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Research Article

Knowledge, awareness and attitude about prenatal sex determination, pre-conception and pre-natal diagnostic techniques act among pregnant women in the South Indian union territory of Puducherry

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ABSTRACT

Background: This study was conducted among pregnant women in the Union territory Puducherry, South India with the aim of studying their Knowledge, awareness and attitude regarding prenatal sex determination and Pre-Natal Diagnostic Techniques Act (PCPNDT) Act.

Methods: The present cross-sectional study was conducted on 160 consenting pregnant women selected using convenience sampling, attending the antenatal Out Patient Department of our hospital. The data was collected using a pre-tested semi-structured questionnaire consisting of 4 sections, Section 1: Participants general information, section 2: Awareness about pre-natal sex determination, Section 3: Awareness on the PCPNDT Act, Section 4: Attitude towards prenatal sex determination.

Results: Out of a total 160 pregnant women who filled the questionnaire, 128 participants returned completed questionnaire which was used for analysis. Media was the main source of information (66.4%) followed by friends and relatives (22.66%) and health care personnel (10.94%). Ultrasonography, as a method of sex determination was known to 87.5% of pregnant women. Sixty eight percentage of participants were aware of a government act for prevention of sex determination and 84.3% knew that prenatal sex determination is a punishable offence. Seventy one percent participants knew both patients and the doctors are punishable if involved. Eight one percentage participants were willing to educate people about PCPNDT Act.

Conclusions: Though higher proportion of our study participants knew about the prenatal sex determination, they were not fully aware of the punishment for prenatal sex determination. Pregnant women have to be educated about the penalization for violation of the Act and ethical issues related with female sex selective abortion and feticide. Similar studies in other settings on a larger sample size should be done for in depth understanding of this issue.

Keywords: PCPNDT Act, Pre-natal, Sex determination, Pregnancy, Women

INTRODUCTION

Sex ratio is an important social indicator of prevailing equity between males and females in the society. It is defined as the number of females per thousand males.¹ Changes in sex ratio reflect underlying socioeconomic and cultural patterns. Sex ratio in India has been in the decline for the past few decades.² It has been estimated at 933 during the census conducted in 2011.³ Various

factors that have been attributed to the decline in sex-ratio include sex differentials in mortality, sex selective migration and sex ratio at birth.⁴

Birth of a female child in India, is perceived by many as a curse with economic and social liability.² Usage of modern ultrasound for pre-natal sex determination has led to female sex selective abortions contributing to the decline in female sex ratio. The business of pre-natal sex

selection and abortions in India has an estimated turnover of several hundred crores with numerous sonography centres spread all over the country.⁵ The government of India introduced the pre-natal diagnostic techniques act (PNDT) in 1994 that was later amended as pre-conception and pre-natal diagnostic techniques act (PCPNDT) in 2002. The objective of the act was to prevent the misuse of diagnostic techniques in sex selection and sex selective abortions.⁶ Violation of this act can lead to a fine of Rs.10,000 and up to three years imprisonment for a first offence, with greater fines and longer terms of imprisonment for repeat offenders.⁷ Mass media was used to spread awareness among the public on this issue. However, all these measures have met with limited success to achieve the desired results with no apparent improvement in the sex ratio.⁸ The present study was conducted among pregnant women in the Union territory Puducherry, South India with the aim of studying their knowledge, awareness and attitude regarding prenatal sex determination and PCPNDT Act.

METHODS

The present cross-sectional study was conducted at Indira Gandhi Medical College and Research Institute in Puducherry, India. The study population included pregnant women attending the antenatal outpatient department. A total of 160 pregnant women who consented for the study were selected using convenience sampling. The data was collected using a pre-tested semi-structured questionnaire consisting of 4 sections (section 1: participants general information, section 2: awareness about pre-natal sex determination, section 3: awareness on the PCPNDT Act, section 4: attitude towards prenatal sex determination). Participant's identity and the collected information were kept confidential. Data were entered in MS Excel and analyzed using Statistical Package of Social Sciences (SPSS) 16.0.

RESULTS

A total of 160 pregnant women were assessed for their knowledge, awareness and attitude regarding prenatal sex determination and PCPNDT Act using a pre tested questionnaire. Completed questionnaire returned by 128 participants were used for analysis of data.

The summary of demographic data is tabulated in Table 1. The age of the participants ranged between 18 to 37 years with the mean age of 26 years. Most participants were in the age group of 20-30 years (n=101, 78.9%). None of the participants were illiterate and 82.03% had completed higher secondary education or above. Majority of the study participants were housewives (n=92, 71.8%).

Table 2 shows awareness of the study participants towards prenatal sex determination. 82.03% (n=105) knew that prenatal sex determination was possible and 16.4% (n=21) of participants were not aware of such sex determination.

Table 1: Summary of demographic factors.

Factors	Number (Percentage)
Age (in years)	<20
	3 (2.34%)
	20-30
Age (in years)	101 (78.91%)
	>30
	24 (18.75%)
Education	Illiterate
	0 (0 %)
	1st to 4 th Class
	2 (1.56%)
Education	5th To 10 th Class
	21 (16.41%)
	Higher secondary Education or above
	105 (82.03%)
Socio economic status	Lower
	0 (0%)
	Upper lower
	6 (4.69%)
Socio economic status	Lower middle
	34 (26.56%)
	Upper middle
Socio economic status	73 (57.03%)
	Upper
	15 (11.72%)
Occupation	House wife
	92 (71.88%)
Occupation	Employed
	36 (28.13%)
Parity	Primi
	70 (54.69%)
Parity	Multi
	58 (45.31%)

Table 2: Awareness about sex determination among participants.

Question	Response	Number (Percentage)
Is it possible to do prenatal sex determination?	Yes	105 (82.03%)
	No	21 (16.4%)
	Don't know	2 (1.56%)
Source of Information	Friends and relatives	29 (22.66%)
	Media	85 (66.41%)
	Health care personnel	14 (10.94%)
	Others	0%
Technique used for Sex determination	Ultrasound	112 (87.50%)
	Others	14 (10.94%)
	Don't know	2 (1.56%)
Place where sex determination can be done	Private only	104 (81.25%)
	Govt only	4 (3.13%)
	Both	14 (10.94%)
	Don't know	4 (3.13%)

Media was the main source of information (n=85, 66.4%) followed by friends and relatives (n=29, 22.66%) and health care personnel (n=14, 10.94%). When participants were asked regarding the possible methods for sex determination, 87.5% (n=112) of the pregnant women knew that ultrasonography was the method of sex determination. Majority of the study participants (n=104, 81.25%) opined that sex determination can be done in private set-ups only. Table 3 shows the awareness of the participants regarding the prenatal diagnostic technique Act (PCPNDT Act).

Table 3: Awareness regarding PCPNDT act.

Question	Response	Number (%)
Are you aware of a govt act against sex determination?	Yes	87 (67.97%)
	No	14 (10.94%)
	Don't know	27 (21.09%)
Are you aware that pre-natal sex determination is punishable?	Yes	108 (84.38%)
	No	17 (13.28%)
	Don't know	3 (2.34%)
Who can be punished?	Doctor	5 (3.91%)
	Patient	25 (19.53%)
	Both	92 (71.88%)
Punishment for doctors?	Imprisonment	9 (7.03%)
	Fine	78 (60.94%)
	Both	25 (19.53%)
	Don't know	16 (12.50%)
Punishment for patients?	Imprisonment	9 (7.03%)
	Fine	80 (62.50%)
	Both	20 (15.63%)
	Don't know	19 (14.84%)

Table 4: Attitude of the patients towards PCPNDT act.

Question	Response	Number (%)
Would you like to know sex of your child?	Yes	102 (79.69%)
	No	17 (13.28%)
	No comments	9 (7.03%)
Which child do you prefer to deliver?	Male	71 (55.47%)
	Female	48 (37.50%)
	Either	9 (7.03%)
	No comments	0 (0%)
Would you terminate if it is a female fetus?	Yes	2 (1.56%)
	No	90 (70.31%)
	No comments	36 (28.13%)
Do you think pre-natal sex determination is right?	Yes	85 (66.41%)
	No	25 (19.53%)
	No comments	18 (14.06%)
Should pre-natal sex determination be punishable?	Yes	25 (19.53%)
	No	82 (64.06%)
	No comments	21 (16.41%)
Should the law be strictly enforced?	Yes	26 (20.31%)
	No	97 (75.78%)
	No comments	5 (3.91%)
Should the health care professional be punished for pre-natal sex determination?	Yes	16 (12.50%)
	No	112 (87.50%)
	No comments	0 (0%)
Are you willing to spread awareness on pre-natal sex determination?	Yes	104 (81.25%)
	No	12 (9.38%)
	No comments	12 (9.38%)

67.9% of participants (n=87) were aware of a government act for prevention of sex determination and 84.3% of the participants (n=108) said that prenatal sex determination is a punishable offence. Most of them had a prior knowledge that both the patients who seek and the doctors who facilitate prenatal sex determination are punishable (n=92, 71.8%). However, very few were aware of imprisonment as a punishment for violation of Act (n=9), 7.03%.

When the participants were assessed for their attitude towards PCPNDT Act, more than half of them responded that prenatal sex determination can be done and prenatal sex determination should not be punishable (n=85, 66.4%) (n=82, 64.06%) respectively (Table 4). 79.69% said that if given a chance, they would prefer to know the sex of their unborn child. Male baby was preferred over female baby (55.47% and 37.5%). Two participants were willing to terminate the pregnancy, if they knew it was a female fetus. Majority (87.5%) felt that the doctors should not be punished for prenatal sex determination. 81.3% (n=104) participants were willing to educate people about PCPNDT Act and motivate them against sex determination and sex selective abortions.

DISCUSSION

Skewed sex ratio has long term social and demographic consequences. In India, the first legal response to control the practice of sex determination and sex selective abortions came into effect in the year 1994 through the introduction of PNDT Act (prenatal diagnostic techniques act), which was amended later in 2004 as preconception and prenatal diagnostic techniques act (PCPNDT).⁹ Though sex selective abortions have been recorded all over India, registration and conviction rates have been less so far. Low registration and conviction rates may be due to several reasons like improper implementation of the act and lack of awareness regarding the Act among the public. Many centres have resorted to actions violating the rules and regulations of the Act without being held or convicted.

In the present study, 82.03% of the participants knew about the possibility of prenatal sex determination which was higher than the studies conducted at Mumbai, Maharashtra and Bareilly, Uttar Pradesh (73.5% and 80% respectively).^{10,11} Media was the main source of information in this regard. Our observations were similar to the studies conducted at Meerut and Hassan, India.¹² However, in a study reported from Jammu, friends and relatives were the main source of information.¹³

Majority of our study population (91.4%) were aware that ultrasonography is used for sex determination. In addition, many had an opinion that sex determination can be done only at private hospitals. This observation was similar to the results of Mumbai study.⁹ However, in other studies, lower proportion of pregnant women were

aware of ultrasonography as a technique for sex determination.^{11,13,14}

In the current study, 67.9% of the participants were aware of the Government law against prenatal sex determination and 84.3% of the participants knew that prenatal sex determination was a punishable offence. 71.8% were aware that both the person seeking and the person doing sex determination will be punished for the offence. Whereas, in studies conducted at Mumbai and Hassan, only half of the participants knew that prenatal sex determination was a punishable offence.^{10,13}

Knowledge among participants on the type of punishment for the offence was low in our study. Majority were of the opinion that levying fine was the only punishment for the person seeking and person doing prenatal sex determination. This observation was similar with the findings of a study conducted in Chandigarh.¹⁵ Hence public should be enlightened on this aspect of the act.

Over 75% of the respondents said that if they had a chance, they would prefer to know the gender of their unborn child and male babies were preferred over female babies. However, several studies showed a higher proportion of participant's preference for selective abortion if the sex of fetus is revealed to be a female.^{11,12,14} Our observations were lower than reported, where only two participants agreed that they would opt for termination of pregnancy if the sex of fetus is revealed to be a female. But, it is important to mention, that the number women who didn't want to comment was maximum for this question.

Majority of our participants opined that prenatal sex determination can be done and should not be a made as a punishable act. Many were willing to educate others about PCPNDT act which is similar to the observations of the Mumbai study.⁹

CONCLUSION

Higher proportion of our study participants knew about the prenatal sex determination and that it was a punishable offence. However, they were not fully aware of the punishment for prenatal sex determination. Still, many preferred to know the sex of unborn child and there was a gender bias towards male babies. A larger proportion also felt that prenatal sex determination can be done and should not be punishable, which means, they are not aware of the current issues related to female sex selective abortions. Hence, pregnant women have to be educated about the penalization for violation of the Act and ethical issues related with female sex selective abortion and feticide. The present research was a hospital based study and our results cannot be extrapolated to other settings. Similar studies in other settings on a larger sample size should be done for in depth understanding of this issue.

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