

Awareness and practice of sex determination among married women of Ahmedabad district: a cross-sectional study

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Abstract

Background: Declining sex ratio is an issue of grave concern in India. A preference for boys cuts across caste and class lines and results in discrimination against girls even before they are born. Long before medical abortion became available, unwanted girls were killed after birth or not given enough food and medicine to survive. But modern technology has changed that. As a consequence, infanticide has given way to feticide. Sex-determination tests became big business shortly after their introduction in India in the 1970s.

Objective: To study the awareness and practice of women regarding sex determination.

Materials and Methods: A cross-sectional study was done on 415 married women of Ahmedabad district. A pre-designed and pre-tested proforma was used to collect data by house-to-house visits. Informed consent was taken from each respondent before the initiation of survey. Data analysis was done using Microsoft Excel and Epi-Info.

Results: In the present study, only 11.85% of the women of rural area were aware about sex determination as compared to urban area in which it was 45.59%. Out of those who knew about sex determination most of them knew that it was done in private hospitals.

Conclusion: Majority of women in urban area were aware about sex determination and nearly half among them had undergone sex determination during any of their pregnancy. Only few women in rural area were aware about sex determination and all women among them had undergone sex determination during any of their pregnancy.

KEY WORDS: Awareness, practice, sex determination, married women

Introduction

Sex ratio in India is defined as “the number of females per 1000 males.”^[1] Internationally, the sex ratio is defined

as the number of males per 1000 females.^[2] It is an index of male–female (im)balance in a population. One of the basic demographic characteristics of population is the sex composition. The sex composition of population is affected by the differentials in mortality conditions of males and females, sex selective migration, and sex ratio at birth.^[1]

The sex ratio in the Indian population has been falling consistently. From 972 women per 1000 men in 1901, the sex ratio fell to 940 women per 1000 men in 2011 (India Census 2011). This is a cause for concern as it is a telling indicator of the health and social status of women in society, which has a direct and immediate bearing on other key indicators such as child mortality.^[3]

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Declining sex ratio is an issue of grave concern in India. A preference for boys cuts across caste and class lines and results in discrimination against girls even before they are born.^[4] The United Nations Children's fund states that systematic gender discrimination has resulted in up to 50 million girls and women "going missing from India's population".^[5]

The social, cultural, and religious fiber of India is predominantly patriarchal contributing extensively to the secondary status to women. The patrilineal social structure based on the foundation that the family line runs through a male makes men a precious commodity that needs to be protected and given a special status. Another important pillar of the patriarchal structure is marriage wherein women are given a subordinate status having no say in the running of their life or any control over their body or bodily integrity. Marriage is also considered as a process whereby the burden of the father is passed on to the husband for a very high price. The dowry or groom price is so staggeringly high irrespective of the class structure that generations may have to toil to repay the debts incurred during marriage. All of this has contributed to a low social status for women in the society to such an extent that even the birth of a girl child in a family is sought to be avoided.^[6]

Various methods were found to eliminate the girl child after her birth such as starving her, crushing her under the bed, or giving her poison. Pertinently, the responsibility for killing the child was fixed on the woman/mother as she was considered responsible for bringing the girl child into existence. An examination of the causes for eliminating the girl child indicates that the reasons are similar and different depending upon the geographical location in which female infanticide is practiced. Exorbitant dowry demand is one of the main reasons for female infanticide. Some of the other reasons are the belief that it is only the son who can perform the last rites, lineage and inheritance runs through the male line, sons will look after parents in old age, men are the bread winners, etc. The strong male preference and consequent elimination of the female child has continued to increase rather than decline with the spread of education. This has been helped by the techniques of elimination of the girl child becoming more scientific with the progress in science and technology. Female infanticide now in most places has been replaced by female feticide and in fact sadly, female feticide has made inroads into areas where traditionally there were no instances of female infanticide. The moral guilt attached to elimination of the girl child after she is born is not felt equally if the child is eliminated while still in the womb.^[6]

With the development of bio-technology,^[7] there are some ways to decide the gender before pregnancy: selective implantation of embryos of desired sex by embryo-sorting technique (sperm that is sorted by sex and then used in artificial insemination or in-vitro fertilization – IVF – procedures) and PGD^[8] (pre-implantation genetic diagnosis) (in which IVF embryos are genetically tested to determine sex and then implanted).

During pregnancy, several medical technologies can assist sex determination such as chorionic villus sampling,

amniocentesis, and ultra sonography. Following the sex determination, the well-known sex-based selective abortion can play its role. This stage raises high risks not only for female fetus but also for mother's lives due to unsafe abortion.^[9]

After the sex is determined, the family decides whether to abort the child or not. Sex-selective abortion, also known as gendercide or female feticide, is the practice of terminating a pregnancy based upon the predicted sex of the baby. The selective abortion of female fetuses is most common in areas where cultural norms value male children over female children. It worsens the sex ratio in India, affecting gender issues related to sex compositions of Indian households and has contributed to a widening imbalance in the child sex ratio.^[10]

The Pre-conception and Pre-natal Diagnostic Techniques Act, 1994 (PC PNDT Act) (Prohibition of Sex Selection act)^[11] provides for the prohibition of sex selection, before or after conception, and for regulation of pre-natal diagnostic techniques for the purposes of detecting genetic abnormalities or metabolic disorders or chromosomal abnormalities or certain congenital malformations or sex-linked disorders and for the prevention of their misuse for sex determination leading to female feticide; and for matters connected therewith or incidental thereto.

Objectives

1. To study the awareness of women regarding sex-determination techniques, place for it.
2. To study the practice of sex-determination in study population.

Materials and Methods

Study design: cross-sectional study.

Study period: March 2013 to April 2014.

Study area: Study was conducted both in urban and rural areas of Ahmedabad district. In urban area, study was conducted in field practice area of Girdharnagar UHTC, which was randomly selected. Rural area of Ahmedabad has 10 blocks. Out of which, Sanand block was selected randomly. Study was conducted in Sanathal PHC area, which was randomly selected. Simple random sampling method was used for random selection.

Sample size: In the pilot study, awareness regarding sex determination was found to be 52%. Considering this prevalence, sample size was calculated with the help of the following formula:

$$\text{Sample size} = \frac{4PQ}{L^2}$$

where L is allowable error 10%.

Calculated sample size was 370, but for the convenience of study, the sample size was decided to be 415.

Study method: A pre-designed and pre-tested proforma was used to collect baseline data by house-to-house visits. Informed consent was taken from each respondent before the initiation of survey. During the interview, data were collected regarding age of women, religion, education, occupation, legal age of marriage, awareness about sex determination—its technique, place, source of information, PC-PNDT Act, and sex selective drugs.

Data analysis: Data entry was done on Microsoft Excel and data were analyzed using Epi-Info software version 7.

Results

This study was conducted in both urban and rural areas of Ahmedabad district. In urban area, 204 women were interviewed and in rural area 211 women were interviewed after taking verbal consent before initiation of study. So, all 415 women were interviewed. The maximum number of women was in the age group of 30–34 years in urban (25%) and 25–29 years in rural (42.65%) areas. There is no statistical significant difference in the mean age of studied women of urban area (35.94 ± 9.05 years) and rural area (29.47 ± 5.71 years). ($Z = 1.64, P > 0.05$). In urban area, the percentage of respondents belonged to Hindu religion was 89.7%, while in rural area it was 100%. In urban area, 72.06% women were residing in nuclear family, while in rural area, it was 93.37%. In urban area, 50% respondents were from OPEN category, while in rural area, 63.03% respondents were from ST category [Table 1].

Table 1: Socio-demographic characteristics of the women in urban and rural area

Characteristics	Urban (N = 204)	Rural (N = 211)
Age in years		
20–24	18 (8.82%)	29 (13.75%)
25–29	30 (14.71%)	90 (42.65%)
30–34	51 (25%)	42 (19.90%)
35–39	30 (14.71%)	21 (9.95%)
40–44	30 (14.71%)	29 (13.75%)
45–49	18 (8.82%)	0 (0%)
50–54	24 (11.76%)	0 (0%)
≥55	3 (1.47%)	0 (0%)
Religion		
Hindu	183 (89.70%)	211 (100%)
Jain	3 (1.47%)	0 (0%)
Muslim	18 (8.82%)	0 (0%)
Type of family		
Joint	57 (27.94%)	14 (6.63%)
Nuclear	147 (72.06%)	197 (93.37%)
Caste		
OPEN	102 (50%)	36 (17.06%)
OBC	69 (33.82%)	42 (19.91%)
SC	21 (10.30%)	0 (0%)
ST	12 (5.88%)	133 (63.03%)

This study reveals that in urban area, 36.76% women belonged to socio-economic class IV, while in rural area, 56.87% women belonged to Class III (modified Prasad classification). Only 8.82% of the women were educated up to graduate level in the urban area. In the rural area, 41.24% of the women were illiterate. Distribution according to occupation shows that majority of women were house wife both in the urban (88.24%) and rural areas (60.19%) [Table 2].

Table 3 shows that in the urban area, 105 (51.47%) women and 114 (55.88%) women knew correctly the legal age of marriage for male and female, respectively. In rural area, only 27 (12.79%) knew correct legal age of marriage for male and 52 (24.64%) knew correct legal age of marriage for female.

Table 4 shows that only 11.85% of the women of rural area were aware about sex determination as compared to urban area in which it was 45.59%, and it was statistically significant.

All the women who knew about sex determination in both urban ($N = 93$) and rural areas ($N = 25$) also knew about technique used such as sonography. Out of those who knew about

Table 2: Distribution of women as per socio-economic class, education, and occupation

Characteristics	Urban (N = 204)	Rural (N = 211)
Socio-economic class		
Class I	39 (19.12%)	0 (0%)
Class II	15 (7.35%)	24 (11.38%)
Class III	42 (20.59%)	120 (56.87%)
Class IV	75 (36.76%)	67 (31.75%)
Class V	33 (16.18%)	0 (0%)
Education		
Illiterate	39 (19.12%)	87 (41.24%)
Primary	123 (60.30%)	77 (36.49%)
Secondary	6 (2.94%)	38 (18.01%)
Higher secondary	18 (8.82%)	5 (2.37%)
Graduate	18 (8.82%)	4 (1.89%)
Occupation		
Farmer	0 (0%)	75 (35.55%)
Government job	6 (2.94%)	0 (0%)
Private job	0 (0%)	4 (1.89%)
Housewife	180 (88.24%)	127 (60.19%)
Labourer	12 (5.88%)	5 (2.37%)
Others	6 (2.94%)	0 (0%)

Table 3: Awareness regarding legal age of marriage

Age in years	Urban (N = 204)	Rural (N = 211)
Legal age of marriage for male		
18	0 (0%)	5 (2.36%)
20	24 (11.76%)	20 (9.47%)
21	105 (51.47%)	27 (12.79%)
Legal age of marriage for female		
16	12 (5.88%)	0 (0%)
17	3 (1.47%)	0 (0%)
18	114 (55.88%)	52 (24.64%)

Table 4: Awareness of women about sex determination

	Urban (N = 204)	Rural (N = 211)
Yes	93 (45.59%)	25 (11.85%)
No	111 (54.41%)	186 (88.15%)

$\chi^2 = 58.02$, P -value < 0.001.

Table 5: Distribution of women regarding awareness and practice of sex determination

	Urban (N = 93)	Rural (N = 25)
Technique used for sex determination		
Sonography	93 (100%)	25 (100%)
Places where sex determination done		
Private hospital	90 (96.77%)	25 (100%)
Don't know	3 (3.23%)	0 (0%)
Source of information about sex determination		
Family members	18 (19.36%)	18 (72%)
Neighbors	42 (45.16%)	4 (16%)
Friends	33 (35.48%)	3 (12%)
	$\chi^2 = 25.75$, P -value < 0.001.	
Ever undergone for sex determination		
Yes	39 (41.93%)	25 (100%)
No	54 (58.07%)	0 (0%)

Table 6: Awareness regarding PC-PNDT Act and sex selective drugs

	Urban (N = 204)	Rural (N = 211)	Total (N = 415)
Do you know anything about PNDT Act?			
Yes	63 (30.88%)	0 (0%)	63 (15.18%)
No	141 (69.12%)	211 (100%)	352 (84.82%)
Do you know anything about sex selective drugs?			
Yes	24 (11.76%)	0 (0%)	24 (5.78%)
No	180 (88.24%)	211 (100%)	391 (94.22%)

sex determination, most of them knew that it was done in private hospital. Most common source of information about sex determination was family members (72%) in rural area and neighbors (45.16%) in urban area. In rural area, who knew about sex determination, all of them had done sex determination in any of their pregnancy and in urban area only 41.93% had gone for sex determination [Table 5].

Table 6 shows that no women in rural area knew about PC-PNDT act and sex selective drugs, while in urban area 30.88% knew about PC-PNDT Act and 11.76% knew about sex selective drugs.

Discussion

A total of 415 married women of urban and rural area of Ahmedabad were studied. The women were compared in relation to various socio-demographic characteristics such as age, education, occupation, religion, and social class. In the

urban area, majority of the women were in the age group of 30–34 years, while in rural area, half of the women were in the age group of 20–29 years. Only 11.85% of the women of rural area were aware about sex determination as compared to urban area in which it was 45.59% and majority among women knew the technique and place for it.

In this study, 51.47% women in urban and 12.79% women in rural area knew about legal age of marriage. Similarly in the study by Srivastav et al.,^[5] 31.23% were aware about legal age of marriage. About 45.59% and 11.85% of the respondents in urban and rural areas respectively were aware about sex determination practices, while in the similar study done by Srivastav et al.,^[5] it was 80.13% and by Khandelwal et al.,^[11] it was 79%. In this study, 100% respondent who knew about sex determination also knew the technique used for it as sonography, while in Srivastav et al. study^[5] it was 70.66% and in Khandelwal et al.,^[11] it was 47.5%. Awareness regarding PC-PNDT act was 30.88% in urban and 0% in rural area, while in Srivastav study^[5] it was 32.49%.

In this study, strength was that majority of the women had given consent for the study, but the limitation of the study was that women who had given consent were only studied. The finding of the study purely reflects the response given by the women. Actual finding may be different as the respondents may have hidden the information.

Conclusion

Socio-demographic characteristics show that in urban area majority of the respondents were Hindu, house wife, educated, and belonging to nuclear family. While in rural area, majority of the respondents were Hindu, housewife, illiterate, and belonging to nuclear family.

Awareness about legal age of marriage was more in urban respondents. Majority of women in urban area were aware about sex-determination techniques such as sonography and also places where they are carried out and nearly half among them had undergone sex determination during any of their pregnancy. Only few women in rural area were aware about sex-determination techniques such as sonography and also places where they are carried out and all women among them had undergone sex determination during any of their pregnancy. Most common source of information about sex determination and techniques were neighbors and family members in urban and rural area, respectively. Awareness regarding PC-PNDT act was less in respondents.

Results of the study highlight the need for creating awareness of PC-PNDT Act to curb female feticide and strict control over clinics that offer to identify the sex of the fetus, stronger check on abortion performed for wrong reasons, and disciplining errant doctors with unpardonable exemplary punishments.

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