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Repeated Induced Abortion and Son Preference in India

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Abstract

India recorded the highest of repeated induced abortion in the world. Literature on it is scanty and the role of son preference is often ignored. We have attempted to answer the question: Does son preference associate with repeated induced abortion? We have used the third round of District Level Household Survey (DLHS-3). Bivariate analyses, Scatter Matrix Plot and Cox proportional hazard regression model were used. The results reveal that repeated induced abortions were more among the women with son preference. For the first time this study estimates repeated induced abortions by major states and socio-economic groups in India. Also, for the first time, the study gives a comprehensive sociological perspective to repeated induced abortions. In the absence of reliable information on sex-selective abortions, repeated induced abortions can be used as an important proxy indicator. The reduction of repeated abortions will reduce unsafe abortions and maternal deaths, as well as contribute to balanced sex ratio.

Key words: Repeated induced abortion, Son preference, Sex-selective abortion, India

I. Introduction

Abortion is a sensitive subject for a long time drawing conflicting opinions as it is heavily value laden issue (Ruth, 1990). Still, what matters is the persistent attention that abortion draws over the century for different reasons; some against and others in favour of it. Abortion is a component of the health studies which cannot afford to bypass the component of legal and social intricacies. As a result, it is one of the most divisive of women's health issues that policy-makers and planners face, particularly in developing countries where safe abortion facilities are not available to most women (Oomman & Ganatra, 2002; WHO, 2003; 2008; Guttmacher Institute & WHO, 2012).

There are studies that have examined the demographic implications of induced abortion by examining its association with demographic factors to facilitate the understanding of its effect on fertility, mortality and sex composition (Guttmacher Institute & WHO, 2012; Royston, 1991; Bankole et al., 1999; Khan et al., 1999, Arnold et al., 2002; Humayun et al., 2005; George, 2006; Elul, 2011). Health risk and complexity involved in abortion are alarming (WHO, 2003; 2008). The health risk of abortions increases manifold for a woman who resorts to it repeatedly. Repeated induced abortions in an unsafe condition, expose women to the risk of mortality and morbidity, with abortion-related complications, accounting for nearly half of all the maternal deaths throughout the world (WHO, 2003; 2008; Tietze, 1974; William et al., 2005). However, studies showed that an induced abortion occurs in every society, primarily not to save women from unwanted pregnancy and other related complications, but to destroy the female foetus through sex-selective abortions not only once but repeatedly (Booth et al., 1994; Gu & Roy, 1995; Kishwar, 1995; George & Dhaiya, 1998; Mishra, 2002; Pison, 2004).

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Sex-selective abortion cases have become a significant social phenomenon in several parts of India (Arnold et al., 2002). In patrilineal and patrilocal communities, sons are heir apparent and perceived to support their parents, both before and after marriage, while daughters move to their husbands' families and provide little economic or emotional support to their parents (Bhasin, 1993; Geeta, 2007). Daughters are often considered net drain on parental resources (Das Gupta, 1987). It is also socially and emotionally approved to have a daughter if there is already a son, but a daughter's birth is often unsolicited if the couple has already a daughter or daughters and no son. The available data shows practice of sex-selective abortions across all socio-economic groups in India (Booth et al., 1994, George & Dhaiya, 1998; Mishra, 2002; Ganatra et al., 2000; Arokiasamy & Goli, 2013). The low status for women with no sons is identified as an important factor for sex-selective abortions (Arnold et al., 2002; Pison, 2004). Studies in India have investigated into sex-selective abortions both directly and indirectly and highlighted that their number has increased considerably with the advance of medical technology (Arnold et al., 2002; Kishwar, 1995; Aldrich, 2004; Gentleman, 2006; Shepherd, 2008). Though, it is difficult to provide an accurate count of sex-selective abortions and their reasons using presently available national level data. However, this phenomenon can be examined by an indirect investigation of women who are going for repeated induced abortions and their perception of son preference. Moreover, there are no studies in India which systematically explore the questions: (1) who is going for repeated induced abortions? and (2) How far is son preference associated with it?

In the light of this discussion, we have attempted to find out the rationale for repeated induced abortions in the context of son preference. Our hypothesis is that the repeated aborted women could be a significant proxy indicator for sex-selective abortions if they are strongly connected with the son preference.

II. Methods and Materials

Data source

We have used the data of District Level Household Survey (DLHS-3), 2007-08, which is one of the largest demographic and health surveys carried out in India. The survey has a representative sample of 720,320 households and the duration of its fieldwork was from December 2007 to December 2008. In DLHS-3, along with the ever-married women of age 15-49, the never married women (age 15-24) were also included as respondents. However, in the present study, the analyses were confined only to the currently married women in the age group 15–49. The DLHS-3 has collected information on maternal health, child health, family planning and services related information, besides the reproductive health issues. For all the women, questions were asked on pregnancy complications and outcome of pregnancy such as live births, stillbirths, spontaneous abortions and induced abortions (IIPS & MoHFW, 2009).

Sampling

A multistage stratified systematic sampling design was adopted for DLHS-3. In each district, 50 Primary Sampling Units (PSUs) considered were the census villages in the rural areas and the Census Enumeration Blocks (CEBs) in the urban areas. In the rural areas, the village was selected by a Probability Proportional to Size (PPS) systematic sampling and in the second stage the households were selected by systematic sampling. For the urban areas, initially the wards were selected by PPS systematic sampling. In the second stage, CEBs were selected by PPS sampling and finally the households were selected by systematic sampling. The 2001 Census of India was the sampling frame for DLHS-3. Further, household size stratified the villages and urban wards in a district into three strata, viz., less than 50, 50–300 and 300+ households, percentage of SC/ST (disadvantageous caste/social groups of India) population was divided into two strata and the literacy rate distinguished implicitly by three alternating order of female literacy. These variables used for the stratification were drawn from the Census of 2001. The number of households representing a district was either 1000, 1200 or 1500 considered by the levels of antenatal check-

up, immunisation and institutional delivery as indicated by DLHS-2 and, in addition, a 10 per cent oversampling was done to cushion for non-response (IIPS & MoHFW, 2009).

Variables

Dependent variables

Induced abortions and repeated induced abortions are the dependent variables in this study. Induced abortion is defined as "an intentional termination of pregnancy before the foetus has developed enough to live if born" (WHO, 2003). Further, the prevalence rate of induced abortion is estimated as

$$= \frac{\text{Number of intentionally terminated pregnancies before the foetus has developed enough to live if born}}{\text{Total number of latest pregnancies of currently married women in age group } 15-49 \text{ age}}$$

Repeated induced abortions are defined as women having induced abortion not only for the latest pregnancy but also in the previous pregnancies (WHO, 2003). However, we have considered only induced abortions up to the recent two previous pregnancies. Based on the number of induced abortions, we have estimated the two indicators for repeated abortion: (1) percentage of women who had induced abortions in later pregnancy if previous pregnancies also intentionally aborted, which is termed as 'two-time' repeated induced abortion, and (2) percentage of women who had induced abortions in later pregnancy if the previous two pregnancies also intentionally aborted that is termed as the 'three-time' repeated induced abortion.

Independent variables

Independent variables such as son preference were categorised as boy preference and girl preference; the number of living sons and number of living daughters were numbered as 0, 1 and 2; the total number of pregnancies (1-2 and 3 and above); the age at which women living with their husbands (the age group classified as 15-24, 25-34 and 35-49); the place of residence categorised into the rural or urban; caste groups includes Scheduled Caste/Scheduled Tribe, Other Backward Class and the General castes were used in the present study. The education of the respondent taken into consideration for the analysis consists of uneducated, less than primary education and primary education and above. The household economic status (wealth index) was divided into poor and non-poor households. The wealth index for each household is constructed using Principal Components Analysis (PCA) based on household's assets data. It was constructed based on the 33 assets and housing characteristics. Each of the household assets was assigned a weight (factor score) generated through PCA. The resulting asset scores were standardized to a normal distribution with the mean of zero and standard deviation of one.

Statistical analysis

All the statistical analyses of this paper used STATA 10.1 (Stata crop LP, College Station). Bivariate analysis was used to estimate the repeated induced abortions by background characteristics. The relative risk of induced and repeated induced abortions for women with and without son preference has been estimated by using Cox proportional hazard regression model. Lastly, we have also estimated the correlation and causal effect of son preference, induced abortions and sex ratio at birth across the major states of India.

Cox proportion hazard regression model

The hazard model defined by Cox and Oakes (1984) and Collett (1994) has been used in this study. In this model, repeated abortion is the dependent variable and the principal predictors (x) are son preference, number of living sons and number of living daughters. However, the model is controlled for the age of women, place of residence, caste, religion, education level of women,

household economic status (wealth status), children ever born, total number of pregnancies and use of contraception. The mathematical form of this model is expressed in following equations:

$$h_i(t) = h_0 \exp\ (\beta_1 x_{i1} + \beta_2 x_{ik} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \beta_k x_{ik})$$

Where, '*i*' is a subscript for observation, and the 'x's are the covariates, namely, son preference, the number of living sons, the number of living daughters, etc. The quantity $h_0\,(t)$ is the baseline or an underlying hazard function and corresponds to the probability of foetus death when all explanatory variables are zero. The baseline hazard function is analogous to the intercept in ordinary regression (since $\exp^o = 1$).

The Cox proportional regression model assumes that the hazard of repeated induced abortion at time'*t*' (age) of women with son preference (z) is proportional to the hazard of the women with no son preference (y) by the same factor ψ at every time t; mathematically expressed as following equation:

$$h_z\,(t) = \psi h_y\,(t)$$

Where, $h_z\ and\ h_y$ the hazards (probabilities of repeated induced abortion) are for the two groups of women and ψ are hazard ratio. If ψ >1, the hazard of repeated induced abortion is larger for women with son preference compared with those women with no son preference. If ψ <1 or ψ =1, the hazard of repeated induced abortion are smaller or equal for both women with son preference and women with no son preference.

I. Results

Table 1 shows the induced abortion rates (per 100) for women whose last pregnancy resulted as an induced abortion by son preference and other background characteristics. The results reveal that the prevalence of induced abortion was highest among the women preferring a male child (1.19 per 100) compared with female (0.82 per 100). The results also indicate that the prevalence of induced abortions was more among women having no son (1.86 per 100) than those having two sons or more (1.11 per 100). By a number of living daughters, the results show that the prevalence of induced abortion was higher among women with two daughters (1.52 per 100) compared with women living with a lesser number of daughters (1.49 per 100). Induced abortion rates were increasing with the increasing number of pregnancies. By the age of women, the results show that higher age group women (aged 35-49) reported the highest prevalence of induced abortions (2.58 per 100) than other groups. However, there was little variation in prevalence of induced abortions by rural and urban areas. Between socio-economic groups such as caste, religion and economic groups, the prevalence of induced abortion varied considerably. The prevalence of induced abortions was greater among upper caste Hindus and non-poor economic groups than their counterparts.

Table 2 shows the percentage of women whose current and previous pregnancy resulted as an induced abortion ('two-time' repeated induced abortions) by son preference and other background characteristics in India. The results reveal that the 'two-time' repeated induced abortions were highest among those women who had a desire for the male child (29 per cent) than female (16 per cent). Results also show that the 'two-time' repeated induced abortions were more among those women with no son (31 per cent) than their counterparts. By the number of living daughters, the results reveal that the percentage of women who had two-time repeated induced abortions were highest among those with two daughters (44 per cent) compared with those with no daughters (24 per cent). By a number of pregnancies, the percentage of women with 'two-time' repeated induced abortions increased with an increase in the number of pregnancies. With references to the age of the women, the results reveal that elder age group women (aged 35-49) reported a substantially higher percentage of 'two-time' repeated induced abortions (64 per cent).

We observe a little variation in terms of the percentage of women with 'two-time' repeated induced abortions among the women residing in rural and urban areas. The percentage of women with 'two-time' repeated induced abortions was greatly concentrated among non-SCs/STs and non-poor economic groups compared with SCs/STs and poor economic groups.

Table 3 shows the number of women whose current and previous two consecutive pregnancies resulted as induced abortion ('three-time' induced abortions) by son preference and other background characteristics. The results reveal that the percentage of women with 'three-time' repeated induced abortion was highest among the women, those who prefer male children (56 per cent) than female (10 per cent). The results also show that the percentage of women with 'three-time' repeated induced abortion were highest among the women who have 2 and more number of daughters than those with a lesser number of daughters. Among age group categories, those women in the bracket of older adult age group reported the highest percentage of 'three-time' repeated induced abortions (50 per cent) than the younger women. By caste, women belonging to other backward class showed the highest percentage of induced abortions. Concerning religion, Hindus had the highest percentage of 'three-time' repeated induced abortion (60 per cent), followed by others (54 per cent) and Muslims (40 per cent). By educational levels of women, results indicate that the percentage of 'three-time' repeated induced abortions was more among the women who had less than primary education (69 per cent). The percentage of women with three-time repeated induced abortions was more among the women belonging to non-poor economic status than those women belonging to poor economic status.

The Cox proportional hazard model estimations in Table 4 reveal that after controlling other socio-economic and demographic characteristics such as age at marriage, caste, religion, education and wealth index, the relative risk of having induced abortion was more among women who had a preference for sons (RR=1. 26, $p<0.05$, SE=0. 19) than daughters (RR=1). The relative risk of having induced abortion was seven times more (RR=7.34, $p<0.001$, SE=0.14) for women who had 3 and more pregnancies. Table 4 also shows the relative risk of latest pregnancy as an induced abortion if the outcome of previous pregnancy was induced abortion by son preference. The results reveal that after controlling other factors, the relative risk of 'two-time' induced abortions was more among women who prefer a male child (RR=1. 39, $p<0.05$, SE=0. 30) compared with the girl child (RR=1). The relative risk of 'two-time' induced abortions was four times higher among women who had 3 and more numbers of pregnancies (RR=4. 71, $p<0.01$, SE=0. 14) than those who had less (1-2) number of pregnancies (RR=1). Likewise, the table also presents the relative risk of latest pregnancy as an induced abortion if the outcome of previous two pregnancies was induced abortions. The results reveal that after controlling relevent background characteristics, 'three-time' induced abortions were two times more among the women who prefer the male child (RR=1. 88, $p<0.05$, SE=0. 71) in comparison with women preferring the girl child (RR=1).

Figure 1 presents the scatter matrix plot which shows the association between sex ratio at birth (female/male*1000), son preference and induced abortion rates across the major Indian states. The results reveal a strong negative association between sex ratio at birth and induced abortion rates, that is, sex ratio at birth had decreased with increase in induced abortion rates. A similar association was found between the son preference in women and induced abortion rates. Further, there was a strong positive association between the last pregnancy as an induced abortion with the previous pregnancy as an induced abortion, and the previous two pregnancies as an induced abortion. This pattern demonstrates that the chance of having an induced abortion is greater among women who had induced abortion in their previous pregnancies.

Conclusion

We have made much-needed attempt to identify the repeated induced abortions and their possible association with son preference. The results advance some intriguing findings. First, after controlling for related socio-economic and demographic characteristics, the likelihood of induced

abortions was more among the women preferring boys compared with women who prefer a girl child. Second, repeated induced abortion was more common among women with son preference, living without sons and who are pregnant for three or more times compared with their counterparts. The percentage of reported induced abortions increased with increase in age and socio-economic status. A general trend is evident from previous studies where the higher socio-economic status is associated with lower pregnancy complications (Singh et al., 2013); however, the contradictory question that emerges is why women in this group are going for more repeated induced abortion is a matter of concern. Although, it is beyond the scope of the study it need to be answered in the future research, based on the findings of this study, we draw an inference that son preference is one of the important reasons for repeated induced abortion. Our findings are also in tune with some of the sting operations to trace the causes of illegal sex-selective abortions in India. In these operations, it was found that most of the sex-selective abortions are repeated induced abortions mostly in unsafe conditions sometimes resulting in death of women (ToI, 2012). In the absence of reliable direct information on sex-selective abortions, the repeated induced abortions can be treated as a proxy indicator of sex-selective abortions, which further show a significant association with skewed child sex ratios.

Although medical termination of pregnancy is the reproductive right of the women, but the evidence foster crystal clear suggestion that all of the abortions are not performed for saving the life of women from pregnancy complications. In a significant number of cases, it is misused for detecting the sex of the foetus. For instance, a strong association between two and more repeated induced abortions and sex ratio at birth strengthens our argument. Thus, it can conclusively be said that repeated induced abortions are not only biological and medical issues, but also a social problem signalling a strong message to be considered by the policy-makers. Further, the efforts to curb the son preference caused repeated induced abortions, thereby, sex-selective abortions should account for convergence in the policies related to all three dimensions: biological, medical and social. Finally, reduction of such abortions will not only reduce the unsafe abortion and maternal deaths, but will also help in the elimination of sex-selective abortions and creation of balanced child sex ratio.

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Table 1: Prevalence (per 100) of induced abortion in latest pregnancy outcome by son preference and socio-economic background characteristics of currently married women in age 15-49 years

Background Characteristics	Latest pregnancy outcome as an Induced Abortion	Chi^2Test P-value [Yes=P<0.05]
Sex preference		
Girl	0.82	Yes
Boy	1.19	
Number of living son		
0	1.86	
1	1.39	Yes
2 and more	1.11	
Number of living daughter		
0	1.49	
1	1.49	Yes
2 and more	1.52	
Total number of pregnancies		
1-2	1.34	Yes
3 and more	6.31	
Contraception use		
Modern Method	2.11	Yes
Traditional Method	2.39	
Children ever born		
No child	0.1	
1- 2	1.36	Yes
3 and more	1.38	
Age		
15-24	0.99	
25-34	1.69	Yes
35-49	2.58	
Place of residence		
Rural	1.21	Yes
Urban	2.21	
Caste		
SC/ST	0.95	
Other Backward Classes	1.59	Yes
Other	2.09	
Religion		
Hindu	1.59	
Muslim	1.42	Yes
Christian	0.63	
Others	1.16	
Education		
Uneducated	1	
Less than primary education	1.35	Yes
Primary education and above	1.91	
Wealth Index		
Poor	0.79	Yes
Non-poor	1.91	

Table 2: Percentage of women with induced abortion for latest pregnancy outcome if previous pregnancy outcome is an induced abortion by son preference and socio-economic background characteristics of currently married women in age 15-49 years

Background characteristics	Percentage of induced abortion in latest pregnancy outcome if previous two pregnancy outcomes are induced abortions	Chi^2Test P-value [Yes=P<0.05]
Sex preference		
Girl	16	Yes
Boy	29	
Number of living son		
0	31	
1	26	Yes
2 and more	23	
Number of living daughter		
0	24	
1	28	Yes
2 and more	44	
Total number of pregnancies		
1-2	26	Yes
3 and more	33	
Contraception use		
Modern Method	29	Yes
Traditional Method	35	
Children ever born		
No child	59	
1- 2	19	Yes
3 and more	38	
Age		
15-24	17	
25-34	30	Yes
35-49	64	
Place of residence		
Rural	28	Yes
Urban	28	
Caste		
SC/ST	34	
Other Backward Classes	26	Yes
Other	27	
Religion		
Hindu	30	
Muslim	22	Yes
Christian	23	
Others	25	
Education		
Uneducated	33	
Less than primary education	36	Yes
Primary education and above	26	
Wealth Index		
Poor	35	Yes
Non-poor	27	

Table 3: Percentage of women with induced abortion for latest pregnancy outcome if previous two pregnancy outcomes are induced abortions by son preference and socio-economic background characteristics of currently married women in age 15-49 years

Background Characteristics	Percentage of induced abortion in latest pregnancy outcome if previous two pregnancy outcomes are induced abortions	Chi^2 Test P-value [Yes=P<0.05]
Sex preference		
Girl	10	Yes
Boy	56	
Number of living son		
0	56	
1	31	Yes
2 and more	40	
Number of living daughter		
0	33	
1	44	Yes
2 and more	50	
Total number of pregnancies		
1-2	10	Yes
3 and more	44	
Contraception use	0	
Modern Method	45	Yes
Traditional Method	10	
Children ever born		
No child	78	
1- 2	30	Yes
3 and more	43	
Age		
15-24	31	
25-34	46	Yes
35-49	50	
Place of residence		
Rural	44	Yes
Urban	39	
Caste		
SC/ST	44	
Other Backward Classes	56	Yes
Other	26	
Religion		
Hindu	60	
Muslim	40	Yes
Christian	20	
Others	54	
Education		
Uneducated	47	
Less than primary education	69	Yes
Primary education and above	35	
Wealth Index		
Poor	41	Yes
Non-poor	42	

Table 4: Relative Risk Ratio for sequence of Induced Abortions by background characteristics of currently married women in age 15-49 years

Background Characteristics	Last pregnancy as induced abortion				Latest pregnancy outcome as an induced abortion if previous pregnancy outcome had an induced abortion				Latest pregnancy outcome as an induced abortion if previous two pregnancy outcomes had induced abortions			
	Exp(B)	95.0% CI for Exp(B)		SE	Exp(B)	95.0% CI for Exp(B)		SE	Exp(B)	95.0% CI for Exp(B)		SE
	Upper	Lower	Upper		Upper	Lower	Upper		Upper	Lower	Upper	
Sex Preference												
Girl ®												
Boy	1.263**	0.865	1.843	0.193	1.387**	0.767	2.508	0.302	1.882**	0.466	7.598	0.712
Number of living sons												
0®												
1	0.718*	0.506	1.018	0.178	0.653**	0.417	1.023	0.229	0.687	0.240	1.967	0.536
2 and more	0.331*	0.094	1.171	0.644	0.198	0.024	1.625	1.073	2.497	0.411	15.180	0.921
Number of living daughters												
0®												
1	1.678*	1.426	1.931	0.237	1.524**	1.279	1.877	0.323	1.628*	1.134	2.533	0.223
2 and more	1.454**	1.224	1.6802	0.361	1.564*	1.215	2.205	0.493	1.885*	1.125	4.437	0.393
Children ever born												
No child®												
1- 2	0.152***	0.090	0.256	0.267	1.542	0.499	4.771	0.576	1.603	0.152	16.889	1.201
3 and more	0.062***	0.031	0.127	0.363	0.274**	0.074	1.016	0.668	0.390	0.029	5.258	1.327
Total number of pregnancies												
1-2®												
3 and more	7.347***	5.592	9.654	0.139	4.711***	3.527	6.292	0.148	0.813	0.190	3.472	0.741
Age at which living with husband												
15-24®												
25-34	0.236***	0.161	0.344	0.193	0.376***	0.230	0.614	0.250	0.178**	0.039	0.805	0.769
35 and above	0.895***	0.143	0.273	0.210	0.969	0.000	0.210	0.110	0.968***	0.462	2.492	0.386
Place of residence												
Rural®												
Urban	1.033	0.825	1.292	0.114	0.942	0.681	1.302	0.165	1.266	0.606	2.646	0.376
Caste												
SC/ST®												
OBC	1.254*	0.966	1.629	0.133	1.404**	0.971	2.029	0.188	4.657**	1.277	6.982	0.660
Others	1.317**	0.999	1.736	0.141	1.451**	0.984	2.138	0.198	7.467***	2.039	7.339	0.662
Religious												
Hindu®												
Muslim	0.65***	0.469	0.901	0.166	0.525***	0.319	0.864	0.254	0.855	0.349	2.091	0.457
Others	0.451***	0.297	0.684	0.212	0.763	0.475	1.226	0.242	1.078	0.346	3.357	0.580
Education of the mother												
Uneducated®												
Less than primary Education	0.961	0.545	1.695	0.290	1.776*	0.947	3.330	0.321	1.932	0.502	7.427	0.687
Above primary Education	2.097***	1.587	2.772	0.142	2.14***	1.458	3.142	0.196	2.697**	1.095	6.645	0.460
Wealth Index												
Poor®												
Non-poor	2.075***	1.543	2.789	0.151	2.346***	1.548	3.557	0.212	0.777	0.341	1.772	0.421

Note: 1) Level of significance: * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Appendix 1: State-wise prevalence rate (per 100) of induced abortions in India, 2007-08

Note: 1 & 2: these figures are based on women who had induced abortion for latest pregnancy

State	Induced Abortion Rate for latest pregnancy	Percentage of women with latest pregnancy outcome as Induced Abortion if previous pregnancy outcome is Induced Abortion[1]	Percentage of women with latest pregnancy outcome as Induced Abortion if two previous pregnancy outcomes are Induced Abortions[2]	Per cent of women having son preference	Sex Ratio at Birth
Andhra Pradesh	0.52	10	50	23.1	917
Assam	2.82	38	74	34.4	933
Bihar	0.82	6	11	41.1	914
Chhattisgarh	0.82	9	16	35.0	975
Gujarat	0.45	8	5	36.6	898
Haryana	2.53	36	41	34.4	847
Jharkhand	0.35	6	15	35.1	922
Karnataka	0.94	13	21	25.4	935
Kerala	2.13	6	10	16.5	964
Madhya Pradesh	0.43	7	6	42.8	919
Maharashtra	1.96	33	62	32.4	884
Orissa	0.95	21	37	35.7	937
Punjab	1.21	28	55	33.4	836
Rajasthan	0.44	7	13	44.0	870
Tamil Nadu	2.77	9	17	15.9	936
India	1.49	18	31	33.2	904
Uttar Pradesh	2.21	20	26	37.9	877
West Bengal	2.95	25	35	33.5	941

Figure 1: Scatter Matrix Plot for Sex ratio, Son Preference and Induced Abortion Indicators, 2007-08.