Assiut Scientific Nursing Journal
http://asnj.journals.ekb.eg http://www.arabimpactfactor.com
DOI:10.21608/asnj.2025.404541.2131 http://olddrji.lbp.world/indexedJournals.aspx
https://vlibrary.emro.who.int/journals/assiut-scientific-nursing-journal

Knowledge and Perception of Future Couples Towards Premarital Screening

Doaa N. Shaban[1], Nadia H. Ahmed[2] & Shaimaa G. Hassen[3]
[1.] Nurse Specialist at Maternal and Child Health Center West Assiut.
[2.] Professor of Obstetrics and Gynecological Nursing, Faculty of Nursing, Assiut University, Egypt.
[3.] Assistant Professor of Obstetrics and Gynecological Nursing, Faculty of Nursing, Assiut University, Egypt.

Abstract
Background: Premarital screening is an amazingly effective method for preventing a variety of inherited genetic disorders in communities where consanguineous marriages are culturally prevalent. **Aim:** Assess the knowledge and perception of future couples towards premarital screening. **Subjects and Methods: Design:** A descriptive cross sectional study design was utilized in this study. **Setting:** Study was performed at Qulta MCH center in West Assuit district and El-Walidia MCH center in East Assuit district at Assiut Governorate. **Sample:** A convenience sample Consisted of 350 future couples from the MCH centers (Qulta and El-walidia) **Tools:** A Structured interview questionnaire was used for data collection that included three parts: Demographic characteristics, Level of knowledge and Perception among prospective couples concerning premarital screening. **Results:** Illustrated that 59.4 % of the participants had a poor level of knowledge about premarital screening and 76.3% of them had a positive level of perception towards premarital screening, while 18.6% and 5.1% had a neutral and negative level of perception respectively. **Conclusion:** more than half of the participants had poor level of knowledge about premarital screening. And more than three-fourths of respondents had positive level of perception **Recommendations:** Use the mass media and social platforms to spread accurate information about premarital screening tests and consequences of consanguinity.

Keywords: Couples, Knowledge, Perception & Premarital Screening.

Introduction:
Premarital screening represents an essential preventive strategy that is increasingly accepted by prospective couples seeking to promote a healthy lifestyle and ensure the well-being of future generations. This screening process enables the identification of potential genetic disorders and assesses genetic compatibility between partners prior to marriage. As a result, it plays an essential part in lowering the prevalence of inherited genetic diseases commonly associated with consanguineous or unassessed marital unions. **(Alhusseini et al., 2023).**

Premarital screening is a series of medical examinations performed on prospective spouses with the goal of detecting prevalent viral disorders (such hepatitis B, C &HIV/AIDS) and inherited blood abnormalities (primary hemoglobinopathy, such as thalassemia and sickle cell anemia). **(Al Shafai et al., 2022).**

Premarital screening (PMS) and genetic counseling (GC) approach can detect and change the health-related risk factors known to influence genetic disorders. PMS is regarded as one of the most effective measures against the above-mentioned genetic blood diseases and many medical, psychological, and social marital problems **(Natarajan et al., 2021)**

Consanguineous marriage represents the primary predictor and a major risk factor for the occurrence of genetic disorders. The management of genetic and infectious disorders imposes substantial psychological stress on affected individual and families, along with financial demands on the healthcare system. **(Almoliky et al., 2022)**

Premarital examination is a highly effective preventative strategy, especially in areas where consanguineous marriages are common., aiming to reduce the transmission of serious hereditary disorders. It's a type of counsel given to future partner about the possibility of spread of extremely sever and debilitating diseases such as sickle cell disease, thalassemia and other hemoglobinopathies in the future offspring. It provides the couple and their families a chance to approach the relationship with fairness & clarity, thereby reducing potential conflicts and hardships **(Jameel et al., 2024)**.

Knowledge of premarital screening (PMS) differs across low- and middle-income countries (LMICs), with particularly notable variations in conservative communities that view marriage as a religious or societal duty. The use of PMS and PMGS services is affected by factors such as personal attitudes, cultural norms, and economic conditions. **(Elhadi et al., 2023)**

Awareness of clients regarding premarital counseling is a global activity that aim to identify, manage unrecognized diseases, and minimize spread of disorders between partners which may impact their generation's health and marital quality **(Sabbah et al., 2023)**.

Significance of the study:

The main factors associated with infant and child mortality, disability, and morbidity are considering genetic blood disease which are common in Arab countries. Hereditary blood disorders, particularly SCA and thalassemia, represent some of the most prevalent hereditary conditions worldwide. An estimated 240 million people carry these diseases, and each year at least 200,000 infants are born with one of the conditions, almost split equally between thalassemia and sickle cell anemia. **(Howard, 2020).**

Among the most important areas covered in premarital counseling is consanguineous marriage, due to its strong association with hereditary disorders. In Egypt, the prevalence of consanguineous marriage among the public is estimated at 27.4%, with the greatest rates observed in remote areas. Marriages between first cousins are the most prevalent type of consanguinity. Consequently, the burden of hereditary disorders and congenital malformations is significantly higher in rural regions, where approximately 8.4% of affected individuals reside, compared to 2.8% in urban areas. This disparity is largely attributed to the higher frequency of consanguineous unions in rural communities. **(Hamed et al., 2022**).

Hemoglobinopathies are a common disorder around the world and are defined as a broad category of hereditary disorders that affect hemoglobin (Hb) production. It is expected that approximately 400,000 infants are affected by this severe disease each year. The disorder's geographic incidence varies greatly; the majority of cases are documented from the Indian subcontinent, Southeast Asia, the Middle East, Mediterranean nations, and Sub-Saharan Africa. **(Umair et al., 2020)**

Aim of the study:

The aim of this study was to assess the knowledge and perception of future couples towards premarital screening.

Research Questions:

What is the level of knowledge and perception of future couples towards premarital screening?

Subjects & Methods:

In the present study, the subjects and methods were presented within four distinct sections (technical, operational, administrative, and statistical design).

Technical design:

Research design:

This study used a descriptive cross-sectional design.

Setting:

The study carried out at Qulta MCH center in West Assuit district and El-Walidia MCH center in East Assuit district at Assiut Governorate. This center provides offers to the society involving; prospective partner screening such as getting a marriage license and MCH services like laboratory, antenatal and postnatal care, dental care, pregnancy-related vaccination, child immunization, pharmacy and family planning services.

Subjects:

Sample Type:

A convenience sample was recruited for this study.

Sample Size:

present study was performed on 350 couples. The sample was calculated according to Herbert Arkin equation:

$$n = \frac{p(1-p)}{(SE \div t) + [p(1-p) \div N]}$$

N (population) = 6000 (3500 from West Assuit district and 2500 from East Assuit district)

t = 1.96

SE =0.05

P =0.50

n= 350 couples couples (200 couples from West Assuit district and 150 couples from East Assuit district)

A convenience sample of 350 future couples from the MCH centers (Qulta and El-walidia) who met the following criteria:

Both genders: Males and females intended to married.

Criteria of selection

Inclusion criteria

Both genders:

All Males and females who planned to get married and attended to MCH centers

Exclusion criteria

Couples who refused to participate in this study

Tools of data collection:

A Structured interviewing questionnaire was used for this study

The researcher developed this tool following an extensive review of relevant literatures and consulting expertise in this area. It was adapted with modifications from the tool used by **Hamed et al., (2022)** to fit the objectives of the study and included the following 3 parts:

Part (1): personal characteristics of the future couples
such as age, residence, gender, education, parent consanguinity, and family and personal histories of genetic illnesses.

Part (2): Knowledge of the future couples about premarital screening . **That included**
heard previously about premarital screening, sources of information towards premarital screening (PMS), understand the definition and objectives of PMS, understand inherited and viral illnesses that are related to PMS, know other places that performing PMS, understand which tests are utilized for PMS, know physical examination is included in PMS program.

Score Key of Knowledge
The total knowledge score included 20 items. Each right answer was given one-mark, wrong answer was given Zero mark. The score of each item summed up and then transformed to percent score that divided into the following categories:
Good knowledge >70% of knowledge total score.
Faire knowledge 50%-70% of knowledge total score.
Poor knowledge less than 50% of knowledge total score. **(Hamed et al., 2022)**

Part (3) Perception of the studied future couples towards premarital screening.:
It included questions as Is it essential for the prospective couples? increase awareness about PMS prior to marriage, will help lower the frequency of some hereditary diseases and STDs. Consanguinity can increase the risk of hereditary disease, PMS has to be confidential, also lead to couples' psychological problems, religious people should adopt the ideas of PMS in their discussion, the law should require all couples to complete PMS because its importance, the decision to marry should be left up to the couples, after receiving the results, medical counseling is essential, any health problem that develops in one of the partners must be treated before marriage

Score Key of Perception
There were twelve questions about the perception of premarital screening, and the scores ranged from 1 to 5, that indicating 5-Likert scale. The responses to each question were as follows: strongly disagree (1), disagree (2), neutral (3), agree (4) strongly agree (5). The following was the indication of the overall perception score:
Positive perception: >75% of the perception total score
Neutral perception: 50-75% of the perception total score
Negative perception: less than 50% of the perception total score. **(Hamed et al., 2022)**

Tool Validity:
Three panel experts from Assiut University's Faculty of Nursing's Obstetrics and Gynecological Nursing department assessed the tool to ensure that they accurately measured the elements that they were intended to measure. The tool was modified according to the panel opinions regarding sentence structure, topic appropriateness, and item order.

Tool Reliability:
Reliability for tool was implemented by the researcher for evaluating the internal consistency of the tools. To evaluate reliability, Cranach's alpha test was used. It was measured by using reliability item extracted from scale and analyzes that found in SPSS program.

Operational design:
The design included description of the preparatory phase, pilot study and filed work.

Preparatory phase:
The researcher conducted a comprehensive review of the relevant literature, both locally and internationally, utilizing textbooks, scholarly articles, and reputable journals. The tools were developed based on the reviewed literature and standardized scales, and their validity was assessed by a panel of experts in obstetrics and gynecology.

Pilot study:
After questionnaire preparation, the reliability and validity of the study instrument were assessed by pre-testing it on 10% of cases including 35 couples from the study sample. Subjects involved in the pilot study were included in the actual study as there were no significant changes in the study tool.

Field work:
Data collection of the study extended about 9 months started at July 2024, and ended by the end of March 2025, through the following procedure.

Procedures:
- The initial phase of the study involved translating the questionnaire into Arabic and conducting its linguistic validation.
- The researcher was attended to the aforementioned places two days per week from 9 am to 11 am until the sample size was obtained. Data were collected through a period from July 2024 to march 2025.
- The researcher collected data from 350 couples and interviewed with each person individually to discuss the study's nature and its purpose.
- In Qulta MCH the interview was done at the premarital examination room that characterized with good ventilation, adequate light, comfortable chairs and closed door to maintain privacy. In El-Walidia MCH the interview was done in the reception at a far corner to avoid interruption and maintain privacy with enough light and good ventilation.
- All future couples who attended to Qulta and El-Walidia MCH were interviewed.

- Future couples were assured that involvement in this study is Optional and that they can leave from the study at any moment.
- The interview questionnaire was verbally administered to the participants and full filling during 15 minutes of time.

Administrative design:

Approval was obtained from the Dean of Faculty of Nursing, Assiut University for the managers of MCH center in Assuit City.

Ethical considerations:

- On May,27,2024, the faculty of nursing's Ethical Committee approved the research request with ID approval (1120240818).
- The study complied with accepted ethical guidelines for clinical research.
- There was no risk for study subject during application of the research.
- Each participant gave their informed oral consent prior to being included in the study sample and after explanation of the study purpose in simply and clear manner.
- The researcher provided a clear and concise explanation of the study's nature and its anticipated outcomes.
- Participants were informed that they could decline participation or withdraw from the study at any stage without the need to provide a reason
- Privacy was carefully maintained in relation to the collected data, and anonymity and confidentiality were ensured through data coding procedures.

Statistical analysis:

The Statistical Package for Social Sciences (SPSS) version 26 was used to arrange, classify, code, tabulate, and analyze the data that had been gathered. In order to determine whether two qualitative variables were related, the data was presented in tables and figures using numbers, percentages, means, standard deviations, and the chi-square test of significance. For statistical significance, a P-value of less than 0.05 was used

Results:

Table (1): Distribution of The Studied Participants' According to their Personal Characteristics (n=350):

Items	N	%
Age/ years		
< 30	**249**	**71.1**
≥ 30	101	28.9
Age (mean±SD)	**26.651±7.482**	
Gender		
Male	168	48.0
Female	**182**	**52.0**
Education		
Illiterate	32	9.1
Read and write	32	9.1
Secondary Education	**116**	**33.2**
Institute	70	20.0
University	73	20.9
Post graduate	27	7.7
Residence		
Rural	135	38.6
Urban	**215**	**61.4**
Family history of hereditary or genetic disease		
Yes	**33**	**9.4**
No	317	90.6

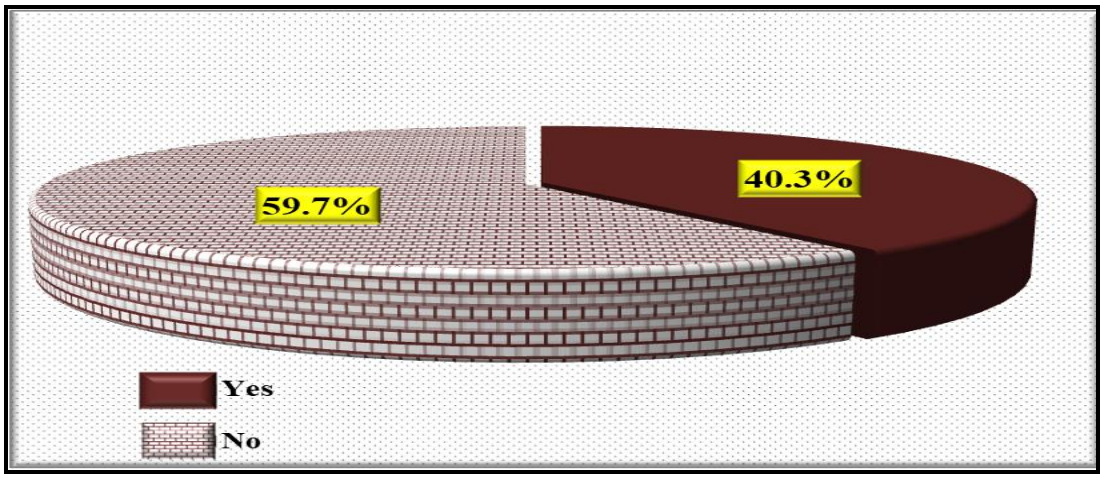

Figure (1): Distribution of the Studied Participants' According to their Parental Consanguinity (N=350):

Table (2): Distribution of the Studied Participants' According to their Knowledge About Premarital Screening and Genetic Counseling (N=350)

Items	Yes		No	
	N	%	N	%
Do you heard before about premarital screening and genetic counseling?	289	**82.6**	61	17.4
Do you know the meaning of premarital screening and genetic counseling?	235	**67.1**	115	32.9
Do you know objectives of premarital screening and genetic counseling?	202	**57.7**	148	42.3
Do you know infectious diseases that are focused by premarital screening and genetic counseling?	108	30.9	242	**69.1**
Do you know hereditary diseases that are focused by premarital screening and genetic counseling?	84	24.0	266	**76.0**
Do you know different options of places performing premarital screening and genetic counseling?	198	56.6	152	43.4
Do you know tests that are involved in premarital screening and genetic counseling services?	180	51.4	170	48.6
Do you know that physical examination is involved in premarital screening and genetic counseling services?	122	34.9	228	65.1

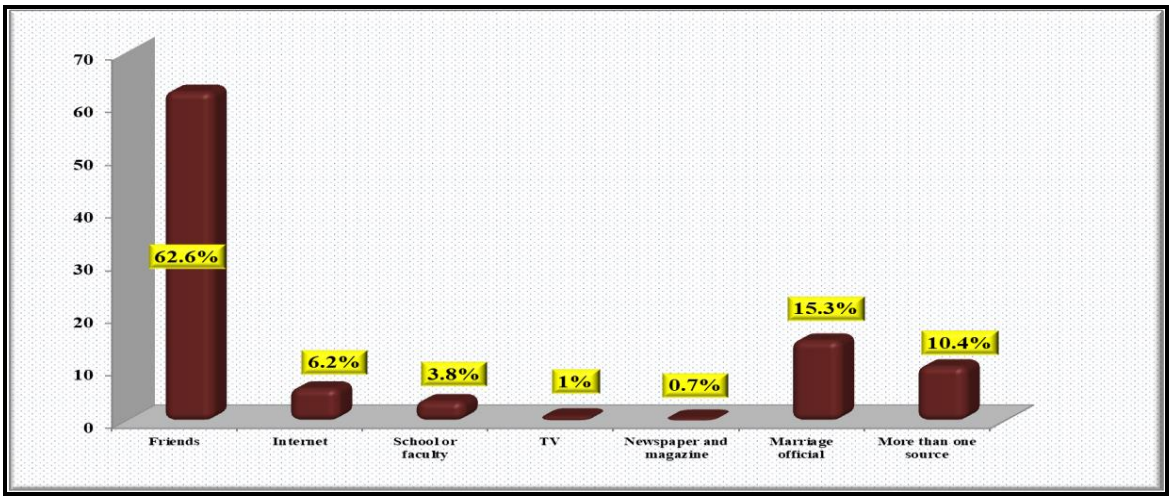

Figure (2): Distribution of the Studied Participants' According to their of Sources Knowledge about Premarital Screening (N=289)

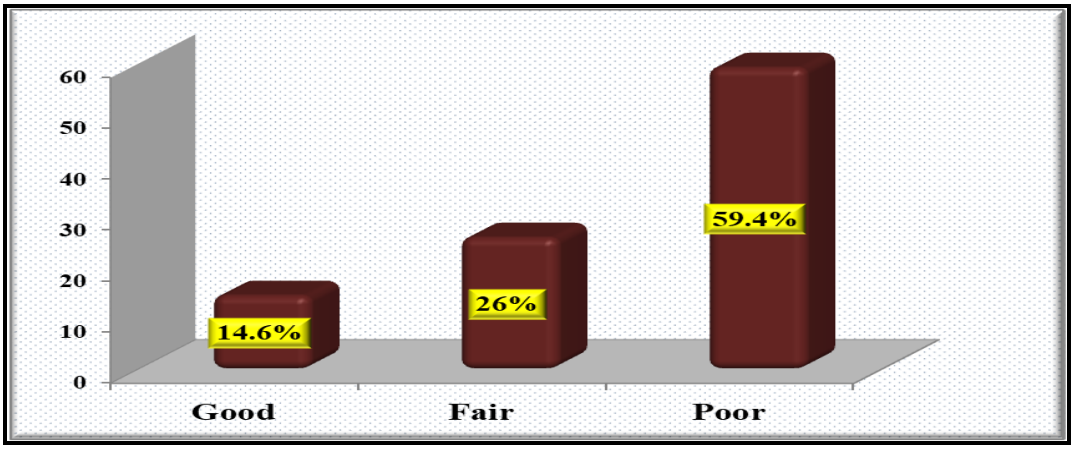

Figure (3): Distribution of the Studied Participants' According to their Total Knowledge Level about Premarital Screening (N=350)

Table (3): Distribution of the Studied Participants' According to their Perception of Future Couple about Premarital Screening and Genetic Counseling (N=350)

Items	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	N	%	N	%	N	%	N	%	N	%
1. Do you perceive that PMSGC is important for future couple?	**184**	**52.6**	146	41.7	7	2.0	9	2.6	4	1.1
2. Is it important to raise awareness about PMSGC before marriage?	164	46.9	151	43.2	13	3.7	11	3.1	11	3.1
3. Do you perceive that PMSGC will reduce the prevalence of some genetic disease?	162	46.3	142	40.6	19	5.4	19	5.4	8	2.3
4. Do you perceive that PMSGC will reduce the prevalence of some sexual transmitted disease?	149	42.6	160	45.7	14	4.0	18	5.1	9	2.6
5. Do you perceive that consanguinity can increase the risk of hereditary disease?	141	40.3	134	38.3	34	9.7	25	7.1	16	4.6
6. Do you perceive that PMSGC should be confidential?	146	41.7	135	38.5	31	8.9	29	8.3	9	2.6
7. Do you perceive that PMSGC cause psychological trouble to the couples?	78	22.3	114	32.6	35	10.0	**95**	**27.1**	28	8.0
8. Do you perceive that religious people should adopt the ideas of PMSGC in their discussion?	128	36.6	160	45.7	30	8.6	20	5.7	12	3.4
9. Do you perceive that the law should obligate all future couples to do PMSGC is important?	138	39.4	163	46.5	24	6.9	16	4.6	9	2.6
10. Do you perceive that in the case of detecting STDs; marriage decision must be left for freedom of the couple?	131	37.4	171	48.9	26	7.4	16	4.6	6	1.7
11. Do you perceive that medical counseling is important to be given after getting the results?	140	40.0	187	53.4	17	4.9	4	1.1	2	0.6
12. Do you agree that if any disease appeared in one of the couples has to be treated before marriage?	**167**	**47.7**	161	46.0	17	4.9	5	1.4	0	0.0

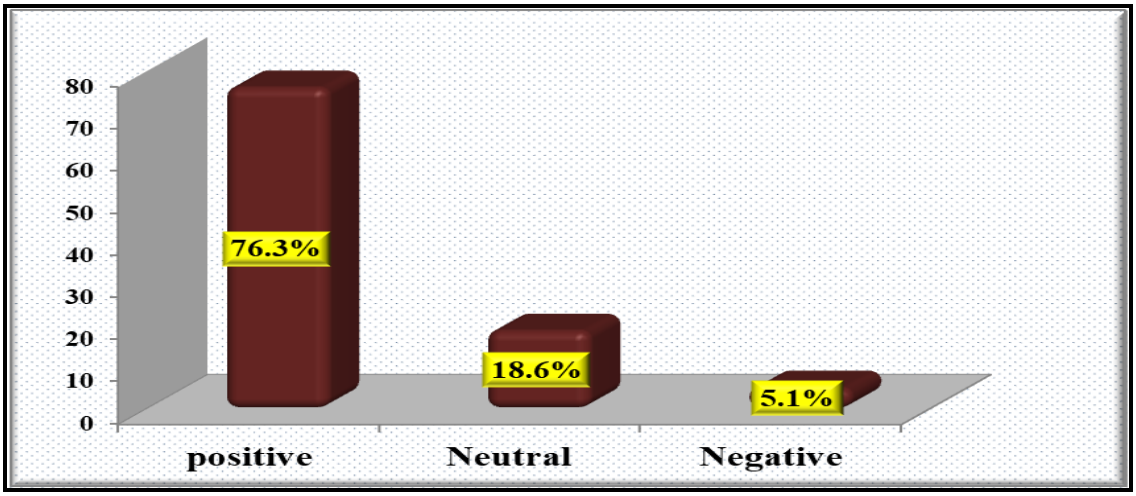

Figure (4): Distribution of the Studied Participants' According to their Total Perception Level of Future Couple About Premarital Screening (N=350)

Table (4): Relations between the Studied Participants Level of Knowledge about Premarital Screening and their Personal Characteristics (N=350)

Items	Level of knowledge about premarital screening						X^2 P-value
	Good (51)		Fair (91)		Poor (208)		
	N	%	N	%	N	%	
Age/ years							**19.97**
< 30	23	45.1	67	73.6	159	76.4	
≥ 30	28	54.9	24	26.4	49	23.6	**(0.001**)**
Gender							0.696
Male	22	43.1	43	47.3	103	49.5	
Female	29	56.9	48	52.7	105	50.5	(0.706)
Education							
Illiterate	3	5.9	4	4.4	25	12.0	**52.97**
Read and write	4	7.8	4	4.4	24	11.5	
Secondary Education	8	15.7	24	26.4	84	40.4	**(0.001**)**
Institute	9	17.6	22	24.2	39	18.8	
University	16	31.4	32	35.1	25	12.0	
Post graduate	11	21.6	5	5.5	11	5.3	
Residence							**25.12**
Rural	6	11.8	29	31.9	100	48.1	
Urban	45	88.2	62	68.1	108	51.9	**(0.001**)**
Parental consanguinity							**10.66**
Yes	10	19.6	39	42.9	92	44.2	
No	41	80.4	52	57.1	116	55.8	**(0.005**)**
Family history of hereditary or genetic disease							0.060
Yes	5	9.8	8	8.8	20	9.6	
No	46	90.2	83	91.2	188	90.4	(0.970)
Personal history of hereditary disease							**8.606**
Yes	4	7.8	5	5.5	2	1.0	
No	47	92.2	86	94.5	206	99.0	**(0.014*)**

Table (5): Relations Between the Studied Women Level of Perception of Future Couple About Premarital Screening and Their Personal Characteristics (N=350)

Items	Level of perception of future couple						X^2 P-value
	Positive (267)		Neutral (65)		Negative (18)		
	N	%	N	%	N	%	
Age							4.313
< 30	183	68.5	53	81.5	13	72.2	
≥ 30	84	31.5	12	18.5	5	27.8	(0.116)
Gender							2.201
Male	133	49.8	29	44.6	6	33.3	
Female	134	50.2	36	55.4	12	66.7	(0.333)
Education							
Illiterate	19	7.1	5	7.7	8	44.4	**41.645**
Read and write	19	7.1	10	15.4	3	16.7	
Secondary Education	89	33.4	20	30.8	7	38.9	**(0.001**)**
Institute	57	21.3	13	20.0	0	0.0	
University	62	23.2	11	16.9	0	0.0	
Post graduate	21	7.9	6	9.2	0	0.0	
Residence							**15.471**
Rural	90	33.7	39	60.0	6	33.3	
Urban	177	66.3	26	40.0	12	66.7	**(0.001**)**
Parental consanguinity							**13.88**
Yes	120	44.9	20	30.8	1	5.6	
No	147	55.1	45	69.2	17	94.4	**(0.001**)**
Family history of hereditary or genetic disease							**11.326**
Yes	33	12.4	0	0.0	0	0.0	
No	234	87.6	65	100.0	18	100.0	**(0.003**)**
Personal history of hereditary disease							2.772
Yes	10	3.7	0	0.0	1	5.6	
No	257	96.3	65	100.0	17	94.4	(0.250)

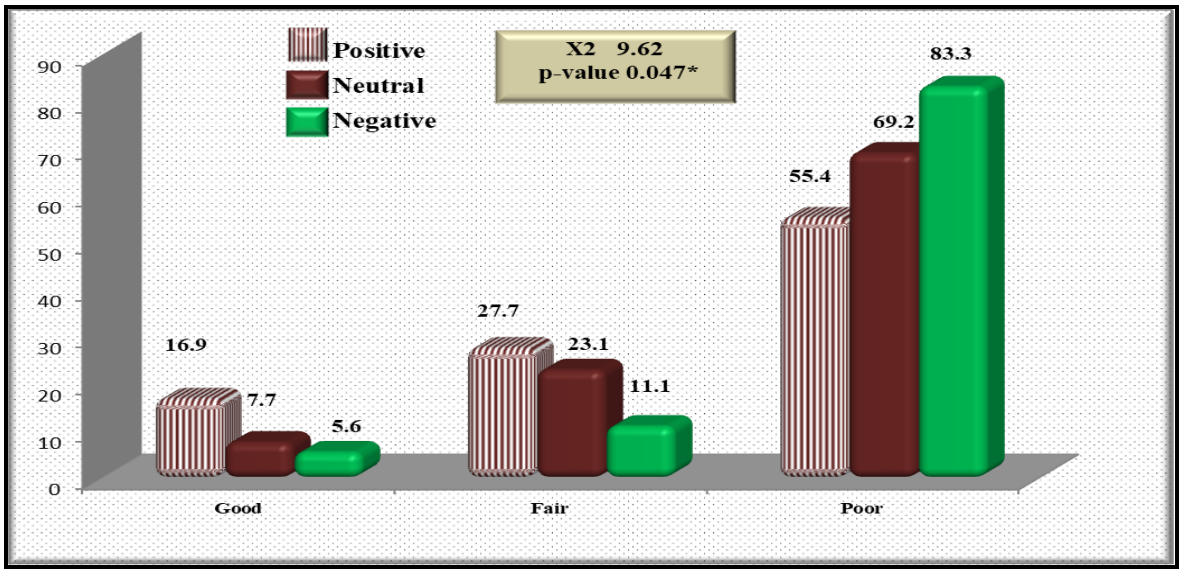

Figure (5) Relations between the Studied Women Level of Knowledge and Perception of Future Couple About Premarital Screening (N=350)

Table (1): Clarifies that 71.1% of the studied participants had an age less than 30 years with a mean±SD of 26.651±7.482, 52.0% of them were females. Concerning educational level, 33.2% of them had secondary level of education, about 61.4% of the studied participants lived at urban areas, and 9.4% of them had family history of hereditary or genetic disorders.

Figure (1): Shows that 40.3% had parental consanguinity.

Table (2): Represents knowledge about PMSGC and reported that concerning heard previously about PMSGC, 82.6% of the studied participant heard previously about premarital screening. Regarding knowledge about premarital screening, about 67.1% and 57.7% of them aware by the meaning and objectives of premarital screening respectively. While 76.0% and 69.1% of them not aware by hereditary and infectious diseases that are focused by premarital screening respectively.

Figure (2): Demonstrates that 62.6% of the participants' gained their knowledge about premarital screening from friends followed by marriage official (15%).

Figure (3): Reports that 59.4% of the participants had a poor level of knowledge about premarital screening, while 26% and 14.6% had a fair and good level of knowledge respectively.

Table (3): Clarifies that 52.6% and 47.7% of the participants strongly agree with "perceive that PMSGC is essential for future couple" and "if any health problem that develops in one of the partners must be treated before marriage". And 27.1% of them disagree with "perceive that PMSGC cause psychological problems to the couples"

Figure (4): Illustrates that 76.3% of the participants had a positive level of perception regarding premarital screening, while 18.6% and 5.1.6% had a neutral and negative level of perception respectively.

Table (4): Reveals that there were highly statistical significant relation between the participants' level of knowledge about premarital screening and their age, educational level, residence, and Parental consanguinity at p-value <0.01. There was statistical significant relation between the studied participants' level of knowledge about premarital screening and personal history of hereditary disease at p-value <0.05. While there are no statistical significant relation between the studied participants' level of knowledge about premarital screening and their gender, residence and family history of hereditary or genetic disease at p-value > 0.05.

Table (5): Reveals that there were highly statistical significant relation between the studied participants' level of knowledge about premarital screening and their educational level, residence, family history of hereditary or genetic disease and parental consanguinity at p-value <0.01. While there are no statistical significant relation between the studied participants' level of knowledge about premarital screening and their age, gender, residence and personal history of hereditary disease at p-value > 0.05.

Figure (5): Represents that there were statistical significant relation between the studied participants' level of knowledge about premarital screening and their Perception of regarding premarital screening at p-value 0.047.

Discussion:

The premarital screening and genetic counselling (PMSGC) program include a general medical assessment and premarital health counselling. Pre-marital screening involves assessing future partners for transmissible illnesses such as hepatitis B, hepatitis C, HIV/AIDS, as well as common hereditary blood disorders such sickle cell anemia and thalassemia. **Al-Hasan et al., (2024)**.

Concerning knowledge of PMSGC the present study, revealed that more than four-fifths of participants indicated that they had previously heard of PMSGC, suggesting good overall awareness. However, fewer than one in four demonstrated knowledge of hereditary diseases addressed by PMSGC, and less than one-third recognized the inclusion of genetic testing. These results indicate a substantial knowledge gap regarding the specific components and medical implications of PMSGC. Similar finding reported by Aga et al., (2021) who conducted their study in Saudi Arabia to assess "Knowledge, awareness, and attitude of medical students concerning genetics and premarital screening" It was reported that participants possessed some knowledge regarding the fundamentals of genetic testing, and the majority were aware of its availability within the Kingdom. Also, **Osman et al., (2021)**, who conducted their study to assess " Awareness and attitude of university students regarding premarital counseling and examination" reported that the majority of students heard about premarital exam.

In addition to finding reported by **Hamed et al., (2022),** who carried out in Egypt. they reported that approximately three - quarters of the future couples surveyed had previously heard of PMSGC, However, around two- thirds of them had inadequate knowledge regarding premarital screening and genetic counseling. These results do high-light the importance of health education initiatives to increase knowledge about PMGC.

Concerning the knowledge of the meaning and objectives of premarital screening, the present study illustrated that more than two thirds of the future couples know the meaning of premarital screening

and more than half of them know the objectives of PMSGC. These results are consistent with those of a previous study conducted in Iraq, which also found that majority of the participants know the definition of PMS and the most of them know the objectives of PMS **(Mahmood et al., 2024).** Theses similarity may be back to having good overall awareness of participants in the two studies and level of literacy about PMSGC.

Regarding source of knowledge, the present study demonstrated that less than two thirds of the studied future couples gained their knowledge from friends. This finding agrees with pervious study carried out in Yemen by **Alhetar et al., (2024)**, to assess" Knowledge and Attitudes of Secondary Schools students Towards Premarital Screening and Counseling "which found that less than half of studied participants obtained their source of knowledge from friends and relatives.

Conversely, these finding disagreement with **Al-Hasan et al., (2024),** who conducted at Bangladesh reported that most participants indicated that their main sources of knowledge were the Internet and other online resources. . This disagreement may be due to the current study done at Egypt which there were stronger dependence on close social circles for sensitive health related information like PMSGC especially among certain age groups. on the other hand, the study conducted at Bangladesh which their population have greater reliance on digital platforms and higher integration of technology in daily life.

Regarding the infectious disease focused by PMSGC, only less than one third of participant know that Hepatitis B, C, syphilis and HIV focused by PMSGC. While the study implemented in Saudi Arabia by **Aljulifi et al., (2022)**, who reported that majority of the respondents answered correctly about the inclusion of HIV in PMS. This disagreement may be caused to tradition, culture and education difference between these participant and current study.

Almost more than half of studied participants in the current study know that thalassemia involved in premarital screening tests and more than half of them know HIV/ AIDS test involved in premarital screening. Moreover, the study reported by **Aljulifi et al., (2022),** found that less than half of participants know that thalassemia included in the PMS test and more than half of them know that HIV/ AIDS test involved in premarital screening.

This result was in congruent found by **Imam-Fulani (2024)** who applied their study in Nigeria revealed that fewer than two thirds of participants heard about sickle cell disease and thalassemia.

Regarding the distribution of the studied participants' according to their perception of future couples about premarital screening revealed that more than half of the future couples strongly agree with PMSGC is essential for future couples and less than half of the couples strongly agree with premarital screening is important to raise awareness prior to marriage and perceive that PMSGC decrease the frequency of some hereditary disease and STDs.

These findings were consistent with previous studies carried out in Iraq , Riyad and Sudan , which the first study performed by **Aziz & Abdulla, (2021)** who conducted their study on "Attitudes of Couples attending Family Counselling Clinic in Sulaimani City towards the Premarital Screening and Genetic Counseling Programme " that showed the majority of participants strongly agreed that the PMS program is essential and that it should be utilized to improve awareness of PMS before to marriage, and also it should be utilized to minimize certain genetic and sexually transmitted diseases.

In addition, these results agree with **AlOtaiby et al., (2023)**, who implemented their study in Riyadh, found that the majority of participant were aware of the significance of premarital screening and with **Elhadi et al., (2023),** who conducted their study on "Consanguinity and willingness to perform premarital genetic screening in Sudan" It was reported that most participants agreed on the potential effectiveness of PMS in reducing genetic diseases and sexually transmitted diseases (STDs).

According to consanguinity in the study demonstrated that less than half of the studied couples strongly agree with consanguinity can elevate the chance of hereditary disease likewise with **Zaien et al., (2022),** who carry out their study on "Predictors of premarital screening and genetic counseling knowledge and attitude among deaf and hard hearing females in Tabuk, Saudi Arabia" , found that that less than half the studied participants strongly agree with Consanguinity marriage leads to hereditary diseases.

Also, **Al-Eisawi et al., (2021),** executed their study in Jordan reported that almost all the participants believed consanguinity marriage increased the risk of developing genetic disorders. This similarity may be back to their awareness about risk of Consanguinity marriage.

Regarding asking the participants about perceive that PMSGC should be confidential, less than half of them strongly agree with PMSGC should be confidential. This result is in congruent with the findings of **Mahmood et al., (2024),** who found that more than half of participants agreed that PMSGC should be confidential.

The current study cleared that less than half of the future couples agree with in case of detecting STDs, the decision of married should be left up to the couples. These findings were accepted with previous studies conducted in Egypt and Saudi Arabia, which

also demonstrated that more than half of the studied participants cancel their marriage in case of detecting STDs **(Hamed et al., 2022; Hamali, 2023).**

Incongruent with previous findings, **Al-Shafai et al., (2022),** who applied their study in Qatar to "Knowledge and perception of and attitude toward a premarital screening program", they illustrated that only one-third (37.4%) of the participants expressed willingness to cancel their marriage in the event of incompatible PMS results. These differences in findings may be due to the variable educational level of the study participants and cultural background**.**

The current study was showed that more than one quarter of the studied couples disagree with PMSGC cause psychological problems to the couples. similar to pervious study conducted in Egypt by **Hamed et al., (2022),** who demonstrated that more than one third of participants strongly disagree with PMSGC psychological trouble to the couples. This similarity may be due to the same culture and tradition of participants at the two studies.

Our present study was reported that less than half of the future couples agree with religious persons should include the concepts of PMSGC in their discussion and less than half of them agree with it's important for the law to require all future couples to perform PMSGC. These findings agree with **Al-Hasan et al., (2024)**, who assessed "Pre-Marital Screening and Genetic Counseling: Knowledge, Awareness, and Perception among Bangladesh's Population" reported that less than half of the studied participants agree with religious persons should include the concepts of PMSGC in their discussion. and more than one third of the studied participants agree with the law should require all future couples to complete PMS because is important, this similarity showed the importance of participation of religious people and law in premarital screening program

The current study showed that more than half of studied future coupled agree with after receiving the results, medical counseling is essential. These findings accepted with **Hamed et al., (2022),** who performed their study in Egypt showed that less than two thirds of participants agree with after receiving the results, medical counseling is essential. This agreement supports the importance of medical counseling to future couples about PMS.

Regarding asking participants in our study about in the case of any health problem that develops in one of the partners must be treated before marriage, we found that less than half of them strongly agree with treated before marriage if any disease appeared. The same finding was found by **Alhetar et al., (2024),** who applied their study in Yemen to assess "Knowledge and Attitudes of Secondary Schools students Towards Premarital Screening and Counseling in Taiz, Yemen" they revealed that the majority of participants agree with It is important to go for treatment if have family history of diseases.

Concerning distribution of participants according to their total perception level about PMSGC, the current study revealed that more than three quarters of the participants had positive level of perception. Likewise with **Al-Shroby et al., (2022),** who carried out their study in Saudi Arabia to assess "Awareness of premarital screening and genetic counseling among Saudis and its association with sociodemographic factors", found that the majority of respondents (83.8%) had a positive attitude regarding the significant of PMSGC.

Regarding the relationship between the participants' level of knowledge about premarital screening and their personal characteristics, the results of this study showed that more than half of the female participants possessed good knowledge, whereas less than half of the male participants demonstrated good knowledge, with no statistically significant difference ($P > 0.05$).

This finding is consistent with the results of **Saleh et al. (2022),** who conducted a study entitled 'Knowledge of University Students toward Premarital Screening Program'. They reported that less than three-quarters of female participants had good knowledge, whereas almost one-quarter of male participants demonstrated good knowledge, with no statistically significant difference ($P > 0.05$).

Additionally, with **Al-Shroby et al., (2022),** who reported that Females had a statistically significant greater knowledge about PMSGC than males. This could be because women are more concerned about chronic illnesses that impact mothers' and their children's quality of life and also may be because man can change her wife but wife can't change her husband.

The current study reveals that there were highly statistical significant relation between the studied participants' level of knowledge about premarital screening and their age, educational status, residence, and Parental consanguinity at p-value <0.01.

These findings are consistent with those of Elhadi et al. (2023), who reported that the knowledge score was significantly associated with state of residency, age, educational level, and employment status. Also, **Aljulifi et al., (2022),** found that a significant association between the level of knowledge and age groups. The convergence of findings across these studies highlights the influence of sociodemographic factors on individuals' awareness and understanding of premarital screening.

As regards to the relation between the studied participants level of perception about premarital screening and their personal characteristics. The present study cleared that there are no statistical

significant relation between the studied participants' level of perception about premarital screening and their age, gender and personal history of hereditary disease at p-value > 0.05.

A similar finding was reported by Mahmood et al. (2024), who observed no statistically significant difference in perception and attitude scores between male and female participants, as reflected by the P-values of 0.383 and 0.273, respectively. The similarity may be due to similarity of age group studied participants.

The conducted study shows that there was highly statistically significant relation between the studied participants' level of perception about premarital screening and their educational level, residence, family history of hereditary or genetic disease and parental consanguinity at p-value <0.01.

These finding was different with **Mahmood et al., (2024),** who reported that both rural and urban population have similar mean perception scores with a p-value is 0.892, indicating no statistically significant difference in perception scores between resident. The differences might be due to period of study, sample size and place of study.

Regarding the relation between the participants level of knowledge and perception of future couples about premarital screening, this study clarified that there was statistically significant relation between the studied participants' level of knowledge about premarital screening and their Perception of regarding premarital screening at p-value 0.047.

In agreement with the pervious finding **Hamed et al., (2022),** who conducted in Egypt illustrated that a statistically significant positive correlation between the total knowledge score, total attitude score, and total perception score among the studied prospective couple. The similarities related to working with the same similar sample age, culture and religion.

Regarding the personal characteristics, the current study illustrated that the mean age of the prospective couples was (26.651±7.482), less than three quarters of them less than 30 years and less, two thirds were live in urban and almost one third of them were had secondary education.

These results are similar with studies reported by **Muthiadin (2023),** who carry out their study to assess "Premarital screening and probabilities of genetic disease in premarital screening and probability of genetic diseases in couples preparing for marriage", illustrated that more than half of participants their age ranged from (20-26) years.

In addition to results reported by **Hamed et al., (2022),** who performed study in Egypt cleared that more than two thirds of participants were live in urban and less than half of them had secondary education.

Less than half of studied future couples in our study demonstrated that had parental consanguinity. Similar finding reported by **Aga et al., (2021),** who found that more than one quarter (only 25.8%) of the participants reported to had consanguinity between their parents.

While **Mahmood et al., (2024),** who performed study in Iraq found that more than half of participants had parental consanguinity and the difference in the proportions was likely due to the difference in region cultures, beliefs and habits between these participants and current study.

Conclusion

Based on the findings, the present study revealed that participants generally demonstrated poor level of knowledge about premarital screening, yet maintained a positive perception of its importance. Contrary to the assumption that inadequate knowledge leads to negative attitudes, the findings suggest that favorable perceptions may still be sustained despite knowledge gaps. These results highlight the importance of strengthening community awareness through comprehensive educational initiatives that enhance knowledge, support positive perceptions, and reduce the likelihood of misconceptions or unfavorable attitudes in the future.

Recommendations

According the results of this study, the following recommendations are proposed:

- Increasing knowledge of the society population about premarital screening through involve religious and community leaders to advocate for PMSGC.
- Premarital screening should be mandatory for all couples prior to marriage and it should be supervised by senior officials to ensure quality and seriousness in procedure.
- Integrate the benefits of Pre-Marital Screening and Genetic Counseling (PMSGC) into the curricula of secondary schools and universities.
- Use the mass media and social platforms to spread accurate information about premarital screening tests and consequences of consanguinity.
- Conduct further research to assess the long-term impact of PMSGC awareness programs on improving public health, reduce health problem and increase family stability and society.

References:

Aga, S., Alghamdi, Y., Alghamdi, A., & Khan, M. (2021): Knowledge, awareness, and attitude of medical students concerning genetics and premarital screening. Journal of nature and science of medicine, Vol. (4) No. (4), pp. 356-365. DOI: 10.4103/jnsm.jnsm_47_21

Al-Eisawi, Z., Jacoub, K., & Alsukker, A. (2021): A large-scale study exploring understanding of the national premarital screening program among Jordanians: Is an at-risk marriage a valid option for Jordanians? Public Understanding of Science, Volume (30), Issue (3), pp. 319-330. https://doi.org/10.1177/0963662520968468

Alhetar, S., Sobhy, S., Shuaib, F., Alkubati, S., Zoromba, M., El-Gazar, H. Ahmed, W. (2024) Knowledge and Attitudes of Secondary Schools students Towards Premarital Screening and Counseling in Taiz, Yemen. Journal of Multidisciplinary Healthcare, 17, 5641–5651. https://doi.org/10.2147/JMDH.S493409

Alhusseini, N., Farhan, H., Yaseen, L., Abid, S., Imad, S., & Ramadan, M. (2023): Premarital mental health screening among the Saudi population. Journal of Taibah University Medical Sciences, Volume (18), Issue (1), pp. 154-161. https://doi.org/10.1016/j.jtumed.2022.06.013

Aljulifi, M., Almutairi, M., Ahmad, M., Abdall, S., Alelaiwi, M., Almutairi, F., Alkahtani, S. & Albaker, A. (2022): Awareness and acceptance of premarital screening test and genetic counseling program in Riyadh area, Saudi Arabia. Pakistan Journal of Medical & Health Sciences, Vo. (16) No. (02), 875-875. https://doi.org/10.53350/pjmhs22162875

Almoliky, M., Abdulrhman, H., Safe, S. H., Galal, M., Abdu, H., Towfiq, B., Abdullah, S., Waleed, M., & Sultan, M. (2022): Knowledge and attitude of engaged and recently married couples toward premarital screening: A cross-sectional study. Inquiry*:* The Journal of Health Care Organization, Provision, and Financing, Vol. 59,1-9. DOI: https://doi.org/10.1177/00469580221097424

AlOtaiby, S., Alqahtani, A., Saleh, R., Mazyad, A., Albohigan, A., & Kutbi, E. (2023): Comprehension of premarital screening and genetic disorders among the population of Riyadh. Journal of Taibah University Medical Sciences, Vol. (18) No. (4), pp. 822–830. https://doi.org/10.1016/j.jtumed.2023.01.006

Al-Shafai, M., Al-Romaihi, A., Al-Hajri, N., Islam, N., & Adawi, K. (2022): Knowledge and perception of and attitude toward a premarital screening program in Qatar: a cross-sectional study. International journal of environmental research and public health, 19(7), 4418. https://doi.org/10.3390/ijerph19074418

Al-Shroby, W., Sulimani, S., Alhurishi, S., Bin Dayel, M., Alsanie, N., & Alhraiwil, N. (2021): Awareness of Premarital Screening and Genetic Counseling among Saudis and its Association with Sociodemographic Factors: a National Study. Journal of Multidisciplinary Healthcare, 14, 389–399. https://doi.org/10.2147/JMDH.S296221

Aziz, N., & Abdulla, S. (2021): Attitudes of Couples attending Family Counselling Clinic in Sulaimani City towards the Premarital Screening and Genetic Counseling Programme. Erbil Journal of Nursing and Midwifery, Vol. (4) No. (2), pp. 96-104. DOI: https://doi.org/10.15218/ejnm.2021.11.

Elhadi, Y., Alrawa, S., Alfadul, E., Mahgoub, E., El-Osta, A., Belal, S., Lucero-Prisno, D., El Dabbah, N., & Yahia, A. (2023): Consanguinity and willingness to perform premarital genetic screening in Sudan. European Journal of Human Genetics, 1-8. Doi: 10.1038/s41431-023-01438-1.

Hamali, H. (2023): Public awareness and attitude toward premarital screening program in Jazan region, Saudi Arabia, an endemic area for hemoglobinopathies: A cross-sectional study. African journal of reproductive health, Vol. (27) No. (8), pp. 65-75.

Hamed, E., Eshra, D., Qasem, E., & Khalil, A. (2022): Knowledge, perception, and attitude of future couples towards premarital screening. Menoufia Nursing Journal, 7(2), 1-21. Doi: 10.21608/menj.2022.254007

Howard, J., (2020): Sickle cell disease and other hemoglobinopathies. In: Goldman L, Schafer AI, eds. Goldman-Cecil Medicine. 26th ed. Philadelphia, PA: chap 154.

Imam-Fulani, A. (2024): Knowledge, attitude and perception of sickle cell disease, on premarital genotype screening, among undergraduate of al-hikmah university Ilorin. Nigeria... https://doi.org/10.21203/rs.3.rs-5289221/v1

Jameel T, Baig M, Murad MA, Gazzaz ZJ, Mal Y, Alyoubi WE, Alyoubi GH, Alaslani ST, Alshuaibi HA, Nawaz A & Alkaabi T (2024):. Consanguineous marriages, premarital screening, and genetic testing: a survey among Saudi university students. Front. Public Health 12:1328300. Doi: 10.3389/fpubh.2024.1328300.

Al-Hasan, S., Ahmed, S., Goni, M., Tanha, T., Rahman, U., Khan, M., Anwar, M., Akther, P., Aktar, M., Kibria, M., Islam, S., Dhar, P., Timu, I., Nyu, M., Islam, A., & Islam, M. (2024): Pre-marital screening and genetic counseling: Knowledge, awareness, and perception among Bangladesh's population. American Journal of Pure and Applied Biosciences, 6(6), 184-196. https://doi.org/10.34104/ajpab.024.01840196

Mahmood, K., Sadraldeen, G., Othman, S., Shabila, N., Saleh, A., & Ismail, K. (2024): Knowledge, perception, and attitude toward premarital screening among university students in Kurdistan region–Iraq. PLOS Global Public Health, 4(11), e0003515. https://doi.org/10.1371/journal.pgph.0003515

Muthiadin, C. (2023): Premarital screening and probabilities of genetic disease in premarital screening and probability of genetic diseases in couples preparing for marriage. Tropical Genetics, Vol. (3) No. (1), pp. 20-25. **DOI:** https://doi.org/10.24036/tg.v3i1.33

Osman, H., Baraia, Z., & Abdelati, I. (2021): Awareness and attitude of university students regarding premarital counseling and examination. Trends in Nursing and Health Care Journal, Vol. (3) No. (2), pp.18-43.

Sabbah, S., AbdEl-mohsen, A., & Saad, A. (2023): Awareness of Clients Attending Maternal and Child Health Center Regarding Premarital Counseling. Journal of Survey in Fisheries Sciences, 10(3S), 3909-3925.

Saleh, L., Abd El–Kader, R., & Al Jadaan, O. (2022): Knowledge of the University students toward premarital screening program: A cross-sectional study. International journal of health sciences, 6(S3), 2945-2955. DOI: 10.53730/ijhs.v6nS3.6316

Umair, M., & Alfadhel, M. (2020): Prevention of hemoglobinopathies in Saudi Arabia: efficacy of national premarital screening and the feasibility of preimplantation genetic diagnosis. Journal of Biochemical and Clinical Genetics, 3(2), 94-94.

Zaien, S., El-Houfey, A., Alqahtani, H., El Sayed, H. A., Elgzar, W., Essa, R. & Ibrahim, H. (2022): Predictors of premarital screening and genetic counseling knowledge and attitude among deaf and hard hearing females in Tabuk, Saudi Arabia. Journal of medicine and life, 15(3), 379. Doi: 10.25122/jml-2021-0165