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Knowledge of the University students toward premarital screening program: A cross-sectional study

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Abstract---Premarital screening program is a method that can accurately identify asymptomatic carriers of hemoglobinopathies and provide genetic counselling to couples for a healthy reproductive life. To assess the university students' knowledge of the premarital screening program. Method: a cross-sectional design using systematic random sample technique for selecting 265 students from the four constituent colleges of the university. Self-administered questionnaire consisted of 3 parts to collect data: students' demographic data, students' knowledge about hereditary diseases, and premarital screening program. The study findings revealed that more than half of the students had a positive family history of hereditary diseases. Most of them were aware that premarital screening program reduces the genetic and sexually-transmitted diseases. Around half of them had an average knowledge level about hereditary diseases and premarital screening program. The majority of the participants have an average knowledge level about the premarital screening program. Awareness and educational programs can be organized for university students and the community.

Keywords---premarital screening program, knowledge, University students.

Introduction

Genetic blood disorders are a major community health problem worldwide. It's common in Arab countries and accounts for a major proportion of physical and mental handicaps. Consanguineous marriage is one of the most contributing factors to a greater prevalence of inherited blood disorders as Sickle Cell Anemia (SCA) and thalassemia (Al Kindi et al., 2012; Al-Nood et al., 2016). Marriage is considered one of the most significant milestones in one's life. It is a cornerstone on which families and consequently communities are built. Marriage stability and success depend dramatically on partners' compatibility. The presence of hereditary or chronic communicable diseases can disrupt a marriage, whether it affects the partners or their offspring. Thus, assurance of the partners' suitability before marriage via detection of those diseases and the likelihood of their presentation in their offspring is of crucial importance (Melaibari, et al, 2016; Al-Enezi and Mitra, 2017).

Al- Qahtani et al, (2019) mentioned that many prospective couples enter marriage with inadequate information on sexuality, reproductive health, contraception, genetic and infectious diseases. There is too lacking of knowledge related to reproductive health even among educated persons. Improving the peoples' knowledge regarding these matters and particularly regarding premarital screening program will positively affect their understanding and cooperation which can decrease the number of marriages between carriers as well as it allows an individual to take steps to reduce his or her risk (Esheaba, Baowidan & Alshehri, 2018). Alghamdi et al, (2015) stated that premarital counselling is the service offered to young couples on their way to marriage to guide, educate, and make them for the establishment of a healthy family. Premarital screening is a method that can accurately identify asymptomatic carriers of hemoglobinopathies and provide genetic counselling to couples for a healthy reproductive life. This program can greatly decrease the rate of high-risk marriages and the birth of affected newborns, provided that social, spiritual, ethnic, and cultural factors are all addressed (Attia, Salma & Saleh, 2016).

Premarital screening programs are considered as a valuable solution and can be applied to minimize the incidence of genetic and infectious diseases especially in the Middle Eastern countries which are characterized with great consanguineous marriages and considered as a major reason contributing to genetic disorders (Ali Hejri et al, 2014). Premarital screening of genetic diseases not only provides information about the health and wellbeing of the individual, it is also important in evaluating their health-related reproductive risk. It helps people concerned to make vital and major life decisions that will benefit family members either now or in the future (Abd Elfattah, Soliman & Amin, 2015). The study aimed to assess the knowledge of the university student toward premarital screening program.

Objectives of the study

- To assess the knowledge of the university students toward premarital screening program.
- To assess the relation between student's demographic data and their knowledge about premarital screening program.

Method

Research design

A cross-sectional descriptive study.

Setting

RAK Medical and Health Sciences University. RAK Emirate. UAE, from February 2020 to June 2020.

Population & sampling

Systematic random sample among the students in different colleges of the university.

Sample size

The total sample size was (383) which represents (35%) of the total students based on using the following formula: $N = Z^2 PQ/d^2$. N= Sample size, Z= the normal standard deviate ($Z=1.96$), P= the frequency of occurrence of an event (knowledge level about premarital care 47%), Q= 1-P (The frequency of non-occurrence of an event), D= Degree of precision (0.05%). N= 383. A representative sample from each college was interviewed.

Inclusion criteria

Single and who agreed to participate in the study.

Exclusion criteria

Married and the students who attended any program related to premarital screening.

Instrumentation

A self-administered questionnaire developed after reviewing the related literature consisted of the following parts:

- Part (1) Sociodemographic characteristics as age, gender, nationality, college, academic year, family monthly income, and family history of hereditary diseases and source of information.
- Part (2): Knowledge of the students towards hereditary diseases, as hereditary diseases is curable, father or mother is responsible for hereditary diseases. Scoring of students' knowledge level about hereditary diseases, correct answer marked one, for incorrect and don't know given zero. The knowledge is categorized as: Poor (> 7) — (less than 50%), Average (7-10) — (50% to less than 70%), and Good (11-15) — (70-100%).
- Part (3) Knowledge of the students towards premarital screening program as importance of premarital screening and appropriate time to do premarital

test. Scoring of students' knowledge level about premarital screening program, correct answer marked one, for incorrect and don't know given zero. Knowledge level of premarital program is scored as: Poor (0-7) — (less than 50%), Average (7-14) - (50% to less than 70%) and Good (>14) — (70% —).

Validity and reliability of the instrument

The content validity of the instrument was tested by three expert faculty in nursing. Reliability test resulted in a Cronbach's alpha score of 0.92., signifying high reliability.

Pilot study

The pilot study was conducted on 10 % (38) of the sample to assess the feasibility of the study and clarity of the questionnaire prior to the implementation.

Protection of human subjects

RAK Medical & Health Sciences University Research Ethical Committee approval was obtained to conduct the study. The participants were assured of the privacy and confidentiality of the information given by them. Those who agreed to participate handed over the written consent form as well as the questionnaire. No personal identity is included in the tools. The survey from each college collected separately and labelled. All documentation kept in a safe location.

Proposed data analysis

Statistical Package for Social Sciences (SPSS) program version 25 was used for data entry and analysis. Data presented in the form of the number, percentages, mean and standard deviation. A Chi-square test was used to assess the relation between selected demographic data and student knowledge level about hereditary diseases, and premarital screening program. Pearson correlation coefficients test used to estimate the correlation between students age and their total knowledge. P-value was statistically significant at equal or less than 0.05.

Results

Table 1
Socio-demographic characteristics of study participants (n-265)

Characteristics	<i>f</i>	%
Colleges		
○ Medical	157	59.2
○ Pharmacy	50	18.9
○ Nursing	40	15.1
○ Dental	18	6.8
Age		
○ 17- < 23	227	85.7
○ 23- < 29	30	11.3

○ 29 - < 40	8	3.0
Nationality		
○ Arab	181	68.3
○ Non -Arab	80	30.2
Gender		
○ Male	79	29.8
○ Female	186	70.2
Academic year		
○ First	79	29.8
○ Second	41	15.5
○ Third	69	26.0
○ Fourth	37	14.0
○ Fifth	37	14.0
Mothers education level		
○ Illiterate	10	3.8
○ Primary	19	7.2
○ Intermediate	26	9.8
○ Secondary	85	32.1
○ University	118	44.5
Father's Education Level		
○ Illiterate		
○ Primary	5	1.9
○ Intermediate	11	4.2
○ Secondary	23	8.7
○ University	68	25.7
	146	55.1

The study included 265 university students. The age ranged from 17 to 39 years. Regarding the colleges (59.2%) from Medical, (18.9%) Pharmacy, (15.1%) Nursing while (6.8%) from Dental college. Females (70.2%) and (68.3%) were Arab nationality. As regards mother and father education level (44.5%), (55.1%) were university education respectively (Table 1).

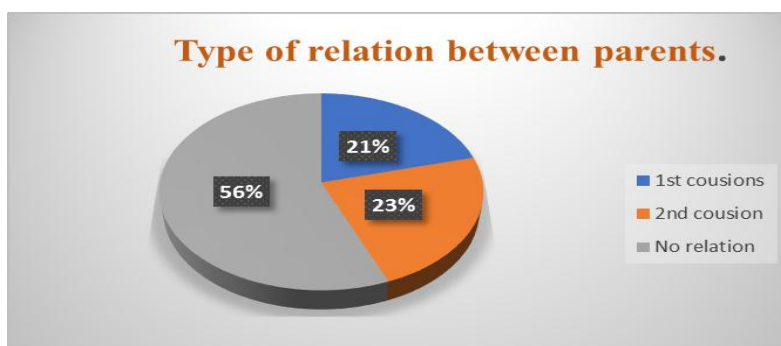


Figure 1. Distribution of the study participants according to the type of relation between parents

More than one-fifth of the participants (21%) had 1st degree relation, (23.0%) had 2nd degree, while (56 %) did not have relation between parents (Figure1).

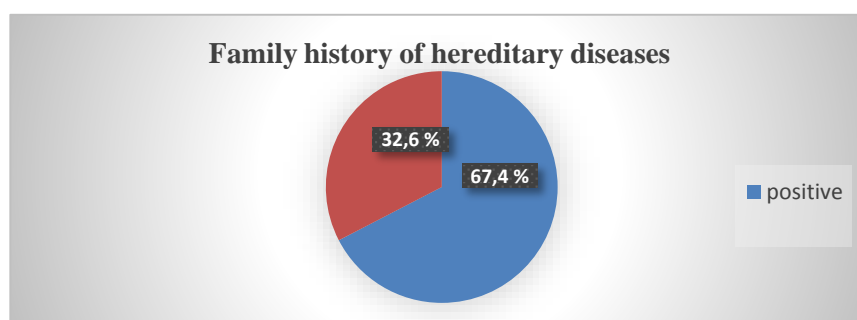


Figure 2. Family history of the study participants about hereditary diseases

Most of the participants (67.4%) had positive family history of hereditary diseases while (32. 6%) had negative history of the same (Figure 2).

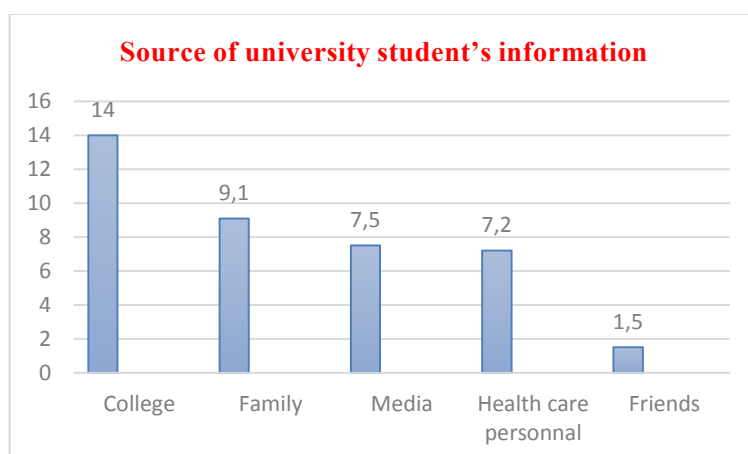


Figure 3. Study participants' source of information about premarital screening program

Less than one-fifth (14.0%) of the study participants mentioned that college was the source of information, followed (9.1%) family, (7.5 %) media, while (7.2%) reported health care providers and only (1.5 %) friends (Figure 3).

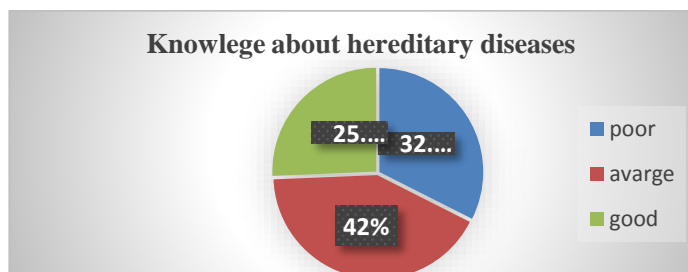


Figure 4. Knowledge level of the participants about the hereditary diseases

Around (32.4%) of the participants had poor knowledge about hereditary diseases, (42%) had average knowledge, while (25.6%) had good knowledge (Figure 4).

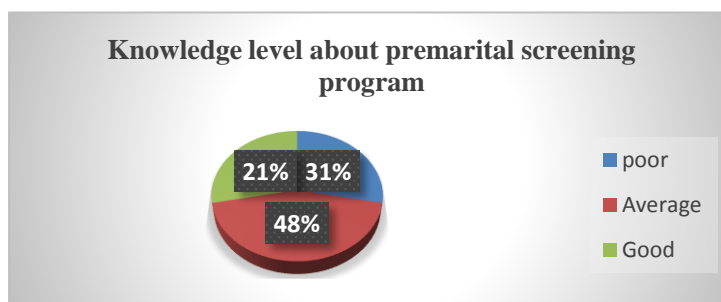


Figure 5. Knowledge level of the participants about premarital screening program

Less than half of the participants (48%) had average knowledge about PMS, (31%) had poor knowledge, while (21%) of them had good knowledge (Figure 5).

Table 2

Association between students sociodemographic data and knowledge level about premarital screening program

Items	Knowledge about premarital screening program			Chi-square P-value
	Avarge N (%)	Good N (%)	Poor N (%)	
Nationality				
- Arab	93 (72.71)	31 (56.4)	57 (69.5)	6.99 (P> 0.05)
- Non Arab	32 (25.0)	23 (41.8)	25 (30.5)	
Gender				
- Female	90 (70.3)	41 (74.5)	55 (62.1)	0.88 (P > 0.05)
- Male	38 (29.7)	14 (25.5)	27 (32.9)	
Academic year				

- 1 st	42 (32.8)	8 (14.5)	29 (35.4)	19.44 (P≤ 0.05*)
- 2 nd	24 (18.8)	5 (9.1)	12 (14.6)	
- 3 rd	30(23.4)	17 (30.9)	22 (26.8)	
- 4 th	18(14.1)	9 (16.4)	10 (12.0)	
- 5 th	13 (10.2)	15 (27.3)	9 (11.0)	
<hr/>				
Type of relationship				
- 1 st	27 (21.1)	10 (18.2)	18 (22.0)	7.69 (P > 0.05)
-2 nd	36 (28.1)	8 (14.5)	17 (20.7)	
-No realtion	65 (56.8)	37 (67.3)	46 (56.1)	

Females had good knowledge more than males with no statistically significant difference ($P > 0.05$). There was no statistically significant difference (>0.05) between students' nationality and their knowledge level about premarital screening program. There were a statistically significant difference between students academic year and their knowledge level ($P \leq 0.05$). There was no statistically significant difference between types of parents relation and their knowledge level about the same ($P > 0.05$). (Table 2).

Table 3
Correlation between students knowledge level and their age

Items	Age
Knowledge about hereditary diseases	$r = - 0.04$
Knowledge about premarital screening program	$r = + 0.008$

There is a negative correlation between student's age and their knowledge about hereditary diseases while there are positive correlations between students age and their knowledge about premarital screening program (Table 3).

Discussion

Premarital screening is considered the most efficient means of prevention that may decline the birth of affected children, by preventing the marriage of the carriers of the blood genetic disorder. It is the appropriate procedure, as it is normally acceptable from the ethical and religious point of view in addition to its minimal economical, and health basics (Ali et al., 2018).

The current study revealed that the range of participants' age was 17–39 years and most of them were Arab. Mother and father had university education (44.5%), (55.1 %) respectively. About (43.8%) of participants had parents relationship. More than two-third reported positive family history of hereditary diseases. College was the source of information, followed by family and media. These results are similar to Alghamdi, Alqadheeb & Alzahrani (2015) found that students' age ranged between 18 and 30 years with a mean and standard deviation 21.2 ± 1.6 years. Nearly a quarter of students (23.1%) mentioned a family history of hereditary diseases, whereas 10.9% of them reported personal history of hereditary diseases. Their main sources of information about premarital screening were friends (60.8%), television (35.9%), and medical courses (22.2%).

Data of this study showed that the participants had average knowledge about hereditary diseases (42%). They oriented about premarital screening program and its importance to prevent hereditary diseases. However, their knowledge about what the program includes and what diseases it targets was insufficient. The majority of participants mentioned that premarital screening tests took place in governmental hospitals and it's a routine part and obligatory procedure of marriage in the UAE. However, when considering the diseases included in the program, it was found that their knowledge is not sufficient. There is a want to enhance perception, increase knowledge of the university students regarding the benefits of PMS program. These findings are matched with Malabari et al., (2016) reported that most of the participants (97.4%) were aware that genes may transmit hereditary diseases and had heard about the PMS program. A similar finding with Al -Nood et al., (2016) stated that most of the respondents (92%) knew that PMS decreases hereditary and sexually-transmitted diseases.

The current study revealed that (48%) of the participants had average knowledge about Premarital screening program, (31%) had poor knowledge, while (21%) had good knowledge. These findings are similar to Mousa et al., (2014) indicated that most of the students have satisfactory knowledge towards the premarital screening program. This result is in congruent with John (2018) found that the level of knowledge of respondents toward the components of premarital genetic counselling was poor in terms of knowledge about meaning of premarital genetic and genetic inherited disorders regardless of their level of education.

As regards to the association between student's demographic data and their knowledge about premarital care. Finding of the current study showed that (74.5 %) of females had good knowledge while (25.5 %) of male had good knowledge with no statistically significant difference ($P > 0.05$). There were a statistically significant difference between students' academic year and their knowledge level about premarital screening program ($P \leq 0.05$). This is in agreement with Alghamdi, Alqadheb & Alzahrani (2015) reported that older, science college students, those of higher academic level and having information about premarital screening from school and from friends showed significant higher level of knowledge. These results are also similar to Al-Enezi & Mitra (2017) reported that knowledge scores about hereditary diseases were significantly associated with marital status, education in medical faculties, higher education of father and mother, and presence of hereditary disease in the family. These findings are also similar with Abd El-Gany, Gad & Haddad (2014) concluded that the females had a great level of knowledge score (23.8%) than males (9.3%) about premarital counselling.

Conclusion

The finding of the present study showed that there was insufficient knowledge in some areas as genetic diseases. The participants had average knowledge about the premarital screening program. Health education programs with medical advice are required for improving the community knowledge towards the same.

Recommendation

- Awareness and education program about premarital screening program can be organized routinely for university students and the community.
- Conducting workshops, symposium and instructional classes in the specific field of human hereditary qualities to expand open and expert information about the diverse hereditary disease and strategies for containing them in the general public and trade of logical learning.

Limitation

The sample of the study was less due to Covid-19 situation that cause small number of students respond to the online questionnaire.

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