

Knowledge and Attitude of University Students in Kirkuk City Toward Premarital Screening Program, Kirkuk-Iraq

Miohammed A. Kadir^{1*}, Sabah Haseeb Hasan², Ayhan Abdulqadir Haseeb³ ¹ PhD, Immam Jafar Sadiq University, Kirkuk Branch. ² PhD, College of Nursing, University of Kirkuk. ³ BSc, Directory of Health Kirkuk.

*Email: ¹ mohammdsalam@yahoo.com, ² sabahsaqi@uokirkuk.edu.iq, ³ a.pary17@gmail.com

Abstract. Objective: The aim of study is to know the knowledge and attitude of Kirkuk university students towards premarital screening program. Subjects and Methods: A cross sectional study was conducted on University students in Kirkuk, from April 2024 to March 2025. The number of females was higher than males. The questionnaire were focusing student demographic characteristics of gender, age, residency, occupation of father, family income, parent knowledge and attitude of the university students in Kirkuk towards premarital screening. A questionnaire form was used for data collection. Statistical analysis was used to analyze the data. Results: A total of 814 university students out of 2000 completed the questionnaire form; the majority of students were 17-26 years old with mean age 22 years. In term of knowledge of students, 570(70%) had knowledge on premarital screening and 244(30%) had no knowledge about premarital screening. Statistically there were significant association between positive knowledge of students and residency, genetic diseases, family history (P<0.05) m but no significant association with age, father occupation, family income and consanguinity.

Keywords: Knowledge, Premarital screening, Kirkuk, University students.

1. INTRODUCTION

Premarital screening is the basic health services in Iraq, including hepatitis B, hepatitis C and human immunodeficiency (HIV) which is very serious specially for pregnant women (Bilal and Rashid, 2009).

Several young males and females plan to marriage without knowledge on contraceptive methods, reproduction health, even among educated persons. It is important to educate people specially in developing countries about sexually transmitted diseases people, to improve their knowledge about the risk might face to reduce marriage carrier (Khamis et al, 2011).

In Kirkuk as in other parts of Iraq, heredity diseases as sickle cell disease, thalassemia and infectious diseases as hepatitis B and C and HIV are common in community, premarital screening the aimed to identify these diseases among couples to decrease the spread of these diseases (Alhowiti and Tariq, 2019).

Premarital screening is among university activity, including the diagnosis, detection of unknown diseases and prevention of transmission of unknown diseases between couples and to their offspring's, it is very essential among young couples intended to marriage (Abdel-Azim.et al, 2015).

Among inherited hemoglobinopathies, sickle cell and thalassemia are the most common public health problem throughout the world (Old, 2009). The prevalence of Gulf region estimation of inherited disease is higher than Europe and North America. In Saudi Arabia, sickle cell anemia, thalassemia and red cell enzymopathies are the major genetic diseases (Al-Arrayed et al, 1997). According to epidemiological studies in Kuwait, reported that the genetic blood diseases is high, the rate of carrier of sickle cell anemia about 10-25% (Al-Arrayed et al, 2003).

Throughout the world, sickle cell anemia and thalassemia are widely distributed public health inherited hemoglobinopathies; the Prevalence of genetic diseases in gulf region and most other countries is higher than European and North American continent (Al-Jasir et al, 2009).

One of important problem in our regions is consanguinity, in comparison with other screening among first cousin which lead to genetic diseases transmission between couples (Bittles, 2001). In Saudi Arabia, the first cousin showed 1 31% and overall rate was 57.7%. In Bahrain was 51.54% and among first cousin was 33.5% (Al-Enezi and Mitra, 2017). It is shown that reduction of consanguinity will decrease the rate of genetic diseases (Al-Arayyed et al, 2007).

Mandatory premarital screening program practiced widely among high risk population in many countries since 1970"s (Wang et al, 2013). In Cyprus premarital counseling, health education, carrier screening reduced incidence of β -thalassemia major (Saxena and Phadke, 2002). In Turkey it is reported that premarital screening program very useful and effective in controlling thalassemia major (Keskin et al, 2000). In Saudi Arabia complete blood count, sickle cell test and hemoglobin electrophoresis lead to 70% reduction of prevalence of β thalassemia from years 2004-2009 (Memish and Saeedi, 2011).

In Baghdad, a study was carried out on students at Baghdad University, to reveal the effectiveness of educational program on premarital screening of fertility test, showed that educational program was effective in increasing the knowledge of students about premarital screening of fertility tests (Salman, 2021).

The aim of this study to know the knowledge and attitude of university students in Kirkuk on the premarital screening program.

2. MATERIALS AND METHODS

The study was carried on 814 university students at Kirkuk Province, (373 males and 441 females). The age of students ranged 17-47 years old, at imam Jaffar Sadiq University, also including colleges of Nursing, college of Medicine, college of laboratory Technology, for

period from April 2024 to end of March 2025. The study was descriptive and statistical analyses were used to show difference between studied groups.

The questionnaire were focusing students demographic characteristics of gender, age, parents residence, fathers occupation, residency, consanguinity about premarital screening; measuring the knowledge.

The proposal was approved by the scientific Ethic Committee of ImmaJaafar Sadiq University, Kirkuk branch.

Statistical analysis: statistical analysis includes ANOVA and student t-test using statistical package of social science (SPSS) version 22 at P-value ≤ 0.05 .

3. RESULTS

A total of 814 students out of 2000 completed the questionnaire. Their age ranged from 17-47 years among university students in Kirkuk according to family history of genetic diseases. All of them were unmarried Iraqi, the mean age was (22) years (range 17-46 years). Among the participants 39.6% reported that their parents were relative.

Table 1 indicates the distribution of university student in Kirkuk city. The number of male students greater than females. It was found that the knowledge of female students statistically greater than males regarding premarital screening test (P<0.05).

			Premarital test Importance					
Gender	No.	%	Yes	%	No	%		
Male	373	0.46	241	0.65	132	0.35		
Female	441	0.54	329	0.75	112	0.25		
Total	814		570	0.70	244	0.30		
Chi-square=9.612		d.f.=1	p<0.05					

Table 1. Frequency of university student's knowledge according to gender.

Table 2 demonstrates that the majority of students were 17-26 years old. The lowest was 37-46 years old. Statistically there was no significant difference between premarital screening importance and different age groups (P>0.05).

Table2. Distribution of university student's knowledge according to age.
--

			Premarital test Importance					
Age	No.	%	Yes	%	No	%		
17-26	757	0.93	526	0.69	231	0.31		
27-36	50	0.06	39	0.78	11	0.22		
37-46	7	0.01	5	0.71	2	0.29		
Total	814		570	0.70	244	0.30		
Chi-square=1.627		d.f.=2	p>0.05					

Cn1-square=1.62/

As shown in table 3 that the father occupation had no relation with knowledge of students on premarital screening test. Statistically there was no significant difference between father occupation and knowledge on preliminary test (P>0.05).

Father			Premarital test Importance				
Occupation	No.	%	Yes	%	No	%	
Official	429	0.53	309	0.72	120	0.28	
Non official	385	0.47	261	0.68	124	0.32	
Total	814		570	0.70	244	0.30	
Chi-square=1.734		d	.f.=1	p>0.05			

 Table 3. Distribution of university student's knowledge according to father occupation

As demonstrated in table 4, that the knowledge of students family income had no relation to knowledge on premarital test importance, as statistically there was no significant difference between them (P>0.05).

Family income				Premarital test	Importance	
I.D.	No.	%	Yes	%	No	%
< 500	229	0.28	148	0.65	81	0.35
500-1 Million						
	340	0.42	249	0.73	91	0.26
>1 Million						
	245	0.30	173	0.71	72	0.29
Total	814		570	0.70	244	0.30
Chi-square=4,882		Ċ	l.f.=2	P>0.05		

Table 4. frequency of university student's knowledge according to family income (I.D.)

I.D.=Iraqi dinars

Table 5, indicates that premarital screening is done for both for males and females in rural and urban areas. It is students resident in urban area had more knowledge about premarital test than those in rural area. Statistically there was significant difference between two areas (P<0.05).

 Table 5. Distribution of university student's knowledge according to residency

Residency	No.	%	Premarital test Importance				
			Yes	%	No	%	
Urban	724	0.89	517	0.71	207	0.29	
Rural	90	0.11	53	0.59	37	0.41	
Total	814		570	0.70	244	0.30	
Chi-square=5.978			d.f.=1	P<0.05			

Table 6, shows the knowledge of students about genetic diseases. Statistically there was significant difference between knowledge of students whether positive or negative.

Genetic diseases No.	No	0/	Premarital test Importance					
	70	Yes	%	No	%			
Yes	131	0.16	105	0.80	26	0.20		
No	683	0.84	465	0.68	218	0.32		
Total	814		570	0.70	244	0.30		
Chi squara -7.630			d f - 1	D<0.05				

Table 6. Distribution of university student's knowledge according to genetic diseases

Chi-square=7.630

d.f.=1 P<0.05

Table 7 demonstrates distribution of participants according family history of genetic diseases. It was found that 208(26%) of study population had genetic disease in the family.

Table 7. Distribution of university student's knowledge according to family history of genetic diseases

Family			Premarital test Importance					
history	No.	%	Yes	%	No	%		
Yes	208	0.26	160	0.77	48	0.23		
No	606	0.74	410	0.68	196	0.32		
Total	814		570	0.70	244	0.30		
Chi-square=6.334			d.f.=1	p<0.05				

Chi-square=6.334

Table 8 shows distribution of university students knowledge according to consanguinity of parents. The consanguinity marriage of parents represented 421(52%). Statistically no significant difference between knowledge of premarital test importance and consanguinity of parents. (P>0.05).

Table 8.	Percentage	of university	student's	knowledge	according to	o consanguinity	of parents
	0			0			1

Age			Premarital test Importance				
	No.	%	Yes	%	No	%	
Yes	421	0.52	301	0.71	120	0.29	
No	393	0.48	269	0.68	124	0.32	
Total	814		570	0.70	244	0.30	
Chi-square= 0.90		d.f.=1	p>0	.05			

Chi-square= 0.90

4. DISCUSSION

In the current study, the number of female participants was more than male and their knowledge was (75%) broader than male (65%). A statistically significant difference was noticed among gender (P<0.05) (Mahmood et al, 2024).

p>0.05

The results found that high percentage of university students age is 17-26 years which constitutes to (93%). It was revealed that most of the students are females and constitutes 75%, which was similar to previous studies (McClain, 2013). and that may be related to female are more interested in knowing details about sexually transmitted diseases. Bener et al (2019) showed that the rate of knowledge level among Tabuk university students in female is greater than male (54.4% versus 40.2%). In Mascat, Oman it was found females were attached to law more than male (P<0.01) ((Al-Kindi et al, 2019).

Concerning father's occupation, the higher percentage of student's father were officials (53%) than non-official (47%). The knowledge of student's whose father is official (72%) and non-official student's father (68%). In Baghdad (Salman and Abass, 2019) found the knowledge of students (42.5%) among students were employee and (35%) students father were free work. Employee and (35%) control group were free work, indicating the crucial role of father in exploring student's knowledge on STI and PMS (Abd El-Ghany et al, 2019).

Regarding the residency, the results show 75% they live in urban this reflect residence knowledge in urban was higher than rural and the effect of dwelling on gaining of knowledge on PMS, as in urban area the education chances are far more than rural residence. Statistically significant difference between rural and urban residence (P<0.05). This finding is different from that shown by Mahmood et al, 2024, the differences might be due to period of study, sample size and place of study.

Several studies showed PMS before marriage reduce genetic disease and sexually rate of sufficient knowledge awareness of couples about PMS, (AZIZ and Abdulla, 2021. Ibrahim et al, 2011 and Alhowiti & Shaqran, 2019 applied educational program on premarital screening on single Saudi university students.

In agreement with study performed by (Alhowiti and Shaqran (2019) that medical student had higher significant rate of sufficient knowledge on premarital screening in comparison to other students (58.9% versus 45.5%). In the present study, the knowledge of medical students were highest (84%) followed by medical laboratory technology students in Immam Jaffar Sadiq university (66%), and in Kirkuk college of technology (65%), English department students (74%) and the lowest were among Art education department (61%).

In this study it was shown that 52% of university students knew the importance of PMS and risk of consanguineous of parent marriage, the knowledge of student positive while (52%) and negative (48%) and the difference was not significant statistically. Several studies showed that (86.3%) of participants agreed that the PMS program is important and should be used to reduce genetic diseases and STD and raise awareness PMS before marriage (Ibrahim, et al,

2011). While more couples disagreed, they believed that PMSGC is interference with God positive will (Al-Khalidl et al, 2016). Several studies agree a mandatory law should be arranged to avoid marriage of positive cases (Al badrani et al., 2020).

In Arab countries, it is reported that the high prevalence of consanguineous of parent marriage in several countries. Premarital screening in program is applied to investigate method to reduce the distribution of diseases associated with relative's marriage. Therefore, several studies were carried out to assess the level of knowledge and attitude among couples and university students. In Saudi Arabia premarital screening is mandatory, for everyone and partner choose to complete marriage have the right to marry regardless of results of PMS. It is shown that, 39.8% agreed that marriage should be allowed if the results are incompatible, because if marriage is not discontinued, this may lead to future obstacles. In another study, 88% of incompatible parents screened between 2005-2006, decided to marry (Al-Swaidi et al, 2012). This percentage has decreased to 48% in 2009 (Al-Swaidi, 2012, Memish & Saeedi, 2011). In jeddah 67% of female students were in favor of cancellation of marriage when PMS results showed a genetic disease (Ibrahim et al, 2021. In Oman, study was carri ed on to show knowledge and attitude of university students, they found that 36% of participants believed that laws and regulation should be applied to prevent high risk marriage (Al Kindi et al, 2012).

5. CONCLUSION

In general, the study showed good attitudes towards premarital screening among university students in Kirkuk especially respondents between 20-30 years of age and knowledge of female students was greater than males, and those had living in urban areas than urban and students had high knowledge on genetic diseases.

Recommendations: Carry on several health education programs about premarital screening of sexual transmitted diseases among university students and in high schools to improve their knowledge and attitude toward the program of premarital screening.

Cooperation between health authorities and ministry of higher education to increase student knowledge about sexually transmitted diseases and premarital screening.

Increase role of television, internet, radio and newspaper to give information and guidance about program of premarital screening to community

Acknowledgement: The authors are thankful to university students in Kirkuk who participated in the present study.

REFERENCES:

- Bilal AM and Rashid SM. Directory primary health care centers. Iraqi Ministry of Health. Department of Public Health. Quality Assurance Division, 2009, 24-31.
- Khamis RN, Al-Bar H, Al-Fakeeh A, Al Ahmedi J, Qadi M, Al-Bar A, Milaat W. An educational program about premarital screening for unmarried female students in King Abdul-Aziz University, Jeddah. J. Infection and Public Health, 2011, 4(1): 30-40.
- Alhowiti A and Shaqran T. Premarital program knowledge and attitude among Saudi university students in TABUK City 2019. Int. J. Med. Res & Health Scieences, 2019, 8(11): 75-84
- Abedel-Azim MH, Lamadah MS, Hafez MA. Improving knowledge and attitude of medical and non –medical students at El Minia university regarding premarital screening and counseling . Am J of Nursing Science, 2015, 4(5): 270-279.
- Old JM. Screening and genetic diagnosis of haemoglobinopathies. Scand J Clin Lab Invest, 2009, 67(1): 71-86.
- Al-Arrayed S, Hafadh N and Al-Serafi S. Premarital counseling : an experience from Bahrain. Eastern Mediterranean Health J., 1997, 3(3): 415-419.
- Al-Arrayed S, Hafadh N, Amin S, Al-Mukhareq H and Sanad H.Student screening for inherited blood disorders in Bahrain. East Mediterr Health J, 2003, 9(3): 344-352.
- Al-Jasir, B, Little J, Mandoura NA and Al-Thani MH. Population health genomics in member countries of the cooperation council for the Arab states of the Gulf. Kuwait Med J, 2009, 41(3): 187-204.
- Al-Arayyed S, Hamza AA, Sultan B, Shome DK and Bapat JP. Neonatal screening ., for genetic blood diseases.Bahrain Med Bull, 2007, 29: 88-90.
- Bittles AH. Consanguinity and its relevance to clinical genetics. Clin Genet, 2001, 60(2): 89-98. <u>https://doi.org/10.3109/03630269.2015.1135159</u>
- Al-Enezi K and Mitra AK. Knowledge. Attitude and satisfaction of University students regarding premarital screening programs in Kuwait. Europ. J. Encvironment and Public Health, 2017, 1(2): 1-11.
- Keskin A, Turk T, Polat A, Koyuncu H and Saracoglu B. Premarital screening of betathalassemia trait in the province of Denizli, Turkey. ActaHaematologica, 2000, 104(1): 31-33. <u>https://doi.org/</u> 10.1159/000041066.
- Saxena A and Phadke SR. Thalassemia control by carrier screening: The Indian scenario. CurrSci, 2002, 83(3): 291-295.

- Memish ZA and Saeedi MY. Six-year outcome of the national premarital screening and genetic counseling program for sickle cell disease and beta-thalassemia in Saudi Arabia. Ann Saudi Med, 2011, 31(3): 229-235.
- Salman AD. Effectiveness of an educational program concerning premarital screening of fertility tests on student's knowledge at university of Baghdad. Kufa J. for Nursing Sciences, 2021, 11(1): 1/9-3/9. ISSN: 2223-4055.
- Abd El-Ghany, Gad Mohamed and Al-Haddad A.M. different teaching methods in improving level of knowledge about reproductive health among female students Hadhramout university. IDSR Journal Nursing and Health Science, 2019, 8(2): 70.
- McClain J Msn. An educational approach increasing college freshman's knowledge regarding sexual transmitted infections. evidence-based practice project reports paper, 2013, 50.
- Al-Kindi RM, Kannekanti s, Natarajan J et al. Awareness and attitude towards the premarital screening programme among high school students in Muscat, Oman. Sultan Qaboos University Med. J., 2019, 19(3): e217-224.
- Aziz LA and Abdulla SA. Attitudes of couples attending family counseling clinic in Sulaimania towards premarital screening and genetic counseling programme. Erbil J Nurs Midwifery, 2021, 4(2): 96-104.
- Alhowiti A and Shaqran T. Premarital screening program knowledge and attitude among Saudi university students in Tabuk city 2019. Int. J, of Med Research & Health Science, 2019m 8(11): 75-84.
- Ibrahim NK, Al-Bar H, Al-Fakeen A et al. An educational program about premarital screening for unmarried female students in King Abdul-Aziz university, Jeddah . Journal Infection and public health, 2011, Mar 1, 4(1): 30-40.
- Alkhaldi SM, Berggren VE, Taha HA. Knowledge and attitude toward mandatory premarital screening among university students in North Jordan. Int. J. Hemoglobin Research, 2016, 40(2): 118-24.
- Albadrani GM, Alshanbari HM, Barja DA et al. Knowledge and attitude about premarital screening among princess Norah BintAbdul rahman University students in Riyah. J. Research in Medical and Dental Science, 2020, 8(6):205-214.
- Mahmood KA, Sadraldeen GS, Othman SM, et al. Knowledge, perception and attitude toward premarital screening among university students in Kurdistan region-Iraq. J. Plos. Org/ global Public Health, No. 18, 2024, 2/13-13/13. https//doi.org.10

- Abd El-ghany MG, Mohammed G, Al-Haddad AM. Effect of different teaching methods in improving about reproductive health among female students Hadramout University. IOSR j. Nursing and health Sciencem 2019, 8(2): 70.
- Bener a, Al-Mulla M and Clark A. Premarital screening and genetic counseling program: Studies from an endogenous population. Int. J. Applied and Basic Medical Research 2019, 9(10: 20-26.
- Salman AD and Abbas IM. Effectiveness of an instructional program concerning premarital screening of sexual transmitted disease on students knowledge at Baghdad University. Iraqi National J. Nursing Specialties , 2019, 32(1): 1-12.
- Wang P, Wang X, Fang M, Vander Weele TJ. Factors influencing decision to participate in medical premarital examinations in Hubei province, Mid-China. BMC Public Health, 2013, 13: 217. https://doi.org/10.1186/1471-2458-13-217PMID:23497086.
- Alswaidi FM, Memish ZA, O"brien et al. At risk marriage after compulsory premarital testing and counseling for B-thalassemia and sickle cell disease in Saudi Arabia, 2005-2006.J. Genetic Counseling , 2012, 21(2): 243-55.
- Al Kindi, Al Rujaibi S, Al Kendi M. Knowledge and attitude of university students towards premarital screening program. Oman M Med. J, , 2012, 27: 291-296.
- Mahmood KA, Sadraldeen G, Othman SM et al. Knowledge perception, and attitude toward premarital screening among university students in Kurdistan region-Iraq. PLOS Global Public Health Ihttps://doi.org/10.1371/journal.pgph.0003515. November 18, 2024.