part I: demographic characteristics for nurses:** It covered the general characteristics of the subjects as demographic data, e.g., age, sex, level of education, years of experiences, training

programs related to pre-marital counselling etc.

**Part II:** Nurses' knowledge regarding pre-marital counseling, nurses' knowledge regarding genetic diseases, nurse's knowledge regarding sexual transmitted diseases and nurses knowledge regarding health education in pre-marital counseling

**Scoring system:** It was determined through: (2) score for correct answer, (1) score for incorrect answers and (0) score for don't know answer. The total scores were graded as Poor <50%, fair 50 < 70 %, Good 70-100%.

**Tool II: pre-marital counseling observation checklist for nurses working in primary health care services to assess nurses' practice:** includes; taking demographic data for couples, asking about medical history, asking couples about history of previous marriage, follow up of laboratory tests for couples, recording anthropometric measurements, observation the nurses while preparing couples during anthropometric measurements and giving health education\* counseling program for couples.

**Scoring system:** (1) score for done which consider positive performing and

(0) for not done which consider negative performing the total score level of practice was classified into: positive performing:  $\geq 60\%$  degree, and negative performing : $< 60\%$  degree.

**II. Administrative Design:** An official permission including the title and aim of the study were submitted from the Dean of the Faculty of Nursing – Helwan University to get an consent for data collection to conduct the study and practice the study in the primary health care services at Menuofia Governorate.

**III. Operational Design:** The study completed passed through different phases included: Preparatory phase, pilot study and filed work phase.

**A. Preparatory phase:** A review of the past and current available literature review relevant to pre-marital counseling and theoretical knowledge of the various aspects of this problem using text books, articles, periodicals, and magazines, in order to get a clear picture of all related aspects to the research problem, as well as, to develop the study tools for data collection.

**B. Pilot Study:** It was conducted on 6 nurses. They presented about 10% of the total study sample. The aim of the

pilot study was to evaluate the applicability and clarity of tools and estimate the time needed for the intervention. According to the obtained results modifications such as omission, addition and rewording were done. The sample of pilot study was included into the total sample. It was conducted at the end of February 2017.

**Tool Content validity:** It was tested through 5 experts from community health nursing at faculty of nursing Helwan University and Cairo University to measure validity of tools and necessary modifications were carried out according to the panel judgment on clarity of the sentences and appropriateness of the contents.

**Tool Reliability:** The reliability was measured by Cronbach's Alpha coefficient test. The value of Cronbach's Alpha reliability was 0.70.

#### **Field work**

- Data was collected at 21 primary health care services in Menuofia Governorate, after explaining the aim of the study to participants and reassuring them about the confidentiality of the data collected.
- A written approval letters was obtained from the Dean of Faculty of

Nursing, Helwan University for practice the study in the primary health care services at Menuofia Governorate. Written letter was sent to the representative Minister directorate of Health affairs and the heads of the primary health care services including the aim of the study.

- Oral approval was obtained from nursing staff after explaining the purpose of the study.
- Data was collected within ten months; from the first of March 2017 to the end of December 2017, three days per week from 10- 12 am.
- The pre-test session of the program conducted in the Ministry of Health Affairs and Nursing Syndicate at Shibin El-kom city at Menuofia Governorate. The theoretical session were conducted in the same place as the investigator divided the studied sample into 6 groups, each group consisted of 10 nurses. Intervention program was implemented for each group in seven sessions.
- The evaluation phase occurred immediately after the program and after three months to assess the effect of intervention program.

- The researcher was obtained of nurse' supervisor evaluation for nurses work in pre-marital counseling pre and after program conduction to evaluate the work improvement.

**Intervention program of pre- marital counseling phases:**

**Phase I: Program development:** The program was designed by the investigator and based on the result obtained the study pre-test tools; also review of recent, current, national and international related literature in different aspects of pre-marital counseling field.

**Phase II: Assessment:** Three days / week, one hour / day ( 9.30 am – 10.30 am) were allocated for data collection ( pre-test), which was carried out through one week, the average time consumed to fill tools was 30- 45 minutes.

**Phase III: Implementation Phase:**

- Program implementation based on conducting session plan using different educational methods, media and use of guideline booklet specifically designed and developed based on nurses' assessment needs.
- Implementation of the intervention program took about ten months three days per week, (Saturday, Sunday,

Thursday) form 10 am- 12 am. Number of hours differed from one session to another to accomplish the intervention program. the investigator divided studied sample into 6 groups, each group consisted of 10 nurses.

- In this phase the investigator analyzes the pre-test then tailored the intervention to the needs of each nurses. There were commonality among nurse's needs; as there was lack of knowledge in almost all items and need for improvement of their practice.
- Program session: time allowed 14 hours allocated for program sessions.

**Phase IV: program evaluation:** This phase aim to evaluate the effect of intervention program of pre- marital counseling on nurses working in primary health care services was done through the implementation of immediate- test after the program as well as after three months to identify differences, similarities, areas of improvement and defects as well as indicators of program success and its effect on the nurses were showed in the retention test.

**Ethical considerations:** Ethical approval was obtained from

the scientific research ethical committee of Faculty of Nursing, Helwan University. Informed consent was obtained from each participant. They were assured that anonymity and confidentiality were guaranteed and the right to withdraw from the study at any time.

**IV- Statistical design:** Data entry and statistical analysis were performed using personal computer software, the statistical package for social sciences (SPSS), version 18. Suitable descriptive statistics were used such as; frequency, percentage, mean and standard deviation. Chi-square test was used to detect the relation between the variables. In addition, correlation coefficient (r) test was used to estimate the closeness association between variables. Paired (t) test was used to compare mean score between both studied variables. The P-value is the degree of significant and using the correlation (r) test. The P-value is the probability that an observed difference is due to chance and not a true difference. A significant level value was considered when  $P\text{-value} \leq 0.05$  and a highly significant level value was considered when  $P\text{-value} \leq 0.001$ , while  $P\text{-value} > 0.05$  indicates non-significant results.

## RESULTS:

**Table (1):** Nurses distribution according to their demographic characteristics. Table (1) displays that the mean age of studied sample was  $44.54 \pm 6.32$  years old. As well 75.4% of studied sample their age from  $40 \leq 60$  years old. Additionally, 62.3% of nurses their experience were  $>10$  years. Whereas, 70.5%, of nurses their experience in pre-marital counseling were 5-10 years, as well 55.7% of nurses not participate of any training program in pre-marital counseling.

**Table (2):** Distribution of the nurses who had correct knowledge regarding premarital counseling program pre, post and follow-up program . Table (2) shows that statistical significant improvement in nurses' correct knowledge level at the post and follow-up program than pre-program in all knowledge items ( $P < 0.001$ )

**Figure (2):** Distribution of total score of knowledge about pre-marital counseling pre, post & follow-up of intervention program. Figure 2 shows that total score of nurses knowledge related to pre-marital counseling pre, post and follow up of intervention program. it indicated that, there was improvement at the post –



test 80% than of the pretest 10% and follow up test 65%.

**Table (3):** Distribution to assess nurses done practices pre, post & follow-up of intervention program regarding taking demographic data and asking about medical history of new couple. Table (3) shows that 100% of studied sample taking demographic data of new couples. As well as, 4.9% nurses asking about history of taking medication for couples and 8.2% nurses asking woman about genetic diseases in her family. Which significantly changed immediately in posttest to 72.1% , 68.9% respectively and 82%. this results revealed that statistical significant improvement in nurses' done practice level at the post program, than pre and follow up-program in all practice items ( $P < 0.001$ )

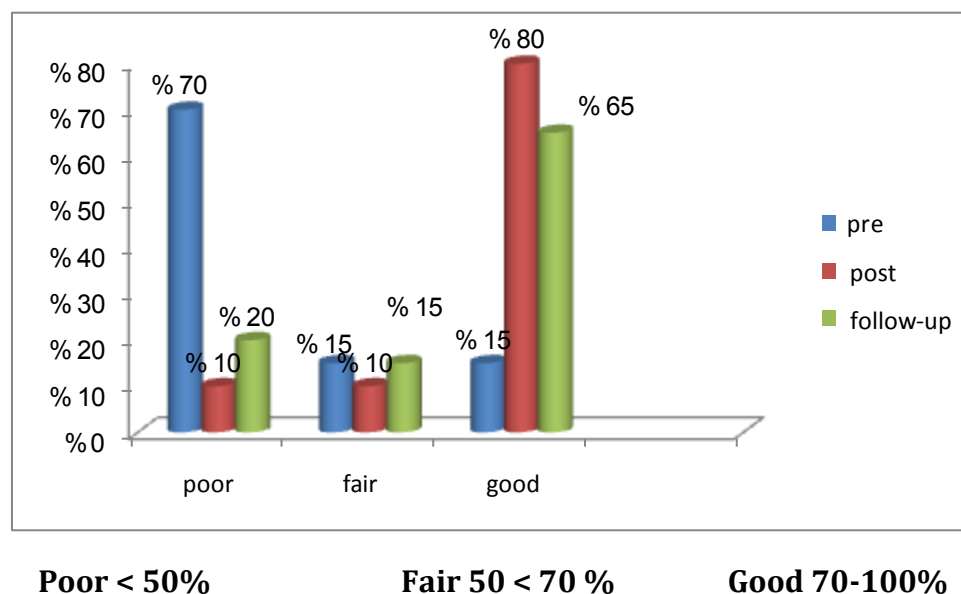
**Figure (3):** Percentage of nurses according to observation checklist to assess nurses' total practices. Figure 3 shows total score of nurses done practice related to pre-marital counseling pre, post & follow-up of intervention program. it indicated that, there was improvement at the post-program 85% than pre-program 20% and

reduced to 75 % at follow-up. **Table (4):** Relation between total correct knowledge and nurses' demographic data pre, post&follow-up of pre-marital counseling program. Table 4 indicates that there were relation of total score of correct knowledge and nurses' demographic data in revealed that 98.9% of studied sample 40< 60 years most of them had correct knowledge in post and follow-up program than preprogram ( $P < 0.005$ ) .Also, 93.4% of technician nurses had correct knowledge in post and follow-up program than pre-program ( $P < 0.001$ ). Additionally, 89% of nurses participate in training program most of them had correct knowledge in post and follow-up program than preprogram ( $P < 0.005$ ). 95.9% of nurses from 5 to 10 years work experience had correct knowledge in post and follow-up program than preprogram ( $P < 0.001$ ). **Table (5) Relation between total correct knowledge and total done practice.** Table 5 showed that positive relation between total correct knowledge and total done practice and there were highly significance deference between total knowledge and total practice ( $P = < 0.001$ )

**Table (1):** Nurses Distribution According To Their Demographic Characteristics (n=61).

Characteristics	No.	%
<b>Age</b>		
- 30 < 40 years	15	24.6
- 40 ≤ 60 years	46	75.4
<b>Mean ± SD</b>	44.54 ± 6.32	
<b>Level of education</b>		
- Nursing diploma	59	96.7
- Nursing Technician Institute	2	3.3
<b>Years of experience</b>		
- 5 -10 years	23	37.7
- <10 years	38	62.3
<b>Years of experiences in premarital counseling:</b>		
- <5 years	17	27.9
- 5 :10 years	43	70.5
- >10 years	1	1.6
<b>Training program on premarital counseling:</b>		
- Yes	27	44.3
- No	34	55.7

**Figure (2):** Distribution of total score of knowledge about pre-marital counseling pre, post and follow-up program intervention (n=61).



**Table (2): distribution of the nurses who had correct knowledge regarding premarital counseling program pre, post and follow-up program (no=61).**

Pre-marital counseling program items	Pre		Post		Follow-up		Paired t test	P value
	No	%	No	%	No	%		
Meaning	52	85.2	61	100.0	61	100.0	111.74* *200.14*	0.001*
Aim	37	60.7	50	82.0	48	78.7	*119.79 **147.43	0.001*
Importance	26	42.6	50	82.0	49	80.3	*110.05 **137.50	0.001*
Component	27	44.3	50	82.0	44	72.1	*118.48 **232.09	0.001*
Laboratory tests	21	34.4	55	90.2	45	73.8	*111.78 **256.18	0.001*
Vaccinations	12	19.7	52	85.2	42	68.9	*108.74 **117.77	0.001*
Methods	27	44.3	52	85.2	47	77.0	*201.09 **252.75	0.001*
Health education	19	31.1	55	90.2	46	75.4	*233.70 **274.53	0.001*
Hazard of consanguineous marriage	36	59.0	51	83.6	42	68.9	*154.65 **197.07	0.001*
Suitable time of conducting	26	42.6	52	85.2	47	77.0	*177.20 **202.28	0.001*
Reasons of not conducting	22	36.1	54	88.5	47	77.0	*114.78 **246.18	0.001*
Total	19	31.1	51	85.2	45	73.8	*138.81 **197.07	<0.001

(1)\*\*Paired t test between pre and post tests & (2)\* Paired t test between post and follow-up tests

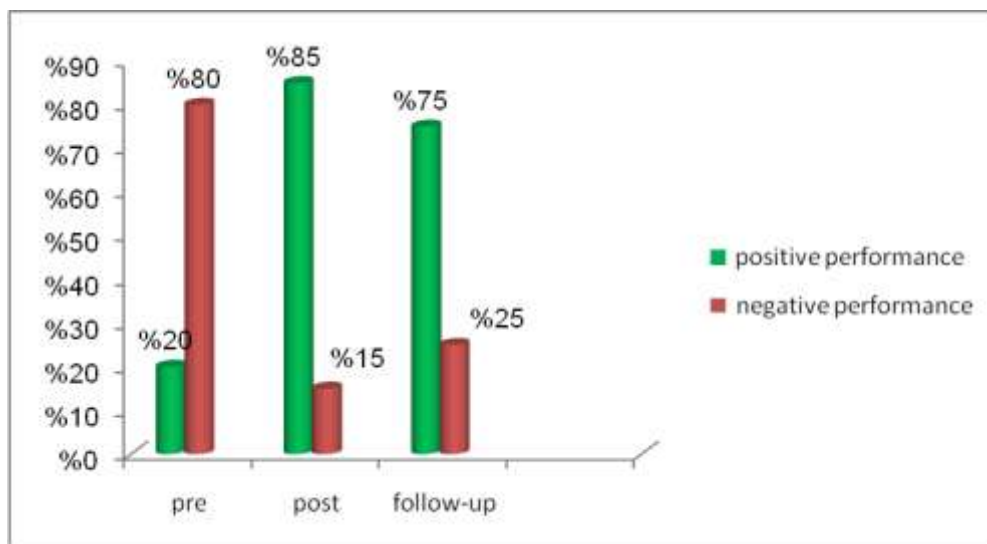
**Table (3): Distribution of nurses who had done practices pre, post and follow-up program regarding taking demographic data and asking about medical history of new couple (no=61)**

Assessment items	Pre		Post		Follow-up		Paired t test	P value
	No	%	No	%	No	%		
Demographic data	53	86.9	61	100.0	61	100.0	155.52* 192.50**	0.001*
History of chronic diseases	17	27.9	56	91.8	48	78.7	105.79* 133.90**	0.001*
Previous	10	16.4	50	82.0	41	67.2	*119.54	0.001*

surgery							**217.70	
History of blood transfusion	10	16.4	53	86.9	45	73.8	*118.79 **147.43	0.001*
History of infectious diseases	28	45.9	47	77.0	43	70.5	*117.05 **137.50	0.001*
Previous male medication	3	4.9	44	72.1	32	52.5	*124.48 **232.09	0.001*
Previous female medication	3	4.9	42	68.9	31	50.8	*117.78 **256.18	0.001*
Female' family genetic diseases	5	8.2	50	82.0	43	70.5	*108.748 **117.77	0.001*
Male' family genetic diseases	27	44.3	59	96.7	53	86.9	*100.77 **119.70	0.001*
Total	17	27.8	50	82.0	45	73.8	*114.84 **137.80	0.001*

(1)\*\*Paired t test between pre and posttests&(2)\*Paired t test between post and follow-up tests

**Figure (3):** Percentage of nurses according to observation checklist to assess nurses' total practices(n=61).



**Positive performing  $\geq 60\%$**

**Negative performing  $< 60\%$**

Table (4) Relation between total correct knowledge and nurses' demographic data pre, post &amp; follow-up program (No=61).

Demographic data	Total correct Knowledge n=61			X <sup>2</sup>	P
	Pre	Post	Follow-up		
Age (years)	%	%	%	6.29	P=<0.005
30 < 40 years	38.4	90	88.0		
40 ≤ 60 years	54.9	98.9	78.0		
<b>Level of Educational</b>					
Nursing diploma	34.9	90.9	85.0	9.88	p =<0.001
Nursing	43.9	93.4	85.0		
Technician institute					
<b>Training program in premarital counseling:</b>					
Yes	46.0	89.0	75.0	5.109	p =<0.005
<b>Years of work Experience:</b>					
5 - 10 years	54.9	95.9	89.0	10.79	p =<0.001
>10 years	43.9	93.4	75.0		
<b>Years of experiences in premarital counseling:</b>					
<5 years	34.9	90.9	85.0	7.109	P = >0.005
5 - 10 years	43.9	93.4	85.0		
>10 years	39.0	97.0	80.0		

Table (5): Relation between total correct knowledge and total done practice (n=61).

Variable	Total correct Knowledge (n=61)	
	R	P
Total done practice	0.38	<0.001**

r-square=0.56

Model ANOVA: F=42.22, p&lt;0.001

## DISCUSSION

Premarital program is the promotion of the health and well-being of a couple before pregnancy, it's considered as the primary preventive measure for couples planning for conception . Premarital

program (PMP) is a worldwide activity aiming to diagnose, treat unrecognized disorders, and reduce transmission of diseases to couples which may affect the quality of marriage and the health of future generations. (Esheaba et al.,

**2018).**Therefore, the aim of this study was to evaluate the effectiveness of intervention program of pre-marital counseling on nurses working in primary health care services.

As regards to demographic characteristics of the studied sample the current study showed the majority of studied sample age ranged from 40 to  $\geq 60$  years old and the mean age were  $44.54 \pm 6.32$ . These result similar to **Esmail et al. (2017)**who studied "health education program for nurses working at maternal and child health centers on early detection and prevention of mental retardation during childhood" as a component of pre-marital counseling at Tanta city, El-Gharbeya Governoratewho found that the mean age of the study group was  $43 \pm 6.680$  for control group and  $43.86 \pm 7.238$  for the study group.

As regards to their level of education, the present study reported the majority of nurses were having nursing diploma. Also, regarding to the years of experiences in the nursing filed, the majority of studied sample spent more than 10 years working in the field of nursing. Regarding to their years of experiences in the field of pre-marital counseling, the majority of studied

sample spent 5 – 10 years of experiences. Finally, regarding to pre-marital counseling training program, more than half of studied sample didn't participate in any training program. These results were similar to **Esmail et al. (2017)** who found that all studied sample had nursing diploma. Also, regarding their years of experiences in nursing was  $25.69 \pm 7.178$ . Meanwhile, the mean of their years of experiences in the field of child health was  $19.03 \pm 6.772$ . In addition, to training programs in early detection and prevention of mental retardation, the total sample respond by didn't participate in any training programs.

Regarding to nurses who had correct knowledge of premarital counseling, the findings of the present study revealed that three quarter of the studied sample were have correct knowledge about the meaning of pre-marital program. These result agree with **Esheaba (2018)**who studied "Investigating The Knowledge, Attitudes And Practices Of Nursing Students Regarding A Pre-Marital Program In Jeddah " who found that 74.4% of nurses aware about the pre-marital counseling. On the other hand results disagree with **Abd El-Ghany (2010)** who studied "the knowledge and attitude about pre-Marital counseling

among Hadhramout University students" University of Science and Technology at Yemen who found that 67.5% of non-medical and 60.0% of medical studied group had incorrect knowledge about the term of pre-marital counseling. This reflects the lack of training programs and insufficient basic information regarding premarital counseling program among students.

As regards to nurses who had correct knowledge about the importance of pre-marital counseling, the finding of the present study reported that there were three quarter of the studied sample have correct knowledge about the importance of pre-marital counseling in post program implementation. This agrees with **Ibrahim et al. (2015)** who studied "knowledge, attitude and satisfaction of health care providers regarding pre-marital screening and counseling program in Jedda", who reported that 95% of the health care providers identify the importance of premarital counseling. Additionally, this result disagree with **Mohamed et al. (2015)** who studied "Improving knowledge and attitude of medical and non-medical students at El Minia University regarding premarital screening and counseling", who found that 57% and 36.3% of medical and non-

medical studied group had correct knowledge as regards to importance of premarital screening and counseling. This reflects poor health education and training program regarding pre-marital counseling in primary health care centers.

Concerning the nurses who had correct knowledge about the component of premarital counseling, the present study revealed that less than half of studied sample reported correct knowledge score about the component of pre-marital counseling in pre-program and increased to three quarter in the post program. This result agree with **AbouElyazid (2014)** who studied "Comparative assessment of knowledge and attitude towards premarital care services among medical and non-medical students" at Al-Azhar University, Egypt, who reported that 70.2% of the study subject were had higher percentage of knowledge about the component of pre-marital counseling.

Furthermore, result disagree with the study of **Abd El-Ghany (2010)** who reported that the majority of both groups 81.5%, 83% had incorrect knowledge about component of pre-marital counseling. This lack of students' knowledge may be attributed to insufficient basic information obtained

during their formal academic education in relation to specific area of knowledge and this service in MCH centers is absent in Yemen.

Regarding to nurses who had correct knowledge to the pre-marital laboratory tests required during premarital counseling, the present study revealed that nearly two third of studied sample had incorrect knowledge about laboratory tests done during pre-marital counseling in pretest. These results were agree with **Al-Farsi et al.( 2014)**who studied "A study on knowledge, attitude, and practice towards premarital carrier screening among adults attending primary healthcare centers in a region in Oman", who explain that although most of the participants in this study heard about premarital counseling, half of them were unaware of premarital laboratory tests.

Also, these results were disagree with **Abo Elyazied (2014)** who explain that good knowledge of the study subject about premarital laboratory tests. This difference might be due to lack of health education about the importance of laboratory tests and it wasn't included in the premarital counseling schedule in primary health care services.

As regards to nurses correct knowledge about the vaccine in pre-marital counseling, the current study revealed that the majority of studied sample had incorrect knowledge about the vaccine giving during premarital counseling. These result agree with **Esheaba (2018)** who found that 38.1% of studied sample know about pre-marital vaccine. Also, these results disagree with **AbdEl-Ghany (2010)** who found that 63% of medical group knew the vaccine given during premarital counseling program. This difference could be due to absence of vaccine in pre-marital counseling schedule in Egypt.

Regarding to nurses who had correct knowledge about the hazards of consanguineous marriage, the present study revealed that three quarter of study sample had correct knowledge about hazards of consanguineous marriage in post -program than pre and follow-up program. these result agree with the study of **Esheaba (2018)** who found that 32.5% of the participant don't have knowledge about heredity diseases screened in the premarital program, while about 63.1% of them aware about sickle cell anemia, followed by thalassemia and hemophilia.



Regarding to nurses who had correct knowledge about suitable time of premarital counseling, the present study reported that statistical improvement of studied sample correct knowledge in post-program than pre and follow-up where more than three quarter of studied sample have correct knowledge about suitable time of premarital counseling in posttest. This result disagree with **Mohamed et al. (2015)** who found that nearly one third of studied subjects have correct knowledge about suitable time of premarital counseling. Also, this results were agree with the results of a study done by **Al Kindi et al. (2012)** who studied "knowledge and attitude of University medical students towards premarital screening program" in Oman, who explain that the majority of the participants preferred to do it just before marriage. Differences from our study could be related to difference in education level of study participants.

Regarding the total correct knowledge score of premarital counseling, the present study revealed that studied sample had poor correct knowledge score about pre-marital counseling in pre-test and good correct knowledge score in post- test and fair in follow-up. These results were similar to **Ibrahim et al.**

**(2015)** who reported that low knowledge score about premarital screening and genetic counseling program before conducting an interventional educational campaign 80.9%, 12% and 6.6% obtained satisfactory, fair, poor and score respectively. This similarity might be due to insufficient basic information obtained during their formal education in relation to this specific area of knowledge.

Regarding nurses who had done practice in pre-marital counseling, the finding of the present study revealed that significant differences of nurses done practice in pre, post and follow-up. While the post- program higher than pre and follow-up program. As well as, nurses done practice about taking history of couples the majority of studied sample had positive performance regarding history tacking about the couples. These results were disagrees with **Mohamed (2014)** who studied "effect of training program on the nursing performance in pediatric out-patient clinic in MCH centers in El-Mania Governorate in Egypt who found that only 11% of the nurses took the child history before program implementation. This reflects the importance of pre-marital counseling tanning program.

According to nurses done practice regarding taking medical history of couples, the present study revealed that the majority of studied sample had negative performance while asking couples about history of their family genetic diseases, history of medical surgery, and history of their family infectious diseases. This result similar to study of **Gharaibeh et al (2010)** who reported that  $3.35 \pm 1.15$  of nurses and midwives regarding teach couples about the inheritance and its disorders. In addition  $4.2 \pm 0.83$  of them regarding taking family history and inheritance disorder information. This negative performance may be due to nurses weren't recognize the importance of these data in detecting the most liable risk couples to hereditary diseases.

Regarding to total done practice score, the current study revealed that there was improvement of total done practice score and the majority of studied sample had positive performing in the post and follow-up program in all items than pre-program. These findings were similar to **Esmail et al. (2017)** who reported that 83.1% of studied sample of control group their total performance score before and three months post program was poor. This is compared with 81.4% of the study

group who had a poor score of practice pre implementation of the program, and 91.5% of them had good scores of performance immediately after implementation of the program. This similarity reflects the importance of pre-marital counseling training program on nurses practice.

As regards to relation between total correct knowledge score and demographic characteristics of the studied sample, the present study revealed that there was statistically significance relation between total correct knowledge score and nurses attending training program in pre-marital counseling in addition to their years of experience (5 to 10) years. These results were agree with **Ibrahim et al (2015)** who found that studied sample who had working experience more than 5 years and attending training program in pre-marital counseling and screening had higher knowledge  $P < 0.05$ . This reveals the effect of years of experience and attending training program in pre-marital counseling on nurse's knowledge.

Additionally, the present study revealed that there was statistically significance relation between age  $40 \leq 60$  years and total knowledge score. Also, years of experience more than 10 years in the

field of pre-marital counseling and total correct knowledge score. On the other hand there was statistically significance difference of the years of work experience from 5 to 10 years and total correct knowledge. These results were in the same line with **Esmail et al. (2017)** who found there was a highly significant relation between nurses total knowledge, their age and years of work experience in the field of child health ( $P=0.015$ ,  $0.001$  and  $0.011$  respectively). This reveals the effect of years of experience and attending training program in pre-marital counseling on nurse's knowledge.

As regards to the relation of total correct knowledge score and total done practice of the studied sample, the present study revealed that there was positive relation between total correct knowledge score and total done practice score with highly statistically significance difference. These results were agree with study of **Esmail et al. (2017)** who reported that there was statistically significant improvements in the total mean scores of both the knowledge and practice of the study group. Which explain the effect of intervention educational program of this study.

**Conclusion:** there was an improvement of nurses' knowledge and practice at post and follow-up program with statistically significant difference.

#### **Recommendations:**

1. Improving nurses role in pre-marital counseling by specific descriptive role for each level.
2. Continuous evaluation for nurses performance for the sake of improvement for both nurses and people health.

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