

A Study on Gender Preference and Awareness Regarding Prenatal Sex Determination among Antenatal Women in a Rural Area of Darjeeling District, West Bengal, India

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ABSTRACT

Introduction: Sex ratio is one of the major indicators to find the gender preferences in the community. Change in sex ratio reflects underlying socioeconomic, cultural patterns of a society.

Aim: The present study was conducted with the aim to find out the knowledge of antenatal women regarding the prenatal sex determination and the Pre Natal Diagnostic Techniques (PNDT) Act in a rural area along with assessing the gender preference in family among the study population.

Materials and Methods: A community based, descriptive, cross-sectional study was undertaken in the villages of Matigara Block of Darjeeling district of West Bengal, which serves as a field practice area of North Bengal Medical College & Hospital for two months. A total of 116 pregnant women were included and a pre designed pre tested questionnaire was used to collect the socio demographic details. The data were analysed by SPSS 20.0 software for proportions with chi-square tests.

Results: Knowledge of sex determination and the PNDT Act were found to be 44.82% and 18.10% among antenatal women. Knowledge regarding assessment of gender preference showed 52.58% expect a boy in this pregnancy. It was found that the determinants for gender preference were caste, sex of the last pregnancy and current gender composition. It was found that the determinants for knowledge of sex determination are age of the mother and the gravida of the mother. It was also found that the factor for the knowledge regarding the PNDT Act is age of the mother. These associations are statistically significant.

Conclusion: This situation calls for a strategy which includes community based awareness campaigns, women employment, education, and empowerment and by ensuring effective implementation of PNDT Act by the government so that families find it difficult to undertake sex determination.

Keywords: Pre natal diagnostic techniques act, Sex ratio, Women employment

INTRODUCTION

Sex preference especially the preference for sons are increasing in our country since ages. This phenomenon has led to sex selective abortion which indirectly inflates sex ratio and lowers fertility.

Over the past decade, gender equality has been explicitly recognized as a key not only to the health of nations, but also to their social and economic development [1]. Its importance is further emphasized by the fact that “promotion of gender equality and women’s empowerment” finds itself in the list of Millennium Development Goals (MDG) [2].

However, it still remains a farfetched dream in many societies and cultures across the globe.

Norms in such societies and cultures somehow make males more socially and economically valuable than females. So, the son preference prevails in India than the daughters.

Nowadays by means of non invasive techniques like ultrasonography to which people living in the rural areas, even quacks have access to the sex of the fetus is determined and after that the family decides to go for an abortion or not. The problem is getting worse as advancement is more in the field of detecting sex as well as termination techniques. It is the right of women to decide on number and spacing of children and for that they should have access to information and be able to exercise the right [3].

Therefore, considering this background, a community based study is conducted among the antenatal women in the rural areas of

Darjeeling to find out their awareness regarding sex determination and female feticide and their gender preferences.

So the study aimed to find out the knowledge of antenatal women regarding the prenatal sex determination and Pre Natal Diagnostic Techniques Act in the rural area of Darjeeling and to assess the gender preferences in their families.

MATERIALS AND METHODS

A community based, descriptive, cross-sectional study was done in three villages of Matigara Block of Darjeeling district of West Bengal, India, which serves as a field practice area of North Bengal Medical College and Hospital on August 2015 – September 2015.

Pregnant married women within the reproductive age group (15-49 years i.e., the eligibility criteria) were the study population. The sample size was calculated with the assumption that 50% of the ever married women will have preference for the male child and the final sample size was 116. As no study of gender preferences was found in this region, 50% prevalence was considered. Using the formula $3.84 \times 50 \times 50$ by 10×10 which comes to 96 and considering 10% non-response rate comes to 116.

A sampling frame of all the antenatal women residing in the villages of Matigara Block of Darjeeling district was made. A systematic random sampling technique was used to select the required number of participants.

A pre designed pre tested semi structured questionnaire was used for data collection. The questionnaire was pilot tested over a few women and it was finalized. These women were excluded from the final sample size. Other records regarding birth and pregnancy history were also obtained and reviewed. Socioeconomic status of the family was calculated using modified BG Prasad Classification [4].

Data was collected by house to house survey by interviewing the antenatal women with the help of the tool in the presence of a female attendant after obtaining prior consent. Houses were selected with the help of health workers from a list of pregnant mothers by systematic random sampling. If the mother was absent during the first visit, subsequent three visits were made to collect the data.

The data was entered in MS Excel after cross checking and cleaning, and analysed using SPSS 20 (IL Chicago). The Chi-square test for proportions was used as the test of significance where $p < 0.05$ was considered significant.

Ethical consideration: Ethical clearance from the Institutional ethics committee of North Bengal Medical College was obtained. A consent form was translated in the local language for the interview. Strict confidentiality in regards to the anonymity and privacy of the patients are maintained.

RESULTS

A total of 116 antenatal women were interviewed during the study period. The mean age of the women was 22.97 years with a standard deviation of ± 4.1 . It was found that there were two (1.72%) women below 18 years of age who were pregnant at the time of the interview, 78 (67.24%) women were within the age group 18 years to 24 years and 30 (25.86%) women were within the age group 25 years to 30 years. Only six (5.17%) women who were interviewed were above the age of 30.

Among them, 97 (83.62%) antenatal women were Hindu by religion and 19 (16.37%) Muslim women were there. Majority belonged from a nuclear family (60.34%) and the rest (39.65%) belonged to a joint family.

Only 13.79% of the women were illiterate or just literate while when enquired about the number of classes passed, 4.31% had completed their primary (class 1-4) level of education and 29.31% women had completed their secondary (class 5-8) level of education and majority i.e. 52.58% had already passed class 9 or above.

Majority of the women were homemakers about 93.10% while the rest 6.90% were unskilled workers. Their socioeconomic status was determined by the modified Prasad's Scale (Dr. B.G. Prasad). It was found that 6.89% of the families lay on socioeconomic status I, 21.55% of the families lay on socioeconomic status II, 20.69% of the families lay on socioeconomic status III, 33.62% of the families lay on socioeconomic status IV, 17.24% of the families lay on socioeconomic status V.

[Table/Fig-1] depicts Obstetric profile of the antenatal women.

[Table/Fig-2] shows the assessment of gender preference among antenatal mothers and about the sex of the last pregnancy.

It is seen that the preference for boys is the highest in the scheduled caste community followed by the other backward class community.

Demographic & Obstetric Profile	Classification	Frequency (%)
Gravida	Primipara	58 (50.0)
	Multipara	58 (50.0)
Current Gender Composition	No children	71 (61.21)
	1 Son 0 Daughters	9 (7.76)
	2 sons 0 daughters	3 (2.59)
	0 sons 1 daughter	24 (20.69)
	0 son 2 daughters	8 (6.89)
	1 sons 3 daughters	1 (0.86)
Total		116 (100)

[Table/Fig-1]: Demographic & Obstetric profile of the antenatal women.

Also, the preference for girls was the lowest in the general category followed by the scheduled caste community. This association was found to be statistically significant with a p -value of < 0.001 [Table/Fig-3].

Knowledge of sex determination varied with the age of the mother and the gravida of the mother and these associations are statistically significant was found in [Table/Fig-4].

Gender Preference	Classification	Frequency (%)
Gender Preference in current Pregnancy	Boy	61 (52.58)
	Girl	17 (14.65)
	No Preference	38 (32.75)
Sex of the last pregnancy	Boy	12 (10.34)
	Girl	33 (28.44)
	None	71 (61.20)
Ideal number of Children	1	19 (16.37)
	2	84 (72.41)
	3	12 (10.34)
	4	1 (0.86)
Preferred Gender Composition	1 son 1 daughter	75 (64.65)
	2 son 1 daughter	3 (2.58)
	1 son 2 daughter	6 (5.17)
	1 son 3 daughter	1 (0.86)
	1 son 0 daughter	7 (6.03)
	2 son 0 daughter	1 (0.86)
	0 son 1 daughter	3 (2.58)
	No Preference	20 (17.24)
	Total	

[Table/Fig-2]: Gender preference among the antenatal mothers.

Sociodemographic and obstetric details	Gender Preference			χ^2 df p-value
	Boy Preference (%)	Girl Preference (%)	No Preference (%)	
Religion				$\chi^2 = 5.509$ df = 2 p = 0.064
Hindu	52 (53.6)	11 (11.3)	34 (35.1)	
Muslim	9 (47.4)	6 (31.6)	4 (21.1)	
Caste				$\chi^2 = 22.962$ df = 6 p = 0.001
General	14 (43.8)	1 (3.1)	17 (53.1)	
SC	35 (66)	7 (13.2)	11 (20.8)	
ST	1 (10)	3 (30)	6 (60)	
Others/OBC	11 (52.4)	6 (28.6)	4 (19)	
Educational status				$\chi^2 = 4.633$ df = 6 p = 0.592
JL+IL*	8 (50)	2 (12.5)	6 (37.5)	
Class 1-4	3 (60)	0 (0)	2 (40)	
Class 5-8	22 (64.7)	5 (14.7)	7 (20.6)	
Class ≥ 9	28 (45.9)	10 (16.4)	23 (37.7)	
SES				$\chi^2 = 6.817$ df = 2 p = 0.033
Upper	23 (40.3)	10 (17.5)	24 (42.1)	
Lower	38 (64.4)	7 (11.8)	14 (23.7)	
Age of mother				$\chi^2 = 3.086$ df = 6 p = 0.798
<18	2 (100)	0 (0)	0 (0)	
18-24	43 (55.1)	11 (14.1)	24 (30.8)	
25-30	13 (43.3)	5 (16.7)	12 (40)	
>30	3 (50)	1 (16.7)	2 (33.3)	
Gravida				$\chi^2 = 4.018$ df = 2 p = 0.134
Primipara	26 (44.8)	8 (13.8)	24 (41.4)	
Multipara	35 (60.3)	9 (15.5)	14 (24.1)	
Sex of the last pregnancy				$\chi^2 = 42.256$ df = 4 p < 0.001
Not pregnant	34 (47.9)	9 (12.7)	28 (39.4)	
Boy	0 (0)	8 (66.7)	4 (33.3)	
Girl	27 (81.8)	0 (0)	6 (18.2)	
Gender Composition				$\chi^2 = 48.753$ df = 10 p < 0.001
No children				
1 Son 0 Daughters	34 (47.9)	9 (12.7)	28 (39.4)	
2 sons 0 daughters	0 (0)	5 (55.6)	4 (44.4)	
0 sons 1 daughter	0 (0)	3 (100)	0 (0)	
0 sons 2 daughters	20 (87)	0 (0)	3 (13)	
0 son 2 daughters	5 (62.5)	0 (0)	3 (37.5)	
0 sons 3 daughters	2 (100)	0 (0)	0 (0)	

[Table/Fig-3]: Association of socio-demographic and obstetric profile with gender preference among pregnant women (n=116).

*JL=Just Literate IL= Illiterate

DISCUSSION

India is facing a demographic nightmare in terms of gender imbalance where skewed sex ratio is an issue of major concern and has long term social and demographic consequences.

A community based, descriptive, cross-sectional study was undertaken in the villages of Matigara Block of Darjeeling district of West Bengal, which serves as a field practice area of North Bengal Medical College and Hospital for two months among 116 antenatal women.

Awareness regarding the fact that pre natal sex determination can be done, was present in 44.82% of the antenatal mothers which is different from a study done in Mumbai which shows that 73.5% of the women knew about sex determination [5]. This can be considered a boon rather than a bane. A study by Nithin Kumar in a tertiary medical college in southern India found 91.7% subjects knew about prenatal sex determination [6].

However, awareness regarding the PNDT Act was present in only 18.10% of the mothers. The same study in Mumbai had similar findings in this aspect where 34.3% knew about the PNDT Act [5]. While in Kolkata, a study shows that 42.85% women were aware regarding the PNDT Act [7] which shows that the awareness regarding the PNDT Act is slightly lower in Darjeeling which can be attributed to its far removed location together with its hilly habitat as a result of which scarcely any awareness campaigns can be sighted. Srivastav et al., in U.P. conducted a study on awareness and gender discrimination found 80% of the women knowing about prenatal sex determination and 67% were unaware about PNDT Act. A total of 88.01% of women thought male child is necessary for completing their family [8]. A study in tertiary care centers in Visakhapatnam city done by Kumar S et al., revealed 58% of the women knew about Preconception and Prenatal Diagnostic Techniques (PCPNDT). Awareness was high among literates than illiterates in the said study [9].

In this study, gender preference was found for male child which was 52.58%, for female child to be 14.65% and no preference in 32.75% cases. This varied in the study done in Kolkata where only 25.71% preferred male, 5.71% preferred female and the majority (68.57%) had no preference [7]. A study in Meerut, UP shows that about two thirds (66.0%) of the pregnant women did not show

any gender preference, followed by male preference (22.2%) and female preference (11.8%) [10]. Study conducted in Beed, Maharashtra showed the male preference to be 35% [11]. But a study in Chandigarh shows similar findings with male preference in 56% women had son preference as shown in study in Jamnagar where 58.5% women gave preference to male child [12,13]. But the preference towards male child was found to be the highest in Ahmedabad in which a study showed a male preference of 87.53% [14]. A study in UP by Srivastav Shalini et al., found preference for son to be 93.25% among illiterates [8].

The sociodemographic determinants for gender preference were also studied. The gender inequality appeared to be higher among the scheduled caste community. It was found in this study that the preference for boys is the highest in the scheduled caste community (66%) followed by the other backward class community (52.4%). Also, the preference for girls was the lowest in the general category at 3.1% followed by the scheduled caste community at 13.2%. Such gender prejudice is found to be much lower among the scheduled tribes community. This is in contrast to the finding regarding scheduled tribes in a study in Ahmedabad [14]. There seems to be a caste based gender bias which is causing such gender preference during pregnancy limited to particular communities and the association was found to be statistically significant ($p = 0.001$). A study by Nithin Kumar in a tertiary medical college in southern India found a balanced gender preference [15]. A study in tertiary care centres in Visakhapatnam city done by Kumar S et al., revealed 27% of the women preferred male in their present pregnancy [9].

Also the association between gender preference and the sex of the last child in the current pregnancy was found to be statistically significant. Similar findings were noted in a study in Beed, Maharashtra [11].

The current gender composition of children also seemed to be a statistically significant determinant for gender preference because those with 1 son and 2 sons and no daughters preferred a girl child 55.6% and 100% respectively. And those with no sons but 1, 2, 3 daughters respectively preferred sons by 87%, 62.5%, 100%. A study in Jamnagar, Gujarat showed similar findings [12]. Families seem to be in the favour of accomplishing a state of equilibrium.

Sociodemographic and obstetric characteristics	Knowledge regarding sex determination		χ^2 value df value p-value	Knowledge regarding PNDT Act		χ^2 value df value p-value
	Yes (%)	No (%)		Yes (%)	No (%)	
Age of mother						
<18	0 (0)	2 (100)	$\chi^2 = 8.200$ df = 3 p = 0.042	0 (0)	2 (100)	$\chi^2 = 12.008$ df = 3 p = 0.007
18-24	30 (38.5)	48 (61.5)		10 (12.8)	68 (87.2)	
25-30	17 (56.7)	13 (43.3)		7 (23.3)	23 (76.7)	
>30	5 (83.3)	1 (16.7)		4 (66.7)	2 (33.3)	
Religion			$\chi^2 = .586$ df = 1 p = 0.444			$\chi^2 = .082$ df = 1 p = 0.775
Hindu	45 (46.4)	52 (53.6)		18 (18.6)	79 (81.4)	
Muslim	7 (36.8)	12 (63.2)		3 (15.8)	16 (84.2)	
Educational status			$\chi^2 = 6.921$ df = 3 p = 0.074			$\chi^2 = 4.816$ df = 3 p = 0.186
JL+IL*	8 (50)	8 (50)		3 (18.8)	13 (81.3)	
Class 1-4	0 (0)	5 (100)		0 (0)	5 (100)	
Class 5-8	12 (35.3)	22 (64.7)		3 (8.8)	31 (91.2)	
Class >=9	32 (52.5)	29 (47.5)		15 (24.6)	46 (75.4)	
Occupation of Mother			$\chi^2 = 1.085$ df = 1 p = 0.298			$\chi^2 = .276$ df = 1 p = 0.600
Homemaker	47 (43.5)	61 (56.5)		19 (17.6)	89 (82.4)	
working	5 (62.5)	3 (37.5)		2 (25)	6 (75)	
SES			$\chi^2 = 0.112$ df = 1 p = 0.737			$\chi^2 = 0.301$ df = 1 p = 0.582
Upper	26 (46.4)	30 (54.6)		9 (16.1)	47 (83.1)	
Lower	26 (43.3)	34 (56.7)		12 (20.0)	48 (80.0)	
Gravida			$\chi^2 = 6.832$ df = 1 p = 0.009			$\chi^2 = 2.849$ df = 1 p = 0.091
Primipara	19 (32.8)	39 (67.2)		7 (12.1)	51 (87.9)	
Multipara	33 (56.9)	25 (43.1)		14 (24.1)	44 (75.9)	

[Table/Fig-4]: Association of socio-demographic and obstetric profile with the knowledge about sex determination and PNDT Act among pregnant women (n=116).

*JL - Just Literate; IL - Illiterate; SES - Socioeconomic status; PNDT - Prenatal Diagnostic Technique

Knowledge of sex determination was seen to increase with age and gravida. In this study, among the mothers below 18 years and 18-24 years, had no knowledge and 38.5% knowledge regarding sex determination. But as their age increased at 25-30 years and more than 30 years they had 56.7% and 83.3% knowledge regarding sex determination. Similar findings were noted in a study in Mumbai [5]. It was also observed knowledge regarding sex determination in primipara was only 32.8% while in multipara, it was 56.9%. Both were found to be statistically significant determinants [Table/Fig-5] [5-7,10,12-14].

Awareness regarding the PNDT Act was present in only 18.10% of the mothers. But awareness seemed to be enriched as the mothers got older in this study. Mothers below 18 years, 18-24 years, 25-30 years and more than 30 years had among them 0%, 12.8%, 23.3%, 66.7% knowledge regarding the PNDT Act. This association was found to be statistically significant.

Thus the interrelation is distinct, rather than academic learning which plays a negligible role in West Bengal regarding educating a person towards gender inequality, gender bias, a number of communal factors and social correspondence plays a vital role in expanding the awareness of the community as well as the individual.

Authors	Place	Topic	Prevalence
Shidhaye PR [5],	Mumbai	Knowledge about sex determination	73.5%
Shidhaye PR [5]	Mumbai	Awareness of PNDT	34.3%
Nithin Kumar [6]	Southern India	Prenatal sex determination	91.7%
Sarathi Mitra Partha [7]	Kolkata		42.8%
Sarathi Mitra Partha [7]	Kolkata	Gender preference for male child	25.7%
Kansal R [10]	Meerut		22.2%
Chavada M [14]	Ahmedabad		87.5%
Puri S [12]	Chandigarh		56.0%
Vadera BN [13],	Jamnagar		58.5%
Present study	Darjeeling district, West Bengal	Gender preference & awareness about PNDT	52.58%
			18.10%

[Table/Fig-5]: Various studies regarding gender preference, knowledge and awareness.

LIMITATION

The study was conducted in small population so the findings cannot be generalized in other populations. Moreover, the study area is near to a medical college so it can influence the results. As the study deals with a sensitive issue, it might not reflect the original scenario.

CONCLUSION

The present study has thrown a light into the recent scenario of prenatal sex determination and a strong desire for male child among antenatal women from rural areas of Darjeeling district of West Bengal. This calls for an effective advocacy by the government for enforcement of PNDT Act to curb female feticide.

The present study found the awareness regarding PNDT act to be less but the son preference is more so there should be some community based awareness programmes to bring about change in the behavior among women and their spouses.

RECOMMENDATION

After this study, it can be interpreted that stern implementation of the Pre Conception and Pre Natal Diagnostic Techniques Act is necessary to curb the acts of sex determination in the society. Community based awareness campaigns should be organized to alter the attitude towards gender preference in the society.

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