Saudi Premarital Screening Program: Public view after 3 years of implementation.

The Saudi Premarital Screening Program (SPSP) became mandatory since 1425 H. This study aims to explore public attitudes towards consanguinity, SPSP legislation, increasing the number of screened diseases and the different reproductive alternatives for incompatible couples.

This cross-sectional study was conducted at a sample of Primary Health Care (PHC) centers of the Ministry of Health (MOH) in Al-Ahssa region, Eastern Province, Saudi Arabia. Stratified single-stage cluster sampling with probability proportionate to size was used as a sampling method to select centers from the 3 health sectors of the region. The total sample size was 356 randomly selected Saudi visitors to the sampled centers, 18 years and above, with equal gender distribution. A pre-designed interview-based questionnaire was used for data collection.

The sample consisted of 178 males and 178 females. Their ages ranged from 18 to 66 years (mean 33.2, Standard Deviation (SD) ± 11.46 years). Eighty two (23.0%) were single, 9 (2.5%) were engaged, and 251 (70.5%) were married. Regarding their place of residence, 202 (56.7%) were living in cities and 154 (43.3%) in villages. Thirty six (10.1%) were illiterate, 64 (18.0%) had primary education, 117 (32.9%) had high school, and 64 (18.0%) were university graduates.

Among participants 160 (44.9%) believed that consanguineous marriage was a good practice, while 218 (61.2%) believed that it may cause disease offspring. The vast majority (325 or 91.3%) agreed on the compulsory application of the SPSP. Among those who agreed, 236 (72.6%) justified their agreement by stating to prevent transmission of genetic blood diseases to offspring (Table 1). Only 21 (5.9%) knew that Sickle Cell Disease and Thalassemia were the only 2 diseases being screened for at that time, and 244 (68.5%) supported raising the number of screened diseases.

Regarding attitudes towards incompatible results, 163 (45.8%) stated that they would break off the engagement, 112 (31.5%) stated that the decision would be very difficult, and 55 (15.4%) would continue with the engagement and marriage as belief in Allah’s will (Table 2). Moreover, 189 (53.1%) agreed on providing incompatible couples who proceed with the marriage with reproductive alternatives, the most preferred being pre-implantation diagnosis (28.6%). Among those who disagreed (n=77), 36 (46.8%) justified their refusal as interference with Allah’s will. The majority (80.6%) agreed on early screening of high school and university students.

Illiteracy was found to have a negative effect. Attitudes of participants who did not have genetic blood diseases or affected children were better than those of affected participants and those who had affected children.

This study highlighted the fact that consanguineous marriages are still preferred by a large proportion of the Saudi population, despite their awareness of its possible harms. The majority accepted the SPSP and its mandatory application, and supported increasing the number of screened diseases, as well as changing its timing to a stage of life prior to engagement.

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Editorial notes: Inherited disorders represent a major health problem in the Arab World including Saudi Arabia, where consanguineous marriages are common. The frequency of consanguineous marriages has been estimated as 60-65% in Saudi Arabia\(^1\), 50.3% in Jordan, 54.3% in Kuwait, 28.9% in Egypt, and 26.0% in Lebanon.\(^2\)

The Saudi premarital screening program is a mandatory, targeted screening (primary prevention) for all Saudi couples willing to get married. The most prevalent inherited hemoglobinopathies in the Kingdom, SCD and Thalassemia were the only two diseases screened for at the time this study was conducted. The main objectives of the SPSP are to avoid or reduce risky marriages, to determine the magnitude and distribution of diseased and carriers of SCD and Thalassemia, and to educate non-compatible couples about the probabilities of their having affected offspring and possible alternatives to cancelling the marriage. The screening result is mandatory and required to complete the official marriage license. Compatible couples are provided with «compatibility certificates», while Incompatible couples are referred to a genetic counseling clinic. However, counseling is

(Continued on page 20)

Table (1): Public attitude towards the mandatory application of SPSP.

<table>
<thead>
<tr>
<th>ATTITUDE</th>
<th>No.</th>
<th>%</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons for agreeing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To prevent transmission of genetic blood diseases to the offspring</td>
<td>236</td>
<td>72.6</td>
<td>67.4-77.4%</td>
</tr>
<tr>
<td>To prevent transmission of genetic blood diseases from one of the couple to the other</td>
<td>32</td>
<td>9.8</td>
<td>6.9-13.7%</td>
</tr>
<tr>
<td>To make sure that the person that will be married is healthy</td>
<td>32</td>
<td>9.8</td>
<td>6.9-13.7%</td>
</tr>
<tr>
<td>To ensure own fitness for marriage</td>
<td>17</td>
<td>5.2</td>
<td>3.2-8.4%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>8</td>
<td>2.5</td>
<td>1.1-5.0%</td>
</tr>
<tr>
<td>Reasons for Disagreeing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This is an interference with Allah’s will</td>
<td>6</td>
<td>54.5</td>
<td>23.4-83.3%</td>
</tr>
<tr>
<td>Such test results are an insult to the person</td>
<td>3</td>
<td>27.3</td>
<td>6.0-61.0%</td>
</tr>
<tr>
<td>The family may prevent continuation of marriage in case of positive results</td>
<td>1</td>
<td>9.1</td>
<td>0.2-41.3%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>1</td>
<td>9.1</td>
<td>0.2-41.3%</td>
</tr>
</tbody>
</table>
Saudi Premarital Screening Program: Public view after 3 years of implementation, cont...

(Continued from page 19)

non-directive and the couple has the choice to proceed with the marriage regardless of the screening result, in which case they are given «incompatibility certificates» after obtaining their signatures and providing them with health education.3

This study confirms the popularity of consanguineous marriages among Saudis, mostly attributed to social and traditional values, despite the fact that Islamic teachings discourage first-cousin marriages.4 Religious leaders in the community therefore have a vital responsibility to conduct intensive education in mosques, media, and other available channels. In spite of the fact that the majority believed that consanguineous marriages may lead to diseased offspring, a large proportion still encouraged this practice. This has been reported by other Gulf countries, where up to 50% prefer consanguineous marriages.5

The vast majority of the study population supported the compulsory application of the SPSP, which was much higher than reported by other studies.6 This positive attitude was independent of gender, residence, and whether the subject had a genetic blood disease or affected children. This wide acceptance is essential for success and continuation of the SPSP.

According to data of the first 3 years of implementation of the SPSP, the majority of incompatible couples are still completing the marriage in spite of their positive results.6 It is therefore essential to provide such couples with reproductive alternatives. Over half of study participants agreed on this matter. Among those, Pre-implantation diagnosis through in-vitro fertilization was preferred by 28.6%, followed by contraception (22.2%), then prenatal diagnosis (12.7%). These results are similar to those reported by a study from King Faisal Specialist Hospital and Research Center, Riyadh.7 Prenatal diagnosis is specific and sensitive for detection of hemoglobinopathies, but is not yet implemented in Saudi Arabia except for severe abnormalities.8

It was recommended to intensify health education on the possible health consequences of consanguineous marriages through educational campaigns at PHC centers, schools, and mass media. Religious leaders of the community should be involved in clarification of Islamic teachings regarding consanguineous marriages, premarital testing, and reproductive alternatives.

References:

6- General directorate of Non-communicable diseases, MOH, Saudi Arabia. The premartial screening program report, 1427 H (Arabic).

Prevalence of hepatitis B and C among Thalassemia and Sickle Cell Disease Patients, cont...

(Continued from page 18)

which is not the case among SCD patients. As no vaccination against Hepatitis C is likely to be available in the near future, extra care should be taken in the implementation of general preventive measures against blood-borne infection to reduce the prevalence of hepatitis C among these patients.

SCD and Beta thalassemia patients are particularly at risk to undergo certain operations, such as splenectomy and cholecystectomy, which can place them at higher risk of acquiring Hepatitis B and C. This study confirmed the association between Hepatitis C infection and surgical procedures particularly among SCD patients.

References: