

Effects of Consanguinity on Fertility and Mortality Among the Sayed Muslims of Assam

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ABSTRACT In the total 141 marriage studied in the Sayed Muslims of Assam, 67 are consanguineous with a percentage of 47.52. The effects of consanguinity on different measures of fertility and mortality has also been investigated. The mother of the consanguineous union register higher fertility and pre-reproductive mortality as against nonrelated couples. The present sample of Sayed displays a good amount of agreement with results of contemporary studies conducted elsewhere.

INTRODUCTION

It is generally known that the trait determined by recessive genes are more likely to appear among the children of consanguineous parents than among those of unrelated ones. Again the probability of homozygosis of recessive genes in the children is the higher, if their parents are uncle-niece than if they are first cousin. Thus, the children from consanguineous marriage have an enhanced risk of hereditary defects and disease transmitted through recessive genes. In the present note an attempt has been made to provide evidence of the effects of consanguinity on the fertility and mortality attributes among the Sayed of Assam.

The Sayed is a numerically minor Muslim population of Assam. They are concentrated mostly in Golaghat, Jorhat, Sibsagar and Lakhimpur districts in upper Assam. Since the Sayed population is economically poor and with low level of medical and public health care services available, it provides an excellent opportunity to study the effects of consanguinity on fertility and mortality.

MATERIAL AND METHODS

Data have been collected from Kakojaan (Daun Gaon) and Kenduguri area of Jorhat district, Assam. A house to house census of the Sayed inhabiting in these areas was carried out

following a systematic collection of demographic data through questionnaire. Pedigrees were traced for each couple atleast upto three generations. All the women were confirmed that neither they nor their husband adopted any family planning method at any point of time. They lived continuously in wedlock. The information thus collected concerned the exact relationship between spouses, incidence and outcome of pregnancies among the Sayed. It may also be mentioned that abortion cases reported in the present study are those of spontaneous abortion only. No information has been obtained on cases of induced abortion.

The data on bio-events and reproductive performance from 141 ever-married Sayed couples, which includes sixty seven (67) consanguineous and seventy four (74) non-consanguineous marriages were collected and analysed to understand the effect of consanguinity on fertility and mortality.

RESULTS AND DISCUSSION

Effects of consanguinity on different measures of fertility and mortality are presented in table 1. Among the Sayed, the mean number of conception is higher in related couples (3.69) than the unrelated ones (3.32). However, turning to percentage frequency of live-births, it is observed that among the non-consanguineous Sayed sub-samples 89.43% conceptions results in live-births, while in consanguineous couples only 79.76% results in live-births. As a result, live-births per married Sayed women of consanguineous sub-sample is relatively lower (2.94) than its non-consanguineous counterparts (2.97).

Consanguineous Sayed mothers have experience of higher incidence of abortion (12.95%) than the mother belonging to non consanguineous

Table 1: Effects of consanguinity on pregnancies, live births, foetal loss, and mortality attributes in Sayeds

Category	No. of women	Pregnancies		Live births		Foetal % loss	Mortality		
		No.	Mean (S.E.)	No.	Mean (S.E.)		Infant %	Child %	Juvenile %
Consanguineous	67	247	3.69 (0.55)	197	2.94 (0.52)	20.65	6.09	2.54	3.05
Non-consanguineous	74	246	3.32 (0.44)	220	2.97 (0.43)	12.20	3.64	1.36	2.73

Figures within parantheses indicates S.E. for mean

sub-samples (10.16%). Similarly still-birth rate is also much higher (7.69%) in the former than the later (2.03%). Thus the total foetal wastage in related Sayed couples is 20.65% than that of non-related ones where the incidence is only 12.20%. The rate of twin births reported from among consanguineous couple is also much less (0.40%) as against non-consanguineous couple (1.63%). Among the consanguineous Sayed couple, women experience higher incidence of pre-reproductive mortality (11.68%) than the non-consanguineous Sayed women (7.73%).

When test of significance were applied (Table 2A), two attributes, conception and live-birth, do not show any significant variation in between the inbred and outbred sample. Binomial test of proportion as presented in table 2B reveals that mortality rate like foetal loss (miscarriage/abortion and still-births) are only significantly higher in the offsprings of consanguineous matings as compared to those of non-consanguineous matings. The table also shows that there is no significant differences in death rates between the two Sayed sub-samples.

Table 2A: Test of significance between Sayed sub-samples

Attributes	Value of 't'	Inference
Total Pregnancy	0.53	Nonsignificant
Live births	0.04	Nonsignificant

Table 2 B: Binomial test of differences of proportions between Sayed sub-samples.

Attributes	Values of 'd'	S.E.	Inference
Foetal loss	0.084	0.0330	Significant
Infant deaths	0.025	0.0209	Nonsignificant
Child deaths	0.011	0.0141	Nonsignificant
Juvenile deaths	0.0032	0.0164	Nonsignificant

It is thus evident that the consanguineous Sayed mother registered a little higher fertility rate over non-consanguineous women, however, in them the embryonic as well as pre-reproductive mortality also exhibit a higher rate comparatively. Perhaps this little elevated fertility rate among the consanguineous Sayed mother is to

compensate the loss due to higher embryonic as well as pre-reproductive wastages. However, when test of significance were applied, all the attributes considered do not show any significant variation.

On the basis of available Indian data, the overall picture that have been emerged is in agreement with the observation made in the present study. Effect of parental consanguinity on fertility and mortality in two sub-samples of Sayeds are marginal as observed in other Indian populations studied recently. Divergent views have been expressed by various investigators in this regard. Most of the earlier studies suggests that consanguineous marriage tend to increase fertility and mortality with a result of lower of surviving offspring in the related mothers. Kumar et al (1967) found that the total mortality in terms of still-births, miscarriages, infant and juvenile deaths was much higher in first and second cousin marriages than in unrelated ones. Chakravarty and Chakravarti (1975) found that effect of inbreeding on pre-natal mortality is highly significant. Murty and Jamil (1972) reported higher percentage of mortality among the children of consanguineous marriages than among those of non-consanguineous unions. Among Muslim community of North India, Basu (1975) observed comparatively less net fertility rate (as measured by the number of surviving offspring) in related couples than in unrelated ones. Similar conclusion was also obtained by Rao and Mukherjee (1975) in their investigation on Pattusali population in Andhra Pradesh.

Studies conducted by Jacob and Jayabal (1971), Sanghvi (1975) concluded that consanguinity did not contribute significantly to the increased foetal and child loss however. In Mala population of Chittor district, Reddy (1983) recorded the negative values on inbreeding load for total foetal loss, infant mortality, congenital malformations etc showing the decreasing effect of inbreeding, but opposite for the surviving offspring.

The finding of the present study supports the observation made by Sanghvi (1966), Rao and Inbaraj (1977) that long term inbreeding may result in only marginal or nonsignificant effects on fertility and mortality of inbred population. However, influence of some amount of inbreeding that embedded even in non-consanguineous control sample through generations also can not be ruled out.

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