

Original Article

Proportion of Consanguineous Marriages in Community and Factors Affecting Pregnancy Outcome : A Hospital based Study in Ahmedabad City, Gujarat

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Objectives : To find out (i) the proportion and the types of consanguinity and (ii) its correlation with fetal loss, neonatal deaths, complication related to obstetric and congenital abnormalities.

Methods : All the delivered women at Tertiary Care Hospital were included in the cross sectional study during the study period. Total sample size was 6775. Information regarding educational status, occupation, consanguinity and pregnancy outcome was collected.

Results : 17% consanguinity was found in selected people and among these marriages, 59.8% were between first cousins. There was highly significant difference observed between the consanguineous status of women and pregnancy outcome (Congenital malformations, abortion, Intrauterine death).

Conclusion: The incidence of congenital abnormalities, Intrauterine Device (IUD) and abortion was found higher in Consanguineous marriages. There is a need to improve public awareness regarding problems related to Consanguineous marriages.

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Key words : Consanguineous marriage, Pregnancy outcome, Abortion, Birth defect.

In India like Countries, marriage is a Religious duty in Society. Consanguineous is common among some Religion or community. The world Consanguineous comes from the two Latin words 'Con' meaning shared and 'Sanguis' meaning blood. Consanguineous relationship shows the relation between couple who share an antecedent or share genes. Such type of marriages are favoured by various people of the Community usually bound to traditional customs beliefs and to keep all property in united form within the same family. The most of the Consanguineous marriages (20% to 50%) found in North of African, Asian Countries etc. Usually it was associated with loose Economic status, Rural residence area^{1,2}. The incidence of Consanguineous marriage found in India is almost 5-60% and uncle-niece are the more frequently occurring relationship in Indian Population³.

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Editor's Comment :

■ Consanguineous relationship is associated with an increased risk for congenital abnormalities among newborn so there is need for public literacy on consanguinity and this may be achieved by providing proper counselling and health education among people. Also there is need to provide training to health care workers on all health and social issues related to consanguinity.

In India the main reason for this marriage are Stronger Family Ties, the Integrity of Estates. But the current debate in Medical Science is on the health implication of the Consanguineous marriages.

Those couples who were having Consanguineous marriages are at Major Risk for Bipolar Psychiatric Disorders. This Marital System of India has been repaired as an important factor in the appearance of Autosomal Recessive Disease and Congenital Anomalies, Sterility, Infant mortality child deaths, Spontaneous abortion and Stillbirth⁴.

MATERIAL AND METHODS

Current research study was carried out at Institutional Teaching Hospital, Obstetrics and Gynaecology Department, Ahmedabad. All the delivered women were included in the cross-sectional study. The total sample size (women) was 6775 during

a period of 16 months. Details regarding educational status, occupations, consanguinity and pregnancy outcome were collected through interview. History regarding Abortions, Obstetrical complication, Still birth, Neonatal deaths and Congenital abnormalities developed among children was collected through interview from selected delivered females. Inclusion criteria was all admitted women at Institute. Those patients who had not given consent for the study were excluded from the study. Data was entered in MS Excel and were analyzed through MS Excel and Epi info. Percentage (%), Chi-square test were applied for the statistical calculation. 'p' value considered statistically significant when p value is less than 0.05.

RESULTS

As stated in Table 1, 92.61% of delivered participants belongs to 18 to 30 years of age group. Of all participants, 62.42% participants were illiterate and only 5.82% participants were having higher educational status. Total number of deliveries were 6775, out of which Hindus are 2476 (36.8%) and Muslims are 4267 (62.9%) and other are 42 (0.61%). Out of 6775 women, consanguinity were found in 17.4% of the marriage. Among Muslims, consanguinity was higher in frequency (17.21%) than Hindus (0.17%). This difference between Consanguinity and Religion was statistically significant (<0.00001). (Table 1)

Table 2 shows that majority of the Consanguineous marriage were found in Muslim out of them marriage between 1st cousin marriage was 59.3%, uncle-niece marriage was 33.81% while 5.67% were having further distinct relations of the marriage while in Hindus it was almost nil (Table 2).

In Consanguineous marriage, proportion of abortion were 21.1% and in Non-consanguineous, abortion was 12.3%. It showed abortion were in Consanguineous Group statistically significantly higher as compared to Non-consanguineous Group. The p value was highly statistically significant ($p < 0.00001$). Total number of Intrauterine Deaths (IUD) were 185 out of which 59 (5.0%) were Consanguineous and 126 (2.3%) are Non-consanguineous. There was significantly difference in the frequency of IUD between the consanguineous and Non-consanguineous groups. (Table 3).

In 81 (6.9%) Congenital malformation are observed in Consanguineous groups and 153 (2.7%) in Non-consanguineous group. Incidence of anomalies in

present study are 0.4% (234). Present study observed that Congenital Abnormalities were statistically significantly higher in Consanguineous Group (p value <0.01).

DISCUSSION

Majority of women belongs to the age group between 26 to 30 years, 62.42% illiterate. Total number of deliveries were 6775, out of which Muslims were 4267 (62.9%). Out of 6775 women, Consanguinity were found in 17.4% of the married women. Among Muslims women (17.21%), Consanguinity was higher than Hindus (0.17%). This difference between Consanguinity and Religion was statistically significant (<0.00001).

Current study found that proportion of Consanguinity was 17.4%, which is less as compared to many other studies⁵.

Due to modern era, such Consanguineous marriages may be on decline in worldwide. Muslim Community showed large numbers of Consanguineous marriage as compared to Hindu Community.

The common type of Consanguineous marriage among current study participants were between first cousins (59.4%). Such results were as similar as to the results observed in various other study⁶⁻⁸. All the cousin marriages were between cross-cousin. No parallel cousin was observed.

Kerkeni *et al*⁹ reported that the rate of Spontaneous abortion and still births were not correlated with Consanguinity. In this study, there was significance difference in the number of IUD and Abortion between Consanguineous and Non-consanguineous groups.

Jain *et al*¹⁰ showed that Consanguineous marriage had no statistical significant effect on fetal losses but that the numbers of Consanguineous marriages were higher with Congenital Abnormality. Kulkarni *et al*¹¹ observed that Congenital Anomalies and still births were significantly more in Consanguineous marriage and similar results were found in the current study (p values <0.05).

Present study observed that Congenital Abnormalities were significantly higher in couple having consanguineous marriage (p value <0.00001).

The new cases of Congenital Abnormalities were 2.8% or 28/1000 delivery, although we think it is under estimated. The rate of Consanguineous marriages is very high (63.4%) in the population¹².

Table 1: Distribution of participants as per their education, age and religion

Characteristics	Consanguineous	Non-Consanguineous	Chi square test (p value)
Education			
Illiterate	875 (12.91%)	3490 (51.51%)	81.9 (<0.00001)
Primary school	199 (2.93%)	1213 (17.90%)	
Secondary school	89 (1.31%)	514 (7.58%)	
Higher school or above	17 (0.25%)	378 (5.57%)	
Total	1180 (17.42%)	5595 (82.58%)	
Age (years)			
18 to 25	211 (3.11%)	506 (7.46%)	101.0 (<0.00001)
26 to 30	926 (13.66%)	4633 (68.38%)	
>30 years	43 (0.63%)	456 (6.73%)	
Total	1180 (17.42%)	5595 (82.58%)	
Religion			
Hindu	12 (0.17%)	2454 (36.22%)	87.3 (<0.00001)
Muslims / Christian	1168 (17.21%)	3141 (45.77%)	
Total	1180 (17.42%)	5595 (82.58%)	

Table 2: Type of consanguinity according to the religion of women

Religion	First cousin	Cross-cousin (Uncle-Niece)	Distant Relative	Total
Hindu	2 (0.16%)	3 (0.25%)	7 (0.59%)	12
Muslims	700 (59.3%)	399 (33.81%)	679 (5.67%)	1168

Table 3: Consanguinity and pregnancy outcome

Outcome	Consanguineous	Non-consanguineous	P value
Abortion			
Present	261 (22.1%)	690 (12.3%)	<0.00001 (Chi Sq test - 77.3)
Absent	919 (77.9%)	4905 (87.7%)	
Intra uterine death (IUD)			
Present	59 (5.0%)	126 (2.3%)	<0.00001 (Chi Sq test - 27.7)
Absent	1121 (95.0%)	5469 (97.7%)	
Congenital Malformation			
Present	81 (6.9%)	153 (2.7%)	<0.00001 (Chi Sq test - 49.8)
Absent	1099 (93.1%)	5442 (97.3%)	

CONCLUSION

The incidence of Congenital Abnormalities, IUD and Abortion was found higher in Consanguineous marriages. There is a need to improve people awareness regarding problems related to Consanguineous marriages. Hence current research suggests that steps must be taken to communicate people about the problem of marrying to close relative. It is better to avoid Consanguineous marriage in families due to risk of developing the Congenital Fetal Abnormalities. Educational programs among people on the negative pregnancy outcome of Consanguineous marriage need to be continued and effort should be made to reduce the exposure to associated factors.

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