

---

## Attitudes of Couples attending Family Counselling Clinic in Sulaimani City towards the Premarital Screening and Genetic Counseling Programme

**Nyan Luqman Aziz;** *Department of Nursing, College of Nursing, Sulaimani University, Sulaimani, Iraq.*

(Correspondence: [nyanluqman1@gmail.com](mailto:nyanluqman1@gmail.com))

**Salih Ahmed Abdulla;** *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Iraq.*

---

### ABSTRACT

**Background and objectives:** Premarital screening is an effective method for monitoring, reducing, and avoiding genetic abnormalities and certain viral infections. This study aimed to explore the attitudes of couples who attended a family counselling clinic in Sulimani City towards the premarital screening and genetic counselling programme.

**Methods:** A cross-sectional, descriptive-analytic study was carried out on 310 couples attending the family counselling clinic in Sulaimani City. The statistical analysis was performed by using descriptive and inferential statistical data analysis including frequency, percentage, mean and stranded deviation, independent samples T-Test and one way ANOVA (F-test).

**Results:** The study findings revealed that the majority of the study participants were 20-30 years old. In terms of attitudes, 73.55% of the couples had a favourable attitude toward premarital screening and genetic counselling. There were statistically significant differences between couples' attitudes and age ( $p=0.012$ ), educational level ( $p=0.013$ ), and consanguinity ( $P < 0.001$ ), but there were no statistically significant differences between couples' attitudes and gender ( $p=0.49$ ), employment ( $p=0.785$ ), residential area (0.116), and family history of hereditary blood disease ( $p=0.45$ ) because of  $p$ -value  $>0.05$ .

**Conclusion:** Couples' attitudes about premarital screening and genetic counselling programmes are positive.

**Keywords:** Premarital screening; Genetic counselling; Attitude; Couple.

---

*Received: 18/09/2021*

*Accepted: 10/11/2021*

*Published: 30/11/2021*

### INTRODUCTION

The choice of a marriage partner is normally unrestricted. Many intended partners, however, join the lifetime union of marriage with no information about their future partner's health status. Many medical problems, especially those related to the health of the offspring, may be diagnosed and treated before or after marriage. This could aid in the avoidance or reduction of certain regrettable long-term obligations

[1]. Premarital screening (PMS) is a test performed before getting married to diagnose certain inherited blood disorders (such as sickle cell anaemia and thalassaemia) as well as infectious diseases (such as hepatitis B and C/HIV/AIDS). Pre-marital testing is an effective method for monitoring, reducing, and avoiding genetic abnormalities and certain viral infections; restricting the transmission of infectious

diseases; and reducing the prevalence of some genetic blood diseases. Stopping social and psychological issues for families with children that have inherited diseases encourages the idea of universal healthy marriage [2]. Currently, premarital counselling (PMC) is one of the most important strategies for the prevention of genetic disorders, congenital anomalies and several medical and psychological marital problems [4]. The community health nurses play a fundamental role in providing premarital care services that include assessing a hereditary risk, providing information, discussing available testing options and providing appropriate counselling [5]. It is therefore important for couples to have adequate knowledge and a positive attitude towards PMC and thus increase the possibility of a successful marriage [6]. In the Iraqi Kurdistan Region, a programme to avoid significant hemoglobinopathies was established in 2008. In the three provinces of the region, a premarital screening programme to detect hemoglobinopathies carriers was established in Duhok, Erbil and Sulaimani. The programmes' application was assisted by legislation enacted by the provincial parliament rendering premarital hemoglobinopathies screening obligatory. In the programmes, there are no attempts by the counsellors to influence the couples' decision-making; rather they focus on providing qualified information on the many alternatives for couples who are at high risk of having affected children. The couples pay a little fee for premarital screening for major hemoglobinopathies, which also includes blood group screening, hepatitis B surface antigen, and hepatitis C antibodies [7]. This study aimed to identify the attitudes of couples regarding premarital screening and genetic counselling and to determine the association between socio-demographical data and the couples' attitudes regarding premarital screening

and genetic counselling.

## METHODS

A cross-sectional, descriptive study was carried out on the couples in Sulaimani City in the Kurdistan Region of Iraq from 20th January 2021 to 30th January 2022. The duration of data collection was three months. A convenience sampling technique was used for the data collection. There were 310 couples included in the study based on the inclusion criteria and an agreement to participate. This study was accepted by the Scientific Committee of the College of Nursing and approved by the Ethical Committee of the College of Medicine of the University of Sulaimani. An official letter from the College of Nursing of the University of Sulaimani was presented to the General Directorate of Health (DOH) in Sulaimani to obtain an agreement for data collection, which was then provided to the family counselling clinic. The couples were chosen according to the inclusion criteria, which included age  $\geq 16$ , both genders, ability to communicate in Kurdish language, willingness to participate in the study and the first marriage. The couples who had mental health disorders were excluded. The data were collected through the face to face interviews by using a questionnaire, which consisted of two parts based on the proposed research objectives. The first part contained the couple's socio-demographic information such as age, gender, educational level and employment, consanguinity, personal history of hereditary disease, and family history of hereditary disease. The second part included an assessment of the couple's attitudes regarding the premarital screening and genetic counselling programme that consisted of 17 items with 5 points Likert scale (1 = strongly disagree, 2 = disagree, 3 = unsure, 4 = agree, and 5 = strongly agree).

Twelve of the items were written positively and the remaining seven items were worded negatively. The scores of the negative items were reversed to calculate the attitudes. The validity of the questionnaire was checked initially by a panel of 10 experts specialized in nursing and medicine, and their comments were taken into consideration. Alpha Cronbach was used to determine the reliability of the questionnaire. As a result, the value of reliability (alpha Cronbach) was equal to 0.912 and the validity was 0.832, which indicates a highly reliable questionnaire. All statistical computations were enhanced using statistical software (SPSS 24). The data were coded, tabulated, and presented in a descriptive form and analyzed using basic statistical methods including alpha-Cronbach used for testing the reliability of the questionnaire. Descriptive statistical data analysis included frequency, percentage, mean and standard deviation. Inferential data analysis included the Parametric Test: Independent samples T-Test and one Way ANOVA (F-Test). The criteria of the probability level and determining the significance of the test P -value were: highly significant ( $P < 0.001$ ), significant ( $P < 0.05$ ), and non-significant ( $P > 0.05$ ).

## RESULTS

Table 1 shows that the reliability and validity of the couple's attitudes were 0.912 and 0.832 respectively. Table 2 demonstrates that the majority of couples were 20-30 years old. The lowest percentage of participants (8.4%) was more than 30 years old with a mean  $\pm$  SD of  $24.00 \pm 4.64$  years. Most of the study sample (30%) achieved a secondary school educational level, most of them (53.9%) were employed in different sectors, and 62.9% resided in urban areas. Table 3 shows the distribution of the sample according to consanguinity, and personal and family history of hereditary

blood diseases. The consanguinity marriages represented 26.8% of couples, out of which, 65.1% were first-degree cousins, and 34.9% were second-degree cousins. Regarding the family history of hereditary blood disease, it was found that only 1.3% of the study population had a genetic disease in the family (thalassemia 50% and G6PD 50%). The data in Table 4 reveal the distribution of couples according to their attitudes in a five-point Likert scale and three levels of attitude, The table shows that out of seventeen items couples had a good attitude in twelve items, fair attitude in four items and poor attitude in one item, with total mean and standard deviation  $2.55 \pm 0.59$ , and a good level of attitude in general. As shown in Table 5, the studied factors of age, educational level, and consanguinity were significantly associated with the attitude level of the couples toward premarital screening and genetic counselling programme because the result of the p-value was less than the common alpha 0.05, whereas there were no statistically significant differences between couples' attitude and gender, employment and a residential area.

**Table 1:** Reliability and Validity

Methods	Reliability (alpha Cronbach)	Validity
Couple's attitude	0.912	0.832

**Table 2:** Distribution of the samples according to age, gender, educational level, employment and residential area characteristic

Variables	Items	Frequency	Percentage
Age	Less than 20 years old	45	(14.5)
	20-30 years old	239	(77.1)
	More than 30 years old	26	(8.4)
		Mean ± S.D 23.9	24.00 ± 4.64
Gender	Female	155	(50)
	Male	155	(50)
Educational level	Illiterate	2	(0.6)
	Primary school graduated	31	(10)
	Intermediate school	49	(15.8)
	Secondary graduated	93	(30)
	Institute	61	(19.7)
	College	74	(23.9)
Employment	Governmental employed	14	(4.52)
	Private sector employed	32	(10.32)
	Self-employed	121	(39.03)
	Unemployed	143	(46.13)
Residential area	Urban	195	(62.9)
	Sub-urban	115	(37.1)
Total		310	(100)

**Table 3:** Distribution of the sample according to consanguinity, personal and family history of hereditary blood disease characteristic

Variables		Frequency	Percentage
Consanguinity	Yes	83	(26.8)
	No	227	(73.2)
	Total	310	(100)
If Yes	Type of relation	1 <sup>st</sup> cousins	54 (65.1)
		2 <sup>nd</sup> cousins	29 (34.9)
		Total	310 (100)
Personal history of hereditary blood disease	Yes	0	(0)
	No	310	(100)
	Total	310	(100)
Family history of hereditary blood disease	Yes	4	(1.3)
	No	306	(98.7)
	Total	310	(100)
If Yes	Type of Family history of hereditary blood disease	Thalassemia	2 (50)
		Skill cell anaemia	0 (0)
		G6PD	2 (50)
		Others	0 (0)
		Total	4 (100)

**Table 4:** Distribution of the sample according to the attitudes towards premarital screening and genetic counselling program

Questions	Poor attitudes	Fair attitudes	Good attitudes	Mean (S.D)	level of attitudes
	No. (%)	No. (%)	No. (%)		
PMSGC must be done for every partner before marriage	1 (0.3)	0 (0)	309 (99.7)	2.99 (0.11)	Good attitude
PMS is to detect some diseases that transmitted to my offspring	8 (2.6)	15 (4.8)	287 (92.6)	2.9 (0.38)	Good attitude
PMSGC is to avoid transmission of diseases to me	31 (10)	16 (5.2)	263 (84.8)	2.75 (0.62)	Good attitude
It is important to raise awareness about PMSGC before marriage to reduce genetic and STDs	5 (1.6)	9 (2.9)	296 (95.5)	2.94 (0.3)	Good attitude
PMSGC should be performed only for couples who have a family history of genetically inherited diseases	8 (2.6)	16 (5.2)	286 (92.3)	2.9 (0.38)	Good attitude
PMSGC is interference with God's will for a sick baby to be born	11 (3.5)	27 (8.7)	272 (87.7)	2.84 (0.45)	Good attitude
PMSGC brings conflict between couples	214 (69)	32 (10.3)	64 (20.7)	1.51 (0.82)	Poor attitude
I prefer consanguineous marriage	114 (49)	44 (14.2)	152 (49)	2.12 (0.92)	Fair attitude
In a case of carrying genetic or inherited diseases, marriage decisions must be left to the couples	43 (13.9)	21 (6.8)	246 (79.4)	2.65 (0.71)	Good attitude
Positive test results that indicate the presence of genetic diseases should affect and change marriage decisions.	111 (35.8)	65 (21)	134 (43.2)	2.07 (0.89)	Fair attitude
You would decide to stop the marriage if there was a communicable disease.	186 (60)	41 (13.2)	83 (26.8)	1.67 (0.87)	Fair attitude
There should be a law to prevent marriage in case of positive results for the presence of genetic diseases.	127 (41)	40 (12.9)	143 (46.1)	2.05 (0.93)	Fair attitude
The National Premarital screening and counselling program has an important role in preventing genetic diseases in the community	23 (7.4)	28 (9)	259 (83.6)	2.76 (0.58)	Good attitude
Hereditary diseases have a psychological impact on families	18 (5.8)	31 (10)	261 (84.2)	2.77 (0.55)	Good attitude
Hereditary diseases have an economic impact on families	21 (6.8)	26 (8.4)	263 (84.8)	2.78 (0.54)	Good attitude
PMSGC is against my religious/cultural beliefs.	19 (6.1)	27 (8.7)	264 (85.2)	2.79 (0.54)	Good attitude
Religious leaders should deliver messages about the importance of PMCS and genetics counselling	9 (2.9)	7 (2.3)	294 (94.8)	2.92 (0.36)	Good attitude
<b>Total (%)</b>	<b>949 (18.01)</b>	<b>445 (8.44)</b>	<b>3876 (73.55)</b>	<b>2.55 (0.59)</b>	<b>Good attitudes</b>

Note / No.: Frequency (Number) , Weight average (mean) for 3point Likert scales: 1.0-1.66 : Poor attitudes , 1.67-2.33: Fair attitudes,2.34-3.0: Good attitudes.

**Table 5:** Comparing means attitude scores and socio-demographic groups of the respondents.

Variables	Items	No.	Mean	S.D	Significant Test (P-value)
Age	Less than 20 years old	45	2.4915	0.18181	4.494 ** (0.012)
	20 – 30 years old	239	2.5624	0.16475	
	More than 30 years old	26	2.6018	0.16412	
Gender	Female	155	2.5488	0.16653	-0.691 * (0.49)
	Male	155	2.5620	0.17198	
Educational level	Illiterate	2	2.6176	0.20797	2.942 ** (0.013)
	Primary school graduated	31	2.4687	0.23158	
	Intermediate school	49	2.5450	0.17881	
	Secondary graduated	93	2.5414	0.15816	
	Institution	61	2.5921	0.13451	
Employment	College	74	2.5843	0.15949	0.356 ** (0.785)
	Governmental employed	14	2.6008	0.15508	
	Private sector employed	32	2.5570	0.16570	
	Self-employed	121	2.5527	0.17292	
Residential area	Unemployed	143	2.5529	0.16901	1.576 * (0.116)
	City	195	2.5613	0.19588	
	Out city	115	2.5263	0.17524	
Consanguinity	Yes	83	2.4848	0.17733	-4.589 * ( $< 0.001$ )
	No	227	2.5812	0.15874	
If Yes, Type of relation	First cousins	54	2.4935	0.18440	0.898 * (372)
	Second cousins	29	2.4564	0.16907	
Family history of hereditary blood disease	Yes	4	2.6176	0.16031	0.757 * (0.45)
	No	306	2.5532	0.16914	
If Yes, Type of Family history of hereditary blood disease	Thalassemia	2	2.7353	0.04159	(0.432)*
	G6PD	2	2.7059	0.00001	

Note: G6PD: Glucose-6-phosphate dehydrogenase

\* Test (Independent samples T-Test), \*\* Test (One Way ANOVA –F-Test) Weight average (mean) for 3point Likert scales: 1.0-1.66: Poor attitudes, 1.67-2.33: Fair attitudes, 2.34-3.0: Good attitudes.

## DISCUSSION

Less than three-quarters of couples strongly agreed that pre-marital screening and genetic counselling PMSGC must be done for every partner before marriage, while 0.3% disagreed that it should be done for everyone. Furthermore, when asked about the negative items, most of the participants (92.6%) disagreed that PMSGC should be performed only for couples that

have a family history of genetically inherited diseases. Previously, it was reported that the majority of students (97.3%) believe that premarital screening should be done for both men and women. [8]. 92.5% of participants agreed that mandatory premarital screening (MPMS) is done to detect some diseases that can be transmitted to the offspring. Furthermore,

sample agreed that PMSGC is meant to avoid the transmission of diseases. A large percentage (92.3%) of couples had a positive attitude regarding the importance of raising awareness about PMSGC before marriage to reduce genetic diseases and sexually transmitted diseases (STDs) but only 2.6% had a negative attitude. A previous study reported that the majority of students (86.3%) strongly agreed that the PMS program is important and that PMS should be used to reduce some genetic and STDs and raise awareness about the PMS before marriage [9]. In the present study, more than 87.7% of couples disagreed with the notion that PMSGC is interference with God's will for a sick baby. Another survey found that the majority of those who did not accept the PMC believed that it interfered with God's will. [10]. The majority (69%) of participants disagreed regarding the conflicting attitudes towards PMSGC among the couples, while 20.7% agreed. The important finding of the study was that almost half (48%) of the study sample disagreed with choosing a consanguineous marriage, while 36% of the sample agreed with consanguineous marriage. One of the previous studies showed that most of the studied sample (82.07%) did not prefer to marry blood relatives whereas 12.87% were confused [11]. Only 5.07% showed a preference to marry a blood relative. Approximately three-quarters of the participants (79.4%) believed that in a case of carrying genetic or inherited diseases, marriage decisions should be left to the couples, while 13.9% disagree with couples' freedom to decide. Another study [12] showed that the majority of the respondents (65.1%) believed that in the case of carrying genetic or inherited diseases, a marriage decision must be made by the affected couple. 43.2% of the participants

accepted that the positive test results that indicated the presence of genetic diseases should affect and change couples' decisions before the marriage, while 35.8% of participants disagreed that the positive test results should affect and change a decision to get married. These results demonstrate a fair attitude as hereditary diseases have a great impact on family and community. The results of the present study indicate that most couples (60%) would decide not to get married if there was a communicable disease, however, 26.8% disagreed and would not stop the marriage if a communicable disease was detected. This outcome indicates a fair attitude as there is no need not to proceed with the marriage but the communicable disease should be treated before the sexual intercourse. In this study, 46.1 % of couples agreed that there should be a law to prevent marriage in case of positive PMS results but 41% of the participants disagreed, while 12.9% had no idea about it. Another study also found that the opinions regarding the need for the law to prevent any marriage with positive results varied with 48.16% strongly disagreed, 35% agreed, 19.33% didn't know, and 7% disagreed [13]. The findings of this study showed that 83.6% of the sample agreed and 7.4 % disagreed that the national premarital screening and counselling program has an important role in preventing genetic diseases in the community, which is a good attitude. The premarital screening and counselling programs are important because many people are not aware of their state of health as well as that of the person they want to marry before entering the marriage. In the recent study majority of couples' agreed that genetic disorders have a great psychological and economic impact on families (84.2%, 84.8% respectively). This result is in agreement with another study, in which most participants

agreed that hereditary diseases had psychological and economic effects on the families (88.7%, 79.8% respectively) [14]. In the current study, the majority (85.2%) of respondents disagreed that the PMSGC was against their religious/cultural beliefs. In addition, almost all (94.8%) of the studied sample agreed that religious leaders should deliver messages on the importance of the PMCS and genetic counselling, which is a good attitude. Finally, the majority (73.55%) of the sample had a good attitude, 18.1% had a poor attitude and 8.44% had a fair attitude (mean - 2.55). Table 4 compares the means of the partner's attitudes and socio-demographic characteristics. The results of the study show that there were statistically significant differences between couples' attitudes and age ( $p=0.012$ ), educational level ( $p=0.013$ ) and consanguinity ( $p=0.000$ ) because the result of the  $p$ -value was less than the common alpha 0.05. But there were no statistically significant differences between couples' attitudes and gender ( $p=0.49$ ), employment ( $p=0.785$ ), residential area (0.116), and family history of hereditary blood diseases ( $p=0.45$ ) because  $p$ -value  $>0.05$ . This study demonstrated that there is an association between level of attitude toward premarital screening program and socio-demographic factors like female gender ( $P = <0.001$ ), higher years of study ( $P = 0.002$ ), and a higher income ( $P = 0.019$ ), which were significantly associated with better attitude scores toward premarital screening program [15].

## CONCLUSION

This study identified an overall good attitude towards premarital screening and genetic counselling, especially among the respondents between 20-30 years of age, of the male gender, a secondary school educational level, living in urban areas and un-employed.

## ACKNOWLEDGEMENT

The authors are thankful to the staff at the family counselling clinic in Sulaimani city in the Kurdistan Region of Iraq. Our warmest thanks and wishes of good health go to the couples who participated in this study.

## CONFLICT OF INTERESTS

There is no conflict of interest and no financial support for any of the authors.

## REFERENCES

- [1] Lafta FM, Alshammary AG, Jaafar SM, Sabah E, Dhafer G. Pre-Marital clinical Test among Intending couples in Baghdad: clinical Findings Knowledge and Attitudes. *Indian Journal of Public Health Research & Development*. 2019 May; 10(5):591.
- [2] Khalil EM, Abdelkader SM, Alsaheed MD, Alshahrany NM. Knowledge, beliefs and behaviour intention about premarital screening among King Saud University female students in Riyadh. *Scholars Journal of Applied Medical Sciences*. 2014; 2(5E):1797-805.
- [3] Ali M, Elshabory N, Hassan HE, Zahra N, Alrefai H. Perception about premarital screening and genetic counselling among males and females nursing students. *International Organization of Scientific Research Journal of Nursing and Health Science*. 2018; 7(1):517.
- [4] Shaimaa HM, Samah AE, Hanan A. Effect of Application of Health Belief Model on females' Knowledge and Practice regarding the premarital counselling. *International Organization of Scientific Research Journal of Nursing and Health Science*. 2017.



- [5] Kamel MM, Fahmy HI, Aly SE. Knowledge and Attitude of Adolescent students' Toward Premarital Examination in Secondary Schools at Assiut City. *Assiut Scientific Nursing Journal*. 2019 Mar 1; 7(16):139-47.
- [6] Fawzy RS, Abd-Allah IM, El-Shahat Ibrahim M. Knowledge, Attitudes and Needs of Individuals Attending Premarital Care at Ismailia City. *Journal of Nursing and Health Science*. 2018; 7:10-20.
- [7] Al-Allawi NA, Al-Doski AA, Markous RS, Amin KA, Eissa AA, Badi AI, et al. Premarital screening for hemoglobinopathies: experience of a single centre in Kurdistan, Iraq. *Journal Public Health Genomics*. 2015; 18(2):97-103.
- [8] Alhowiti A, Shaqran T. Premarital screening program knowledge and attitude among Saudi University students in Tabuk city 2019. *International Journal of Medical Research & Health Sciences*. 2019; 8(11):75-84.
- [9] Ibrahim NK, Al-Bar H, Al-Fakeeh A, Al Ahmadi J, Qadi M, Al-Bar A, Milaat W. An educational program about premarital screening for unmarried female students in King Abdul-Aziz University, Jeddah. *Journal of infection and public health*. 2011 Mar 1; 4(1):30-40.
- [10] Alkhaldi SM, Khatatbeh MM, Berggren VE, Taha HA. Knowledge and attitudes toward mandatory premarital screening among university students in North Jordan. *International Journal for Hemoglobin Research*. 2016 Mar 3; 40(2):118-24.
- [11] Mithila SN. A Study on Knowledge, Perception and Attitude towards Premarital Carrier Screening (PMCS) Among Students Attending Universities (Doctoral dissertation, East West University). 2017.
- [12] Bener A, Al-Mulla M, Clarke A. Premarital screening and genetic counselling program: studies from an endogamous population. *International Journal of Applied and Basic Medical Research*. 2019 Jan; 9(1):20.
- [13] Albadrani GM, Alshanbari HM, Baraja DA, Alahaideb LK, Alabdullah SM, Alzahrani SM, Alqahtani HW, Almuhaissen. Evaluating Knowledge and Attitude about Premarital Screening among Princess Nourah Bint Abdulrahman University students in Riyadh. *Journal of Research in Medical and Dental Science*. 2020; 8(6), 205–214.
- [14] Melaibari M, Shilbayeh S, Kabli A. University students' knowledge, attitudes, and practices towards the national premarital screening program of Saudi Arabia. *Journal of Egyptian Public Health Association*. 2017 Mar 1; 92(1):36-43.
- [15] Al-Enezi K, Mitra AK. Knowledge, attitude, and satisfaction of university students regarding premarital screening programs in Kuwait. *European Journal of Environment and Public Health*. 2017 Dec 28; 1(2):07.