Awareness of premarital screening for genetics and infectious diseases

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Abstract:

Background: The premarital examination awareness programs offered by the colleges in Abha have been described as a series of publications, meetings and scientific symposia with the aim of educating students about the importance of premarital examination in order to Reducing the spread of some genetic blood diseases (sickle-cell thalassemia) and some infectious diseases (hepatitis B / C, and acquired immunodeficiency virus (AIDS), Spreading awareness of the concept of a comprehensive healthy marriage, Reducing pressure on health institutions and blood banks and Avoiding the social and psychological problems of families whose children suffer.

Aim: To assess the reality of Awareness of premarital screening for genetics and infectious diseases among the College students of Abha KSA

Methodology: A cross-sectional descriptive study targeting male and female students studying in Abha colleges for the year 1443/2022. The data was collected using a pre-structured electronic questionnaire initiated by the researcher after a comprehensive literature review and expert consultation. As a digital survey and distribute it to all students of King Khalid University (KKU) via e-mail, WhatsApp and other methods.

Results: A total of 397 participants completed the study questionnaire. The ages of the participants ranged from approximately (13.4)% of the respondents between the ages of 19 to less than 21 years, (35%) aged between 21 to less than 23 years, (34.3%) between the ages of 23 to 25 years, and (17.4%) between the ages of 27 to Less than 25 years old.. The total number of participants was 397, 311((78.3%)) males and 86 (21.7%) females, holders of university degrees.314( 79%) of the
study sample were single, while there were 83 (21%) of the surveyed sample of married people.

The averages of the college in which he teaches awareness programs about genetic and infectious diseases before marriage ranges between (1.67 to 2.68 out of 3), which means that the level of the college’s provision of programs on genetic diseases before marriage ranges from medium to high. The results indicated the degree of students’ awareness of the infectious diseases that are examined before marriage. Their arithmetic averages were between (45.3%) for AIDS, (26.7%) for hepatitis, (7.1%) for AIDS and anemia, (4%) for tuberculosis, and Pima (16.9%). did not specify their answers.

The results indicated that sickle cell anemia ranked first as the most important blood and hereditary disease, representing (36.5%) of the total number of genetic diseases examined, followed by anemia (10.8%), hepatitis and viral infection (10.3%), while the rest of the diseases such as (malformations, blood diseases, genetic anemia, diabetes, anemia, Down syndrome, diabetes, infertility and marriage) all came in low and close rates, ranging between (2.8% to 3.5%). The degree of awareness of male and female students that the examination before marriage is available to all Saudis, 89.4%) of the research sample confirms that they know that the examination before marriage is available to all in the Kingdom, while (11%) do not know. As for the students’ belief in the importance of pre-marriage examination, 93% of the total sample surveyed performed this principle, meaning that examination before marriage is useful to prevent the transmission of diseases to offspring. As for the source of knowledge for students about premarital examination, the results indicated that more than half of the research sample (52.4%) learned about premarital examination through social media, (22.7%) through awareness programs provided by the university, (10.1%) get acquainted
with it through television, while there are (8.1%) who obtain this information through all the aforementioned means of information for individuals.

The results also indicated that the degree of awareness of male and female students about the existence of pre-marital examination centers in Abha confirms (76.8%) of the total research sample that they are aware that the city of Abha includes a pre-marital examination center, and that only (23.2%) are among the skeptics and those who deny He informed them that there is a pre-spousal examination facility in Abha city. The participants made a number of proposals to develop awareness programs at the university, the most important of which is that there should be a common course for all students in all faculties arranged to raise awareness of the importance of premarital examination and the diseases it deals with, and the most important centers in the Kingdom, Organizing awareness sessions, seminars and lectures to educate students on the subject of premarital examination, Organizing courses and trainings on pre-marital examination, in addition to encouraging and supporting students in providing information inside and outside the university.

Conclusions: In conclusion, the study showed through the opinions of male and female students that the degree of their approval of the reality of awareness about genetic and infectious diseases before marriage in their colleges was medium approval, as was the degree of their awareness of the importance of premarital examination and the locations of its centers in the city of Abha.

**Key words:** Awareness, screening, genetic diseases, infectious diseases.
1.1 Introduction:
Health Awareness is important and required. Prevention is better than cure. One of the most important types of health Awareness is to educate university students who are about to get married about the importance of screening for genetic and infectious diseases before marriage. The Ministry of Health is concerned with health Awareness programs in this field at the national level, as indicated in the study.\(^{(1)}\)
Marriage is something that exists in all cultures and is central to many Building healthy, happy and stable family relationships. So the premarital examination and This includes history taking, clinical examination, and laboratory investigations The education of hereditary and infectious diseases reduces the incidence of their increase by paying attention to pre-marital examination, as I mentioned.\(^{(2)}\)
Infectious and hereditary diseases are many and many, Studies have proven that infection is the greatest killer in human history. Life expectancy at birth It was only 25 years old until relatively recently, with progress in Hygiene, vaccines and antimicrobial drugs based on Pasteur's microbial theory of disease.\(^{(3)}\)
The field of human genetics for infectious diseases is also of interest for immunologists. Significant progress has been made recently in Studies of immunity to infection, in vitro and in vivo.\(^{(4)}\)-(\(^{(5)}\))
Proceeding from the Ministry of Health’s interest in raising awareness about infectious and genetic diseases for those who are before the age of marriage, as well as the harm that infectious and genetic diseases have on generations and parents, and was keen to reflect the role of colleges in this awareness, this study was launched and determined to know the reality of awareness for students of colleges in Abha about infectious and genetic diseases and the study identified Education about infectious
diseases (AIDS, hepatitis C), and two hereditary diseases (sickle-cell anemia, Down's disease).

1.2 Problem statement:
The premarital examination awareness programs offered by the colleges in Abha have been described as a series of publications, meetings and scientific symposia with the aim of educating students about the importance of premarital examination in order to Reducing the spread of some genetic blood diseases (sickle-cell thalassemia) and some infectious diseases (hepatitis B / C, and acquired immunodeficiency virus (AIDS), Spreading awareness of the concept of a comprehensive healthy marriage, Reducing pressure on health institutions and blood banks and Avoiding the social and psychological problems of families whose children suffer.

1.3 Implications:
The importance of this study stems from the importance of pre-marriage examination, which by limiting the transmission of genetic diseases and the spread of infectious diseases and bringing out a strong, healthy generation in which countries fulfill the capabilities and resources that are spent in treating these diseases.

RESEARCH AIMS & OBJECTIVE:
2.1 The aim of the study:
To assess the reality of awareness of premarital examination for genetics and infectious diseases among students of Saudi Abha College.

2.2 Need to study:-
This study aims to shed light on a topic, which is raising awareness of pre-marital examination and its role in reducing the spread of genetic and infectious diseases, and highlighting the reality of awareness in the colleges of Abha city in the Kingdom of Saudi Arabia. The extent to which students are aware of the importance of this topic.
2.3 Research objective:-

2.3.1 General Objective:-
Determining the reality of awareness programs for the detection of genetic and infectious diseases before marriage in the colleges of Abha in the Kingdom of Saudi Arabia

2.3.2 Specific objective:-
- Get to know the profile of the students participating in the study.
- Determining the degree of students’ approval of the fact that the colleges in which they study undergo screening programs for infectious diseases before marriage.
- Determining the degree of students’ approval of the fact that the colleges in which they study undergo screening programs for genetic diseases before marriage.
- Determine the extent to which students are convinced of the importance of premarital examination.
- Determine the extent of their knowledge of pre-marital examination centers in the city of Abha.
- Determine the students' awareness of genetic and infectious diseases by asking some questions about these diseases
- Access to suggestions on how to educate students in innovative ways on the topic of premarital examination.

Methodology:
3.1 Methodology:
3.1.1 Study design
A Descriptive cross-sectional study design is planned to conduct this study
3.1.2 Study area
In the College at KKU, Southern Saudi Arabia
3.1.3 Study duration
The study has been planned to conduct between January 2022 to May 2022.
3.1.4 Study population
All of Students of private and public colleges in Abha about 9915 Student.

3.1.5 Sample technique
Random samples from Students of private and public colleges in Abha.

3.1.6 Sample size:
The sample size as 25% 9915= 397 Student.

3.1.7 Sample selection:
The inclusion criteria:
1- Both genders above the age of 18 years.
2- Citizens of Saudi Arabia.
3- Currently studying in the College of Applied Medical Sciences Khamis Musaite.
4- At least one year they should be in the college.
5- Willing to participate into the study.

Exclusion criteria:
1. Those Students Who has no desire to participate to the study.
2. Those Who are on long leave from the college.
3. Those individuals are sick during the study.

3.1.8 Study Instrument/Tools:
The research tool for collecting information is an electronic questionnaire that contains two sections:
Section 1: Demographics: This tool was developed by the researcher and reviewed by the supervisor to collect the following information about the participating students such as age, gender, and marital status.
Section 2: Various questions about the reality of the colleges in Abha providing awareness programs on the importance of screening for genetic and infectious diseases before marriage? Submitting proposals for ways to raise awareness of the importance of screening for genetic and infectious diseases?
3.1.9 Ethical consideration:
For this study we applied to obtain the ethical committee clearance from the institutional ethical committee of King Khalid University Abha, due to time constraint we could not get it, but we took the oral permission from the committee members and the college administration to initiate the research. Informed consent was obtained from each of the participants. We assured to all the participants that we will maintain the confidentiality of the data at any level, or any forum personal identity of the participants will not be revealed.

3.1.10 Data analysis:
The collected data will be processed and analyzed using SPSS v.21 software. Descriptive analysis will be used to express the physical properties in frequencies and percentages, and the appropriate charts.

LITERATURE REVIEWS:
4.1 The Importance of Awareness Programs on Premarital Examination and the Role of Universities in Awareness:
This study clarified that Premarital Screening and Genetic Counseling (PMSGC) is mandatory in the Kingdom of Saudi Arabia and aims to identify and reduce the prevalence of some hereditary infectious diseases and sexually transmitted diseases. However, it is a cross-sectional population study of 6,263 randomly selected participants from all 20 health districts in Saudi Arabia, stratified by age and fulfilling pre-specified selection criteria. Trained data collectors used a comprehensive, pre-tested questionnaire to collect data. The most prominent results were that while the 6263 study participants had heard about the screening program less marriage, only 575 participants (9.2%) had satisfactory knowledge, while 3283 (52.4%)
participants had good knowledge, The study concluded that despite advances in public health care measures in Saudi Arabia, there are still gaps in knowledge, beliefs, and behaviors associated with the premarital screening program. on the risks associated with inbreeding.(1)

Acceptance of health counseling before marriage in the city of Riyadh in 1417 AH.

The study indicated that health counseling before marriage is one of the most important aspects of preventive medicine that should be paid attention to in order to limit the spread of infectious and genetic diseases. To the Primary Health Care Center in Riyadh, Kingdom of Saudi Arabia, 1417 A.H. It is a cross-sectional study with a selected sample of Saudis who joined primary health care centers in Riyadh during 1417 A.H. A pre-designed, pre-tested questionnaire sheet was used to collect the required data, which was then tabulated and statistically analyzed, The study indicated that 364 (75.2%) of the study population accepted the concept of health counseling before marriage, and the study recommended the implementation of PMHC health counseling before marriage in the Kingdom of Saudi Arabia, where it was accepted by the study community.(2)

Knowledge of the national program for pre-marital examination among university students in western Saudi Arabia. Saudi medicine.(Jeddah, 2006).

This study aimed to find out the knowledge of university students in Jeddah, western Saudi Arabia, regarding the National Program for Pre-Marriage Screening (PMS). A self-questionnaire was distributed to a sample of 800 male and female students at King Abdulaziz University (KAU), Jeddah, Saudi Arabia during the first semester of the 2005-2006 academic year. The results indicated that eighty-five percent of the students believed that genetic mutations have lead to genetic
disorders, and 84% of respondents believe that inbreeding can increase the risk of genetic diseases. 56 percent of them were aware that the genetic disease can affect any system in the body. The results also indicated that most KAU students have good general knowledge regarding genetic diseases, but they have insufficient knowledge regarding the national program, the majority did not know which diseases were tested, and the studies recommended the importance of public education about the disorders tested, and the effects of screening is essential to the success of a prenuptial program. (7)

Saudi premarital screening program: public view after 3 years of implementation

(Al-Ahsa. 2008).

This study showed that the Saudi pre-marital examination
The program has been mandatory since 1425 AH and this study aimed to explore
Public attitudes toward kinship, premarital examination legislation, and increasing
Number of diseases examined Different reproductive alternatives for incompatible couples
This cross-sectional study was conducted in a sample of primary health care centers (PHC) in
The Ministry of Health in Al-Ahsa, Eastern Province, Saudi Arabia, the total sample size was 356, This study sheds light on the truth about inbreeding It is still preferred by a large percentage of the Saudi population, despite their presence, Awareness of its potential harm. The majority agreed to the premarital examination and A mandatory application, and they also made suggestions to change its timing to a stage of life before engagement (8)
An educational program on pre-marital examination for unmarried female students at King Abdulaziz University in Jeddah. (Jeddah, 2009)

This study aimed to assess the knowledge and attitude of unmarried female students at King Abdulaziz University (KAU) towards the Pre-Marriage Screening Program (PMS). The multistage stratified random sampling method was used with the employment of 1563 male and female students from all faculties of King Abdulaziz University during the 2008-2009 academic year, and it was among the most prominent results that students' knowledge of the program is generally low before the educational campaign. The predictors of high levels of knowledge were students of health sciences, and the results showed the success of the educational program in improving students' knowledge. It is recommended to conduct similar educational programs and to add PMS in the curricula of secondary and university education. (9)

National Screening Programs in Saudi Arabia: Overview, Results, and Efficacy. (Saudi, 2019)

This review aims to provide an overview of the current government national examination programs in the Kingdom of Saudi Arabia, in order to assess their effectiveness. She indicated that in 2016, the government of the Kingdom of Saudi Arabia launched the National Transformation Program to achieve the Kingdom's Vision 2030. One of its goals was to promote health against health risks (public health system and health disaster management). The new health care and institutional transformation model includes measures focused on disease prevention and strengthening the primary health care system. The success of this requires assessment of factors affecting the national prevalence of health risk factors and early detection of chronic diseases. Therefore, there must be national screening
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programs capable of identifying individuals at risk or who suffer from chronic diseases asymptomatically.(10)

Premarital genetic screening and counseling programme: knowledge, attitude, and visitor satisfaction in government outpatient clinics in Jeddah.

This review aims to provide an overview of the current government national examination programs in the Kingdom of Saudi Arabia, in order to assess their effectiveness. She indicated that in 2016, the government of the Kingdom of Saudi Arabia launched the National Transformation Program to achieve the Kingdom's Vision 2030. One of its goals was to promote health against health risks (public health system and health disaster management). The new health care and institutional transformation model includes measures focused on disease prevention and strengthening the primary health care system. The success of this requires assessment of factors affecting the national prevalence of health risk factors and early detection of chronic diseases. Therefore, there must be national screening programs capable of identifying individuals at risk or who suffer from chronic diseases asymptomatically.(11)

Enhancing knowledge and attitude towards premarital care: An interventional study among medical students at Fayoum University.(Egybt, 2011)

The study indicated that premarital care (PMC) is a global activity aimed at diagnosing and treating unrecognized disorders and reducing the transmission of diseases to spouses. The study was an exploratory study. Its aim was to evaluate and improve the knowledge and attitude of 200 medical students at Fayoum University towards premarital care services. Through the intervention of health education in the form of lectures and brochures that address important issues related to premarital care, the results reflected the importance of health education as a key component in improving knowledge and attitude towards
premarital care. And that there is a need for continuous health education programs for students to increase their awareness and behavior. The study indicated that premarital care (PMC) is a global activity aimed at diagnosing and treating unrecognized disorders and reducing the transmission of diseases to spouses. The study was an exploratory study. Its aim was to evaluate and improve the knowledge and attitude of 200 medical students at Fayoum University towards premarital care services. Through the intervention of health education in the form of lectures and brochures that address important issues related to premarital care, the results reflected the importance of health education as a key component in improving knowledge and attitude towards premarital care. And that there is a need for continuous health education programs for students to increase their awareness and behavior. (12)

.Premarital Examination Program: Knowledge and Attitudes of Saudi University Students in Tabuk. (Tabuk, 2019)

The study indicated that a high percentage of genetic diseases such as sickle cell anemia (SCA), thalassemia and hepatitis are spread in the Kingdom of Saudi Arabia, which are chronic diseases that affect the quality of individual life, which can be reduced by increasing knowledge among the community. The study aimed to assess the level of knowledge and attitude of Saudi University of Tabuk students towards the pre-marital examination program. A cross-sectional study was conducted from April 2019 to August 2019 among Saudi male and female students at Tabuk University. A self-questionnaire about the knowledge and attitude of Saudi society towards the premarital screening program was used to collect data. It consists of 3 main sections; Demographic data, general knowledge of the student about the examination program and the attitude of students towards the examination before marriage, the study included 437 male and female students. The age ranged between 18 and 29
years, and the results indicated that more than half of them (56.8%) were female. Overall, just under half of the students (48.3%) had adequate knowledge of premarital screening. Females (p = 0.003), married (p = 0.044) and medical students (p = 0.024) were more knowledgeable than their counterparts. In general, nearly two-thirds of the students (69.8%) had a positive attitude towards the premarital examination despite the knowledge about the prenuptial examination - among Tabuk University students it was not enough among nearly half of them, they have an overall positive attitude towards the program.(13)

4.2 Infectious and genetic diseases:

Immunology in Nature: Clinical, Epidemiological, and Evolutionary Genetics of Infectious Diseases.(2007)

The study referred to genetics that field that defines the field of human genetics for infectious diseases and the genes that make individuals (clinical genetics) and populations (epidemiological genetics) susceptible to infection, studying those who were selected by previous infection (evolutionary genetics) and benefited from This study aims to identify genetic diseases and build a questionnaire.(3)

Debugging how bacteria manipulate the immune response. (2007)

The study indicated that regardless of the innate response that occurs when tissues are infected, bacterial pathogens have developed strategies to subvert the immune response and "recalibrate" it qualitatively and quantitatively, thus achieving a balance consistent with the survival of both the microbe and its infected host. Through this collaborative study of the mechanisms used, it aimed to develop a renewed approach to infectious diseases that is expected to provide useful new concepts and applications for their control. In addition, the molecular strategies developed by bacteria to inhibit immune
mechanisms result from such a strong and prolonged selective pressure for survival that they may point to the original mechanisms and targets of visualization. New immune-modifying, anti-inflammatory and anti-infective molecules were used, and they were utilized in constructing the questionnaire in the part related to infectious diseases.(4)

Parasites evade innate immunity.(2005)

This study indicated a type of infection that is caused by parasitic protozoa and is a major cause of global infectious diseases. Eukaryotic pathogens have co-evolved with the immune system of vertebrates, and usually produce long-term chronic infections. She points to a number of valuable findings, including growing evidence that primary pathogens modulate antigen-presenting functions and regulate immunity to dendritic cells, a process that facilitates their evasion of both innate and adaptive immunity.(5)

Results:
A total of 397 participants completed the study questionnaire. The ages of the participants ranged, To identify the most important characteristics of the study sample, the frequencies and percentages of the characteristics of the study sample were calculated, and the results are included in the following tables:

Table (1): shows the distribution of the research sample members according to gender

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>311</td>
<td>78.3</td>
</tr>
<tr>
<td>Female</td>
<td>86</td>
<td>21.7</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure :(1) shows the graphical relative distribution of the sample type
The percentage distributions in the table and figure (1) show that (78.3%) are males, while the percentage of females is (21.7%) of the total research sample.

Table : (2) shows the distribution of the research sample members according to age groups

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 to 21 years old</td>
<td>53</td>
<td>13.3</td>
</tr>
<tr>
<td>From 21 to under 23 years old</td>
<td>139</td>
<td>35</td>
</tr>
<tr>
<td>From 23 to under 25 years old</td>
<td>136</td>
<td>34.3</td>
</tr>
<tr>
<td>26 to 27 years old</td>
<td>69</td>
<td>17.4</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure (2) shows the relative graphical distribution of age groups
As for the distribution of age groups for the research sample, it is clear from the indicators of the table and Figure (2) that approximately (35%) are between 21 and less than 23 years old, (34.3%) are between 23 and less than 25 years old, (17.4%). Their ages are between 25 to 27 years, (13.4%) are between 19 to less than 21 years old.

Table (3) shows the distribution of the research sample members according to social status.

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>83</td>
<td>20.9</td>
</tr>
<tr>
<td>single</td>
<td>314</td>
<td>79.1</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure (3) shows the relative graphic distribution of social status.
With regard to the distribution of the research sample according to marital status, it is clear from the indicators of the table and Figure (3) that (79%) of the study sample are unmarried, while (21%) of the sample surveyed are married.

Table (4): Which are all the infectious diseases will be screened in Healthy marriage scheme?

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't know</td>
<td>67</td>
<td>16.9</td>
</tr>
<tr>
<td>AIDS and anemia</td>
<td>28</td>
<td>7.1</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>106</td>
<td>26.7</td>
</tr>
<tr>
<td>AIDS</td>
<td>180</td>
<td>45.3</td>
</tr>
<tr>
<td>TB</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>
Figure (4): shows the relative graphical distribution all the infectious diseases will be screened in Healthy marriage scheme

The percentage of infectious diseases examined in the comprehensive premarital health examination system in the table and figure (4) is distributed between (45.3%) for AIDS, (26.7%) for hepatitis, (7.1%) for AIDS and anemia, (4%) for tuberculosis, Bema (16.9%) did not specify their answers.

Table (5) : Which are the genetic disease will be screened in premarital/Healthy marriage scheme?

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not know</td>
<td>39</td>
<td>9.8</td>
</tr>
<tr>
<td>Hepatitis, viral infection</td>
<td>41</td>
<td>10.3</td>
</tr>
<tr>
<td>AIDS and anemia</td>
<td>14</td>
<td>3.5</td>
</tr>
<tr>
<td>Sickle cell anemia</td>
<td>145</td>
<td>36.5</td>
</tr>
<tr>
<td>anemia</td>
<td>43</td>
<td>10.8</td>
</tr>
</tbody>
</table>
Figure (5) shows the relative graphical distribution the genetic
disease will be screened in premarital/Healthy marriage scheme

The statistical indicators of percentages in the table and
figure (5) show that sickle cell anemia ranks first as the most
important blood and hereditary diseases, representing (36.5%) of

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>distortions</td>
<td>13</td>
<td>3.3</td>
</tr>
<tr>
<td>Blood diseases</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>hereditary anemia</td>
<td>14</td>
<td>3.5</td>
</tr>
<tr>
<td>Diabetes and anemia</td>
<td>14</td>
<td>3.5</td>
</tr>
<tr>
<td>Down syndrome, obesity, and others</td>
<td>13</td>
<td>3.3</td>
</tr>
<tr>
<td>Sugar</td>
<td>13</td>
<td>3.3</td>
</tr>
<tr>
<td>infertility</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>marriage</td>
<td>11</td>
<td>2.8</td>
</tr>
<tr>
<td>SCD, thalassemia, hemophilia</td>
<td>13</td>
<td>3.3</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>
the total number of genetic diseases examined, followed by anemia (10.8%), hepatitis and viral infections in the second place. The percentage of (10.3%), while the rest of the diseases such as (malformations, blood diseases, hereditary anemia, diabetes, anemia, Down syndrome, diabetes, infertility and marriage) all came in low and close percentages, ranging between (2.8% to 3.5%).

Table (6): Do you aware premarital screening is there for all in SAUDI CITIZENS Before marriage?

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>355</td>
<td>89.4</td>
</tr>
<tr>
<td>May be</td>
<td>42</td>
<td>10.6</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure (6): shows the relative graphical distribution To find out the availability of premarital examination for everyone

Based on the arithmetic mean in Table (6) and the graph, 89.4% of the research sample confirm that they know that the examination before marriage is available to everyone in the Kingdom, while there are (10.6%) who do not know this.
Table (7): Do you think premarital screening will be good to prevent diseases transmission to progeny?

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>11</td>
<td>2.8</td>
</tr>
<tr>
<td>Yes</td>
<td>370</td>
<td>93.2</td>
</tr>
<tr>
<td>May be</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure (7): shows the relative graphical distribution the think premarital screening will be good to prevent diseases transmission to progeny.

With regard to the research sample’s belief that pre-marital examination is useful to prevent the transmission of diseases to offspring, it is clear from the indicators in the table and Figure (7) that (93%) of the total sample of the surveyed perform this principle, that is, examination before marriage is useful for preventing the transmission of diseases to the offspring.
Table (8): How do you know about premarital screening?

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through the awareness programs offered by the university</td>
<td>90</td>
<td>22.7</td>
</tr>
<tr>
<td>from TV</td>
<td>40</td>
<td>10.1</td>
</tr>
<tr>
<td>From social media</td>
<td>208</td>
<td>52.4</td>
</tr>
<tr>
<td>From Those who were previously married</td>
<td>15</td>
<td>3.8</td>
</tr>
<tr>
<td>from the family</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>from all of the above</td>
<td>32</td>
<td>8.1</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure (8) : shows the relative graphical distribution How do you know about premarital screening

By extrapolating the statistical indicators of frequencies and percentages in the table and figure (8), it becomes clear that more than half of the research sample (52.4%) learn about premarital examination through social media, (22.7%) through awareness programs provided by the university, (10.1%) ) get acquainted with it through television, while there are (8.1%) who
obtain this information through all the aforementioned means of information for individuals.

Table (9): Is there facility in Abha for premarital screening?

<table>
<thead>
<tr>
<th>Variable Categories</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>15</td>
<td>3.8</td>
</tr>
<tr>
<td>Yes</td>
<td>305</td>
<td>76.8</td>
</tr>
<tr>
<td>May be</td>
<td>77</td>
<td>19.4</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure (9) : shows the relative graphical distribution Is there facility in Abha for premarital screening

By extrapolating the statistical indicators of frequencies and percentages in the table and Figure (9), (76.8%) of the total research sample confirm that they are aware that the city of Abha includes a pre-marital examination center, and that only (23.2%) are among the skeptics and those who deny their knowledge of the existence of an examination facility. Pre-husband in the city of Abha.

Averages of Likert Five Scale for Research Tool
Since the highest scale score = 5 and the lowest scale score = 1, the scale range becomes (5 - 1 = 4), and by dividing the range by the highest scale score (4/5 = 0.80), the dictated distributions of the arithmetic averages of a resolution scale become as follows:

Averages of Likert Five Scale for Research Tool

Since the highest scale score = 5 and the lowest scale score = 1, the scale range becomes (5 - 1 = 4), and by dividing the range by the highest scale score (4/5 = 0.80), the dictated distributions of the arithmetic averages of a resolution scale become as follows:

Table (10): Distribution of the spoken averages for the level of agreement of the Likert Triangular Scale

<table>
<thead>
<tr>
<th>N</th>
<th>Category</th>
<th>weighted average</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>first</td>
<td>1 – 1.67</td>
<td>Low OK</td>
</tr>
<tr>
<td>2</td>
<td>the second</td>
<td>1.67 – 2.34</td>
<td>Medium OK</td>
</tr>
<tr>
<td>3</td>
<td>the third</td>
<td>2.34 - 3</td>
<td>Very OK</td>
</tr>
</tbody>
</table>

Psychometric Indicators:
The psychometric indicators of the questionnaire were identified as follows:
- Validity of the research tool: It includes the following methods of validity:
  1. The apparent honesty of the questionnaire (the honesty of the arbitrators)

It has been verified, by presenting the research tool in its initial form to a committee of specialists from the faculty members at King Khalid University to be guided by their opinions about the phrases directed to the members of the research sample, its initial data, the extent to which the tool’s phrases fit into its axes, and the quality of the formulation of each of the questionnaire’s phrases. And the appropriateness of the five-year grading of the questionnaire, and the necessary suggestions were proposed to be modified and reformulated by the researcher, and based on the opinions of the arbitrators, the researcher prepared the final image of the research tool. (see Appendix 1)
2. Internal Consistency (Pearson Correlation):
To ensure the sincerity of the internal consistency of the research questionnaire axes, the researcher resorted to calculating the Pearson correlation indicators between the total score for each axis or dimension and the total score for the questionnaire:

Table (11): What are The reality of Awareness of premarital screening for genetics such as (Sickle cell anemia, Duane's disease) among the College students of Abha KSA?

<table>
<thead>
<tr>
<th>N</th>
<th>The content of the phrase</th>
<th>axis link</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The college provided awareness programs about genetic diseases</td>
<td>0.75**</td>
</tr>
<tr>
<td>2</td>
<td>Sickle cell disease is a genetic disease</td>
<td>0.68**</td>
</tr>
<tr>
<td>3</td>
<td>Sickle cell anemia can be prevented by pre-marital examination</td>
<td>0.59**</td>
</tr>
<tr>
<td>4</td>
<td>Down's disease is a non-hereditary disease</td>
<td>0.68**</td>
</tr>
<tr>
<td>5</td>
<td>The college held awareness programs about Down syndrome</td>
<td>0.69**</td>
</tr>
<tr>
<td>6</td>
<td>Premarital examination for an unimportant disease</td>
<td>0.62**</td>
</tr>
</tbody>
</table>

** Correlation is significant at 0.01 . significance level

It is clear from the statistical indicators of the internal consistency of Pearson's correlations between each phrase and the total degree of the dimension to which it belongs, that it ranges between (0.59** to 0.75**), and they are all statistically significant correlation coefficients at the level of significance (0.01), which confirms that the axis statements are true for what Developed to measure it.
Table (12): What are The reality of Awareness of premarital screening for infectious diseases such as (AIDS (acquired immunodeficiency virus), Hepatitis C disease) among the College students of Abha KSA?

<table>
<thead>
<tr>
<th>N</th>
<th>The content of the phrase</th>
<th>axis link</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The college provided awareness programs about infectious diseases</td>
<td>0.77 **</td>
</tr>
<tr>
<td>2</td>
<td>The college provided awareness programs about HIV/AIDS</td>
<td>0.85 **</td>
</tr>
<tr>
<td>3</td>
<td>One of the ways to contract AIDS is through sexual relations with an infected person</td>
<td>0.54 **</td>
</tr>
<tr>
<td>4</td>
<td>The college provided awareness programs about hepatitis C</td>
<td>0.82 **</td>
</tr>
<tr>
<td>5</td>
<td>Hepatitis C is a non-communicable disease</td>
<td>0.63 **</td>
</tr>
</tbody>
</table>

** Correlation is significant at 0.01 significance level

Similarly, with regard to the second dimension, it is clear from the statistical indicators of the internal consistency of Pearson's correlations that they range from (0.55** to 0.85**), and they are all statistically significant correlation coefficients at a significant level (0.01), which confirms that the axis of impact measurement is true to what it was designed to measure.

Table (13): Cronbach's alpha coefficients for the stability of the axes and the search tool

<table>
<thead>
<tr>
<th>N</th>
<th>The dimension</th>
<th>number of phrases</th>
<th>Cronbach's Alpha Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The reality of the college in which programs are taught about genetic diseases before marriage, such as (sickle cell anemia, Down's disease)</td>
<td>6</td>
<td>0.75</td>
</tr>
<tr>
<td>2</td>
<td>The reality of the college offering programs on infectious diseases before marriage, such as (AIDS (acquired immunodeficiency virus) and hepatitis C)?</td>
<td>5</td>
<td>0.78</td>
</tr>
<tr>
<td>3</td>
<td>The overall degree of the resolution</td>
<td>11</td>
<td>0.82</td>
</tr>
</tbody>
</table>
It is clear from the statistical indicators of Cronbach’s alpha stability coefficients for the sub-dimensions and the total degree from Table (13), that the stability of the resolution axes ranged between (0.75 to 0.78) and on the scale of the questionnaire as a whole, it reached Cronbach’s alpha (0.82), all of which are greater than the value (0.60), where It was mentioned (Gouda, 2009, p. 42) that the stability of the tool is achieved if Cronbach’s alpha coefficient ≥ 0.60, and accordingly the researcher concluded that the research questionnaire and its sub-axes are characterized by stability and stability in its general concept in the research sample and that it will give the same result if it is applied to a similar sample.

Arithmetic averages, standard deviations, and relative weights of the research axes:

Table No. (14) : Arithmetic averages, standard deviations, and relative weights of the reality of the college offering in which programs on genetic diseases are taught before marriage

<table>
<thead>
<tr>
<th>N</th>
<th>The content of the phrase</th>
<th>SMA</th>
<th>standard deviation</th>
<th>relative weight</th>
<th>degree of approval</th>
<th>order of importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The college provided awareness programs about genetic diseases</td>
<td>1.79</td>
<td>0.83</td>
<td>0.60</td>
<td>medium</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Sickle cell disease is a genetic disease</td>
<td>2.39</td>
<td>0.75</td>
<td>0.80</td>
<td>big</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Sickle cell anemia can be prevented</td>
<td>2.68</td>
<td>0.64</td>
<td>0.89</td>
<td>big</td>
<td>1</td>
</tr>
</tbody>
</table>
4. **Down's disease is a non-hereditary disease**
   - Arithmetic mean: 1.86
   - Standard deviation: 0.85
   - Medium: 0.62
   - Level: medium
   - Rating: 3

5. **The college held awareness programs about Down syndrome**
   - Arithmetic mean: 1.67
   - Standard deviation: 0.86
   - Medium: 0.56
   - Level: medium
   - Rating: 6

6. **Premarital examination for an unimportant disease**
   - Arithmetic mean: 1.68
   - Standard deviation: 0.84
   - Medium: 0.56
   - Level: medium
   - Rating: 5

**Overall average**
- Arithmetic mean: 2.01
- Standard deviation: 0.80
- Medium: 0.67
- Level: medium

With regard to the fact that the college in which programs are taught about genetic diseases before marriage, such as (sickle cell anemia, Duane's disease), the following results are evident from the statistical indicators of the arithmetic averages:

1. The arithmetic averages of the reality of the college offering programs on genetic diseases before marriage ranges between (1.67 to 2.68 out of 3), which means that the level of college provision of programs on genetic diseases before marriage ranges from medium to high.

2. The most widely practiced paragraphs on the part of the college is represented in the content of paragraphs 2 “sickle-cell disease is a genetic disease,” and paragraph 3 “sickle-cell disease can be avoided by examination before marriage”, with arithmetic
Averages ranging from (2.39 to 2.68 out of 3) and that (80% to 89%) of the research sample confirm that there is a great degree of awareness on the part of the students.

3. The most moderately practiced paragraphs are represented in the content of Paragraphs 1 “The college provided awareness programs about genetic diseases,” Paragraph 4 “Down’s disease is a non-hereditary disease,” Paragraph 5 “The college established awareness programs about Down’s disease,” and Paragraph 6 “Premarital examination for ‘unimportant disease’” with arithmetic averages ranging from (1.67 to 1.86 out of 3) and between (56% to 62%) confirming the existence of a medium degree of practice in the college.

4. The general average of (2.01 out of 3) confirms the existence of an average degree of practice across most of the items of the programs offered by the college in which the student studies about genetic diseases before marriage, and this is supported by about (67%) of the research sample.

Table No. (15) The reality of the college in which it teaches programs on infectious diseases before marriage, such as (AIDS (acquired immunodeficiency virus) and hepatitis C)

<table>
<thead>
<tr>
<th>N</th>
<th>The content of the phrase</th>
<th>SMA</th>
<th>standard deviation</th>
<th>relative weight</th>
<th>degree of approval</th>
<th>order of importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The college provided awareness programs about infectious diseases</td>
<td>2.09</td>
<td>0.79</td>
<td>0.70</td>
<td>medium</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>The college provided awareness programs about HIV/AIDS</td>
<td>1.82</td>
<td>0.78</td>
<td>0.61</td>
<td>medium</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>One of the ways</td>
<td>2.52</td>
<td>0.76</td>
<td>0.84</td>
<td>big</td>
<td>1</td>
</tr>
</tbody>
</table>
Similarly, with regard to the fact that the college in which you are studying offers programs on infectious diseases before marriage such as (AIDS (acquired immunodeficiency virus, and hepatitis C), it is clear from the statistical indicators of table (15), the following results:

1. The arithmetic averages of the reality of the college offering programs on infectious diseases before marriage, such as (AIDS, HIV, and hepatitis C) ranged between (1.39 to 2.52 out of 3), which means that the reality of the college in which programs are taught About infectious diseases before marriage (such as AIDS (acquired immunodeficiency virus, hepatitis C) ranges from low to high grade.

2. The most agreeable paragraphs on the part of the students is represented in the content of paragraphs 3 “One of the ways of contracting AIDS is through sexual relations with an infected person”, with a mean of (2.52 out of 3) and a standard deviation of (0.75) and that (84%) confirms At the high level for this paragraph.
3. The most moderately practiced paragraphs are represented in the content of paragraphs 1 “the college provided awareness programs about infectious diseases, paragraph 2” the college provided awareness programs about HIV/AIDS, and paragraph 4 “the college provided awareness programs about hepatitis C disease.”, with arithmetic averages ranging from (1.71 to 209 out of 3) and that between (57% to 70%) of the research sample confirm the existence of a medium degree of agreement within the scope of these paragraphs.

4. It comes to a low degree from the point of view of the research sample, the content of Paragraph 5 “Hepatitis C is a non-infectious disease,” with a mean (1.39 out of 3) and a standard deviation of (0.70), which is supported by (46%) of the research sample.

5. The general average, which amounted to (1.91 out of 3), confirms the existence of a medium degree of approval across most of the paragraphs of this axis, and that about (64%) of the research sample confirm this axis.

Discussion
The Early Marriage Screening Program is a national program that targets those who are about to get married and a condition for completing the marriage contract, in which the examination for genetic and infectious diseases is carried out to limit their transmission between generations (1)(10)(13).

The current study aimed at evaluating the reality of the colleges in Abha providing awareness programs for pre-marital examination and assessing the extent of students’ awareness of its importance and locations and the most important genetic and infectious diseases that are examined. (2)(7)(9)(12).
The results of the study also showed that the students’ awareness of the extent to which the examination is available to all Saudis was high, and the degree of location of examination centers in Abha to a moderate degree, which may be attributed to the young age of some of the participants (1(7))(11).

The results of the study showed that the degree of students' agreement that their colleges offer awareness programs for pre-marital examination was a medium score. They also agreed on the importance of counseling before marriage (2)(7)(8).

The results of the study also showed that the students' awareness of infectious diseases was high and their awareness of genetic diseases was medium (3) (4) (5).

The participants made a number of proposals, the most prominent of which was that there should be a course in the preparatory year on the examination before marriage, and the participation of students in preparing awareness programs as activities. (2)

Conclusions & Recommendation:
Conclusions and recommendations
In conclusion, the study revealed that more than half of the participating students agree to a moderate degree that their colleges offer awareness programs about early examination before marriage. Marriage compared to knowledge through colleges’ awareness programs. The research, through a survey of students’ opinions, presented a set of proposals, including: There should be a preparatory year course on premarital examination that contains its importance, the diseases it targets, the way to reach it, awareness of how to prevent, and the involvement of
students in organizing and preparing awareness programs. What is evident in Table (16).

Table (16): What are the suggestions for ways to raise awareness of premarital screening for genetics and infectious diseases among the College students of Abha KSA?

<table>
<thead>
<tr>
<th>N</th>
<th>The content of the proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There should be a common course for all students in all colleges arranged to raise awareness of the importance of premarital examination, the diseases it deals with, and the most important centers in the Kingdom.</td>
</tr>
<tr>
<td>2</td>
<td>Organizing awareness sessions, seminars and lectures</td>
</tr>
<tr>
<td>3</td>
<td>Organizing courses and trainings on pre-marital examination</td>
</tr>
<tr>
<td>4</td>
<td>Awareness in fast electronic ways.</td>
</tr>
<tr>
<td>5</td>
<td>Awareness programs in the colleges of King Khalid University.</td>
</tr>
<tr>
<td>6</td>
<td>Providing courses to educate the community on the pre-marital examination</td>
</tr>
<tr>
<td>7</td>
<td>Make programs at every level of preparatory</td>
</tr>
<tr>
<td>8</td>
<td>Opening an official awareness account in a social media program</td>
</tr>
<tr>
<td>9</td>
<td>Participation of students in preparing awareness programs</td>
</tr>
</tbody>
</table>

Limitations:

This study was conducted during random sampling, where there are no opportunities for selection bias for the sample. A lot of data is collected for university students from 18 to 27 years, females, males and all social statuses in Abha colleges. Another limitation of the current study is the possibility of giving participants socially acceptable responses. Since this study was conducted online, there is a possibility that participants will answer positively, because the questions are online.
Reference:


Alhowiti A, Shaqran T. Premarital screening program knowledge and attitude among Saudi University students.
Awareness of premarital screening for gen…. Faisal Al-Al-Ghamdi


Al Sulaiman A, Suliman A, Al Mishari M, Al Sawadi A, Owaidah TM. Knowledge and attitude toward the
Awareness of premarital screening for gen…, Faisal Al-Al-Ghamdi


Quintana-Murci1,L.; Alcaïs,llex; Abel, A.& Casanova, J .(2007) Immunology in natura: clinical, epidemiological and evolutionary genetics of infectious diseases. ature Publishing Group

http://www.nature.com/natureimmunology.