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Original Research Article

Descriptive study to assess the awareness of ill effects of consanguineous marriage on pregnancy, fetus and child in antenatal mothers

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ABSTRACT

Background: Consanguinity refers to marriage or a reproductive relationship between two closely related individuals. Consanguinity may significantly impact the occurrence of autosomal recessive conditions and congenital anomalies. The degree of relatedness between two individuals defines the proportion of genes shared between them. Hence this study was planned to assess the awareness level, the association between awareness level and education, association between awareness level of and socioeconomic class.

Methods: Direct interview through a self-structured questionnaire containing questions about demographic details, awareness of participants was conducted among (n=100) antenatal mothers attending SMC-OBG, OPD using convenient sampling. Knowledge of $\geq 50\%$ is considered adequate. Data entry and analysis done using SPSS 16.0 software. Descriptive statistics were calculated for background variables like socio-demographic characteristics. p value less than 0.05 were considered to be statistically significant.

Results: 54% have an educational qualification above high school. 58% belonged to the lower socioeconomic strata. 67% had adequate knowledge. Out of the 26 people who have had consanguineous marriage, 30.8% have 2' consanguinity, 69.2% have 3' consanguineous marriage. Participants having educational status above high school have 1.7 times more knowledge than lesser educational qualification. People of higher socioeconomic status have 3.2 times more knowledge than lower socioeconomic status. Association between knowledge with socioeconomic status is significant.

Conclusions: The target population has divergent attitudes towards consanguinity, though the awareness was decently high among many of them. Strategies to disseminate information in school programmes should be taken into consideration. Couples in consanguineous relationships can be identified, provided with information about their risk and, if needed referred for genetic counselling.

Keywords: Consanguinity, Consanguineous marriage, Antenatal mothers, Awareness, Education, Socioeconomic class, Congenital anomalies

INTRODUCTION

Consanguinity, derived from the Latin consanguineus (of common blood), is defined because the kinship of two individuals characterized by a shared common ancestor(s). It implies the inheritance of genes which are

identical by descent, i.e., inherited from the common ancestor(s).¹

Consanguinity is both a social and genetic concept. Generally, it refers to marriage or a reproductive relationship between two closely related individuals. The

degree of relatedness between two individuals defines the proportion of genes shared between them.²

First degree consanguinity refers to marriage between brother and sister. Second degree consanguinity refers to marriage with maternal uncle and third degree consanguinity refers to marriage between first cousins. Consanguinity and inbreeding may significantly impact the occurrence and recurrence of autosomal-recessive conditions and congenital anomalies.³ A study among Pakistani population in Bradford, consanguinity was related to a doubling of risk for congenital abnormality.⁴

Rates of consanguinity are highly variable between and within countries, but the prevalence is highest in geographic area the center East, South Asia and among migrant communities in North America, Europe and Australia.⁵ Public understanding regarding the genetic risk of cousin marriage is usually low in countries with a high prevalence of consanguinity. At the identical time, an increasing interest expressed especially by young consanguineous couples in seeking genetic counselling was recently reported in these countries.⁶ In health care, cultural obstacles seem to exist between professionals and consanguineous couples, potentially resulting in lack of vigilance and unmet needs.⁷

Hence this study was planned to assess the awareness level of ill effects of consanguinity, to find the association between awareness level of ill effects of consanguinity and education and association between awareness level of ill effects of consanguinity and socioeconomic class in antenatal mothers attending OBG OPD of SMCH.

METHODS

Study type

Current study is a hospital based descriptive study.

Study place and duration

Saveetha medical college hospital between January 2019 to May 2019.

Selection criteria

Selection criterion for current study was all antenatal mothers willing to take part in the study.

Sample size

Assuming 50% as prevalence of good knowledge in Tamil Nadu, sample size calculation has been done using below mentioned.

$$n = (Z\alpha^2 \times P \times Q) / L^2$$

Where, n is minimum desired sample size, $Z\alpha=1.96\%$ (at 95% CI), P is prevalence of good knowledge=50%, Q is $100-50=50\%$, R is absolute error (10%)= $(1.96 \times 1.96 \times 50 \times 50) / 100 = 9604 \sim 100$, therefore the sampling size, $n=100$.

Procedure

After obtaining IRB approval and institutional ethical committee clearance, data collection was started and completed among 100 antenatal mothers attending Saveetha medical college, OBG, OPD using non probability sampling technique. A brief introduction was given to the participant regarding the purpose of the study after obtaining the informed consent. Care was also taken to ensure privacy and confidentiality of the interview. Relevant information was obtained by direct interview through a self-structured questionnaire after obtaining approval from the department. The questionnaire contains questions about the demographic details, awareness of the participants. Knowledge of 50% and more is considered adequate. Data entry and analysis was done using SPSS 16.0 for Windows software. Descriptive statistics were calculated for background variables like socio-demographic characteristics. p value less than 0.05 were considered to be statistically significant.

RESULTS

Out of the 100 participants in the study, 12% of people were less than 21 years, 74% of them were between 21-30 years and 14% of them were between 31-40 years. 54% of the participants have an educational qualification above high school. Out of the total population 58% belonged to the lower socioeconomic strata (Table 2).

Out of the total population under study it was found that 67% of people had adequate knowledge of ill effects of consanguinity on pregnancy, fetus and child. The remaining 33% have inadequate knowledge (Figure 1). 26 of 100 people have had consanguineous marriages (Figure 2). Of the 26 people who have had consanguineous marriage, 30.8% have 2' consanguinity and 69.2% have 3' consanguineous marriage (Figure 3).

Results indicated that participants having educational status above high school have 1.7 times more knowledge on ill effects of consanguinity on pregnancy fetus and child than those with lesser educational qualification. People of higher socioeconomic status have 3.2 times more knowledge on ill effects of consanguinity than people of lower socioeconomic status (Table 3). Association between knowledge of the participant with their socioeconomic status was found to be significant (Table 3). There is no significant association between the awareness levels of the participant with their educational qualification (Table 3).

Table 1: Data.

Character assessed	Frequency	Percentage
Are you aware that consanguinity causes ill effects in the fetus?		
Yes	86	86
No	14	14
Are you aware that consanguinity can cause a high risk pregnancy?		
Yes	74	74
No	26	26
Are you aware that consanguinity increases the risk of abortions during pregnancy?		
Yes	62	62
No	38	38
Are you aware that consanguinity weakens the immunity of the child born against TB and hepatitis?		
Yes	44	44
No	56	56
Are you aware that consanguinity increases risk of infant mortality?		
Yes	52	52
No	48	48
Are you aware that consanguinity increases risk of autosomal recessive disorders like thalassemia in the child?		
Yes	44	44
No	56	56
Are you aware that consanguinity can cause congenital defects like cleft lip and palate in the baby?		
Yes	58	58
No	42	42
Are you aware that consanguinity can increase risk of blood cancers like Acute lymphocytic leukemia?		
Yes	38	38
No	62	62
Are you aware that consanguinity may cause visual defects in the child?		
Yes	48	48
No	52	52
Are you aware that the risk for pregnancy and fetus increases with closer the relation you marry?		
Yes	80	80
No	20	20
Is yours a consanguineous marriage?		
Yes	26	26
No	74	74
If yes what is the degree of consanguinity?		
1'	0	0
2'	8	30.8
3'	18	69.2

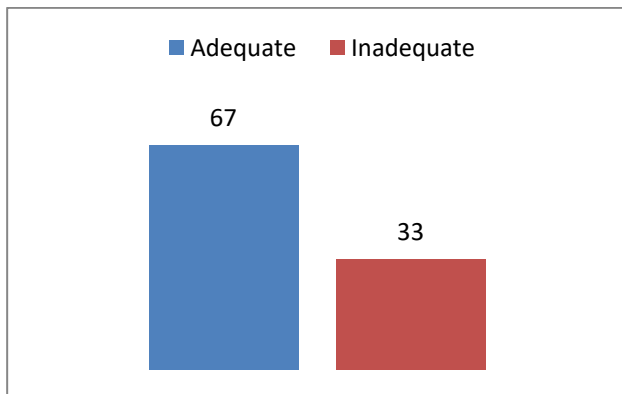


Figure 1: Distribution of population by awareness.

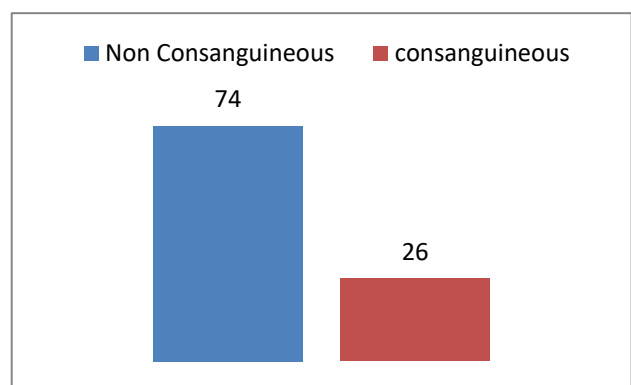


Figure 2: Distribution of population by practice.

Table 2: Demographic details of the population under study.

Characteristics	Frequency	Percentage
Age (in years)		
18-20	12	12
21-30	74	74
31-40	14	14
>40	0	0
Educational qualification		
Illiterate	6	6
Primary school	12	12
Middle school	10	10
High school	18	18
Post high school/diploma	8	8
Graduate/post graduate	32	32
Profession and honors	14	14
Socio economic class		
Upper	0	0
Upper middle	42	42
Lower middle	34	34
Upper lower	13	13
Lower	11	11

Table 3: Awareness analysis in association with education and socioeconomic status.

Demographic details	Frequency	Adequate knowledge N (%)
Education*		
Above high school	54	45 (67)
high school and below	46	22 (33)
Socioeconomic status*		
upper and upper middle	42	47 (70)
lower middle and below	58	20 (30)

*Chi square and p values for education based analysis are 2.9 and 0.08 respectively and for socioeconomic status based analysis are 12.8 and 0.0003 respectively, p<0.05 is statistically significant.

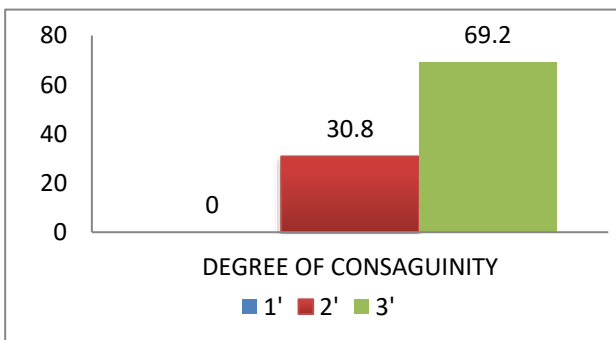


Figure 3: Awareness analysis in association with education and socioeconomic status.

DISCUSSION

Although most respondents appeared to have some awareness of the increased reproductive risk, one could question whether respondents have really understood the character of the chance, as illustrated by the dearth of data on specific defects. Limited genetic health literacy isn't unique for this group, but may be a more general phenomenon associated with the perceived difficulty of inheritance and genetics among the overall public in addition to health professionals as indicated by studies conducted by Teeuw et al.⁸

Awareness of health hazards associated with consanguineous marriages in this study was same same as those observations made by other studies where it ranged from 55.4% to 83.5%.^{9,10}

Many of the participants were conscious of the very fact that the closer the blood bonds the higher the danger of anomalies within the child born. Many of them weren't alert to increased risk of fatal conditions like leukaemia during a child born out of consanguineous marriages, though they're tuned in to general risks like decreased immunity and congenital anomalies like congenital anomaly and congenital abnormality.

In our study knowledge of ill effects of consanguinity was found more in upper socioeconomic classes. Hence it may be stated that the socioeconomic status and education do play a crucial role in awareness, perception and subsequent safe practices like genetic counselling by the people.

CONCLUSION

In conclusion, the results show that the target population has various attitudes towards consanguinity, though the knowledge was decently high among many of them. Strategies to disseminate information in educational programmes should be taken into serious consideration. However, when targeting people already in an existing consanguineous relationship, perhaps the best opportunity lies within the practice of the health care professional. Here, these couples may be identified, supplied with information about their risk and, if needed referred for genetic counselling.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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