Socio-Economic Epidemiology of Consanguineous Matings in the Saudi Arabian Population

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ABSTRACT

The rate and socio-economic factors associated with consanguineous matings among 4498 Saudi families living in Riyadh have been evaluated. The incidence of consanguinity in the urban Saudi population is unusually high, has been common among Saudi people during the past decades and has not changed significantly even among the younger generation. There is a statistically significant relationship between educational level and consanguinity. Similar association is observed between income level and consanguineous matings. The rate of consanguinity is significantly higher among men and women who are marrying for the first time.

Introduction

A marriage is said to be consanguineous if the husband and wife have at least one ancestor in common and, in practice this common ancestor is usually taken to be no more remote than a great-great parent.[1] Furthermore, to a large extent, marriage controls the genetics of human populations and, as a result, affects the polygenic characteristics of the human race.[2] In this respect, the association between consanguineous marriages and genetic defects has been observed by various researchers. The diseases observed in the offspring of these marriages include those resulting from autosomal recessive or multifactorial inheritance.[1]

Consanguinity rates are varied in different cultures and societies.[3-4] This variation is usually due to the race, the isolation of the society, and the religion. In view of this fact, and since information is not available on consanguinity among Saudi people, we decided to investigate the rate of consanguineous matings in a representative sample of Saudi Arabian families.

In this paper we present the incidence as well as the socio-economic epidemiology of consanguineous marriages in a total of 4498 sampled families living in Riyadh.

Materials and Methods

The study sample was randomly selected from the Saudi mothers who were attending one of the four major hospitals in Riyadh for delivery. These hospitals were Riyadh Children and Maternity Hospital, Nasseriah Maternity Hospital, King Khalid University Hospital, and King Abdul Aziz University Hospital. The study was conducted from September, 1983 until December, 1986. Each mother was assigned a code number and questionnaires were subsequently designated by code number only. The questionnaires included age of the mother and of her husband; educational level of the mother and her husband; family income; and whether the husband had been married previously. Each sampled mother was asked whether her husband was her first cousin, just related, or not related at all. A total of 4498 mothers were included in the survey.

Results

Consanguinity

The incidence of consanguineous matings in the urban Saudi population is unusually high. The overall consanguinity rate is 54.3 percent. The data indicated that 31.4 percent of the Saudi women were married to their first cousins, and 22.9 percent were married to their second cousins or relatives. There were 45.7 percent of the sampled women who were not related to their husbands.

Age

The average age of the sampled Saudi women was about 25.9 years. In comparison, the mean age of their respective husbands was 34.1 years. The majority of the women (60.2 percent) were between the age of 21 to 30 years old, and 22.7 percent of them were younger than 21 years. While most of the husbands (46.0 percent) belonged to the 21 to 30 years of age group, about 52.8 percent of them were older than 30 years.

Comparisons between the age of the sampled Saudi women and their husbands by consanguinity are presented in Tables 1 and 2.

Table 1

Consanguineous Matings and Age of the Sampled Saudi Women

Age Groups	Consanguinity							
	First Cousin		Relative		Not Related		Total	
20 years or younger	316	(30.9)*	268	(26.2)	439	(42.9)	1023	(100.0)
21 - 30 years	845	(31.2)	591	(21.8)	1271	(47.0)	2707	(100.0)
31 - 40 years	241	(32.8)	165	(22.4)	330	(44.8)	736	(100.0)
41 years or older	9	(28.1)	9	(28.1)	14	(43.8)	32	(100.0)
Total	1411	(31.4)	1033	(22.9)	2054	(45.7)	4498	(100.0)

* Row percentage.
($\chi^2 = 10.082$, df = 6, statistically not significant)

Table 2

Consanguineous Matings and Age of the Husbands

Age Groups	Consanguinity							
	First Cousin		Relative		Not Related		Total	
20 years or younger	18	(36.0)*	15	(30.0)	17	(34.0)	50	(100.0)
21 - 30 years	625	(30.2)	487	(23.5)	957	(46.3)	2069	(100.0)
31 - 40 years	535	(33.1)	362	(22.4)	721	(44.5)	1618	(100.0)
41 years or older	230	(30.3)	169	(22.3)	359	(47.4)	758	(100.0)
Total**	1408	(31.4)	1033	(22.9)	2054	(45.7)	4495	(100.0)

* Row percentage.
** Three respondents did not answer this question
($\chi^2 = 7.249$, df = 6, statistically not significant)

Overall, there was no significant difference in the pattern of consanguineous marriages among the various age groups of the sampled women, although there were slightly more younger women married to their cousins and relatives than were older ones. This pattern was more apparent among their male counterparts, where only 34 percent of husbands below the age of 21 did not marry their relatives as compared to an average of 45.8 percent for the older age groups.

Educational Level

The sample showed that 21.8 percent of the mothers had completed elementary education, and 22.9 percent had either completed secondary school or college studies. On the other hand, 44.3 percent reported that they were illiterate and 11.0 percent said that they could read and write.

In contrast, figures for the husband's educational level showed that about 18.6 percent had studied in college, 26.4 percent had completed a secondary education, and 26.2 percent had completed elementary school. However, about 28.8 percent reported that they were either illiterate or could only read and write.

Comparisons of the consanguinity and the sample educational level are shown in Tables 3 and 4. The results indicate that there is a strong relationship between consanguineous matings and educational level among the urban Saudi population. The less educated ones tended to marry their cousins or relatives more frequently than did the educated ones—especially among the women. For instance, about 64.8 percent of the illiterate sampled women were married to their cousins or relatives, while only 41.7 percent and 35.5 percent of those who completed secondary education and college studies respectively had a consanguineous marriage. A similar pattern of consanguinity and educational level was also observed among the husbands. Moreover, the chi-square test in both cases indicated a strong statistical significance.

Family Income

About 42.1 percent of the sampled respondents had an average family income of less than SR.5,000 per month. The majority of the samples belonged to the middle income group, with average monthly income of between SR.5,000 and SR.9,999. The high income group, with monthly income of SR.10,000 or above, accounted for 9.6 percent of the sample.

Table 3

Consanguineous Matings and Educational Level of the Sampled Saudi Women

Educational Level	Consanguinity						Total	
	First Cousin		Relative		Not Related		Total	
Illiterate 824	(41.3)*		469	(23.5)	701	(35.2)	1994	(100.0)
Read & Write	133	(27.0)	124	(25.1)	236	(47.9)	493	(100.0)
Completed Elementary	258	(26.3)	222	(22.7)	500	(51.0)	980	(100.0)
Completed Secondary	163	(20.9)	162	(20.8)	455	(58.3)	780	(100.0)
College Study	33	(13.2)	56	(22.3)	162	(64.5)	251	(100.0)
Total	1411	(31.4)	1033	(22.9)	2054	(45.7)	4498	(100.0)

* Row Percentage
($\chi^2 = = 232.757$, df = = 8, statistically significant at $p < 0.001$)

Table 4

Consanguineous Matings and Educational Level of the Husbands

| Educational Level | Consanguinity | | | | | | Total | |
	First Cousin		Relative		Not Related			
Illiterate 206		(36.1)*	119	(20.9)	245	(43.0)	570	(100.0)
Read & Write	273	(37.6)	176	(24.2)	277	(38.2)	726	(100.0)
Completed Elementary	398	(33.8)	281	(23.9)	498	(42.3)	1177	(100.0)
Completed Secondary	352	(29.6)	261	(22.0)	575	(48.4)	1188	(100.0)
College Study	182	(21.7)	196	(23.4)	459	(54.8)	837	(100.0)
Total	1411	(31.4)	1033	(22.9)	2054	(45.7)	4498	(100.0)

     * Row percentage
       ($\chi^2 = = 74.025$, df = = 8, statistically significant at $p < 0.001$)

Table V

Consanguineous Matings and Family Income Level of the Sampled Respondents

| Average Family Monthly Income | Consanguinity | | | | | | Total | |
	First Cousin		Relative		Not Related			
<SR.2,500	86	(37.5)*	43	(18.8)	100	(43.7)	229	(100.0)
SR.2500 - 4999	561	(34.4)	352	(21.6)	716	(44.0)	1692	(100.0)
SR.5000 - 7499	517	(31.5)	427	(26.0)	696	(42.5)	1640	(100.0)
SR.7500 - 9999	133	(26.9)	108	(21.9)	253	(51.2)	494	(100.0)
SR.10000 - 14999	67	(21.1)	56	(17.6)	195	(61.3)	318	(100.0)
>SR.15000	18	(17.1)	21	(20.0)	66	(62.9)	105	(100.0)
Total**	1382	(31.3)	1007	(22.8)	2026	(45.9)	4415	(100.0)

     * Row percentage
   ** Eighty-three respondents did not answer this question
       ($\chi^2 = = 74.797$, df = = 10, statistically significant at $p < 0.001$)

Consaguineous marriages appeared to take place more frequently among the lower income mothers as well as those who belonged to the lower-middle income group (see Table 5)—on the average, more than half of this group were married to their cousins or other relatives. However, the consanguinity rate dropped below fifty percent among the upper-middle income mothers, and only one-third of this group of women were married to their close relations. The chi-squares test indicated a significant relationship between the income level and consanguineous mating.

Husbands' Previous Marriages

Overall, only 19.8 percent of the sampled Saudi women were married to a husband who had had at least one wife before.

Among the women whose husbands had married previously, the consanguinity was only 44.6 percent. However, this rate increased to 56.7 percent when the marriage was the first time for both partners (see Table 6). The chi-square test indicated a strong relationship, with significance level at p < 0.001.

Table VI

Consanguineous Matings and Husbands' Previous Marriages

Husband's Previous Marriages	Consanguinity						Total	
	First Cousin		Relative		Not Related			
No	1194	(33.1)*	853	(23.6)	1561	(43.3)	3608	(100.0)
Yes	217	(24.4)	180	(20.2)	493	(55.4)	890	(100.0)
Total	1411	(31.4)	1033	(22.9)	2054	(45.7)	4498	(100.0)

* Row percentage
(χ^2 = = 58.848, df = = 8, statistically significant at p < 0.001)

Discussion

The rate of consanguineous marriages varies from area to area depending on the culture and social customs of various populations. Our data indicated that the rate of consanguineous mating among the Saudi people was very high, about 54.3 percent. This rate is identical to that among Kuwaiti people as reported by Al-Wadi et al;[5] while it is much higher than the consanguinity rate among the urban population in Egypt as reported by Hafez et al.[1]

Moreover, comparisons between the age of the sampled Saudi men and women by consanguinity suggested that consanguineous matings have been common among Saudi people during the past decades and have not changed significantly, even among the younger generation.

Our findings also indicated that there was a significant relationship between consanguineous mating and the educational level of the Saudi women and men, that is the illiterate or less educated segment of the population were more frequently married to their cousins or relatives. Furthermore, consanguinity was also significantly related to the family income. In this regard the lower income women as well as those belonging to the lower-middle income group were more frequently married to their cousins or their relatives.

The consanguinity rate was significantly higher among the Saudi men and women who were marrying for the first time. There are no previous reports of these associations in other studies.

NOTES

1 Hafez, M., El-Tahan, H. et al. "Consanguineous mating in the Egyptian population". Journal of Medical Genetics, 1983, 20:58-60.

2 Krishan, G. "Effect of parental consanguinity on anthropometric measurements among the Sheikh Sunni Muslim boys of Delhi". Am. Journal of Physical Anthropology 1986, 70:69-73.

3 Centerwall WR, Centerwall SA. "Consanguinity and congenital anomalies in South India." Indian J Med Res 1966, 54:1160-7.

4 Roberts DF, Roberts MJ, Poskanzer DC. "Genetic analysis of multiple sclerosis in Orkney." J. Epidemiol Comm Health 1979, 33:229-35.

5 Al-Wadi, S.A., Moussa, M.A., Farag, T.I. "The effect of consanguineous marriages on reproductive wastage." Clinial Genetics 1986, 29:384-388.

The Impact of Social Networks on the Duration of Post-Migration Job Searches

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ABSTRACT

Social networks are known to play an important role in the migration process. This paper examines the impact of these networks on the duration of job searches after migration in Malaysia. Along with education and length of previous work experience, the impact on the job search duration of the manner by which the migrant finds employment as well as the source of financial support, were assessed. Regression analysis revealed that migrants with more work experience as well as those who received financial support from friends/relatives took significantly longer to find employment after migration. There was no difference in the duration of searches between migrants who relied on friends/relatives to find jobs and others. The reasons for and the implications of these findings are discussed.

I. Introduction

Migration studies recognize that while economic motives underlie migration, the choice of destination and timing of the move are also influenced by social networks (Lee, 1985). Previous studies have illustrated the importance of social contacts (usually relatives and friends) as an information source as well as a means of procuring employment for migrants (MacDonald & MacDonald, 1964; Tilly & Brown, 1967; Nelson, 1979; Gugler, 1982). In addition, social contacts often provide financing and lodging for migrants. This paper will examine whether social networks play a role in determining the duration of the post-employment job search in Malaysia.

Data from a geographically wide area suggest that migrants, particularly rural-urban migrants, find employment quickly and that the unemployment rate for