



## **Sex-selective Abortion in Rural Pakistan**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Author KQ designed the study, wrote the protocol, collected data, performed the statistical analysis and wrote the first draft of manuscript. Author NR helped in designing the study, reviewing the literature, determining sample size, managing data analyses of the study and helped in finalization of study report. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aims:** The existence of sex-selective abortions has been documented in Asian countries including Pakistan. However, most of these studies have used indirect methods of estimation based on sex ratio at birth, which is known to give accurate estimates only in countries where complete registration of births is available, which is not the case in Pakistan. In the absence of birth registration, only direct estimation can provide the evidence and estimates of sex-selective abortion. Therefore, when a large survey on Gender-based violence was being planned, it was decided to add a component on sex-selective abortion also.

**Study Design:** Non- interventional Cross-sectional Study.

**Place and Duration of Study:** Six Districts of Pakistan: 2011- 2014.

**Methodology:** This study, was undertaken during 2011-14 in six rural districts; two from three provinces; Balochistan, Punjab and Sindh as part of a survey on domestic violence among 4,885 married women aged between 18-49 years. The fourth province, Khyber Pakhtunkhwa was not included because of political turbulence at that time.

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The sample of 4,885 women was selected through multistage random sampling. Out of these 4,885 women, four thousands, six hundred and twenty (4620) were parous and the present analysis is based on responses of these 4,620 women.

**Results:** Out of 4,620 ever-pregnant women, 968 women (20.9%) reported ever having induced abortion. According to discussion with these 968 women, the reason for abortion in 338 women (34.9%) was presence of a female fetus. Some of them reported to have gotten the sex of the foetus confirmed by ultrasonography. The highest rate of sex-selective abortion was in Balochistan (62.5%). The corresponding figures were 19.6% for Sindh and 18.8% for Punjab. The prevalence of sex-selective abortion in Balochistan was significantly higher ( $P < 0.0001$ ) than the other two provinces.

**Conclusion:** Although the present study reveals a high prevalence of sex-selective abortions in Pakistan, yet larger studies based on both rural as well as urban areas encompassing quantitative as well as qualitative data are needed to further explore the phenomenon.

*Keywords: Sex-selective abortion; domestic violence; gender-based violence; Pakistan; daughter-devaluation; induced abortion.*

## 1. INTRODUCTION

Although the ability to determine whether and when to bear children has become a prerequisite for women's full participation in modern life, yet unplanned pregnancy remains a reality. Among women, who become pregnant unintentionally, those feeling unable to fulfill the responsibilities of parenting a child or another child at that point in their life, will turn to abortion [1]. The first recorded evidence of induced abortion is from the Egyptian Ebers Papyrus in 1550 BC [2]. According to World Health Organisation (WHO), worldwide nearly one in five pregnancies ends in induced abortion [3]. In low-income countries, during their reproductive lives women have an average of one unsafe abortion defined as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking minimal medical standards or both [3-4]. Pakistan is no exception to the aforesaid statement of WHO.

In 1990, Amrita Sen published his book, "More than 100 million women are missing" and attributed this missing number to Sex-selective abortion [5], an induced abortion performed based upon the predicted sex of the infant. The figure is now estimated to be in excess of 160 million, with sex-selective abortion playing a major role [6]. The sex-selective abortion of female fetuses is most common in areas where cultural norms value male children over female children i.e., son preference. This practice is prevalent in parts of East Asia and South Asia, particularly in countries such as People's Republic of China, India, Pakistan, as well as in the Caucasus, and Western Balkans [7].

The exact prevalence of sex-selective abortion in Pakistan is uncertain, with the practice taking place in some segments as an open secret. Some authors argue that it is quite difficult to explain why this practice takes place in some cultures and not others, and that sex-selective abortion cannot be explained merely by patriarchal social norms, because most societies are male dominated, but only a minority practice sex-selective abortion [8].

According to the United Nations Population Fund (UNFPA) the main reason of sex-selected abortion is said to be son preference, a global phenomenon that has existed throughout history [9]. Today, in some societies, son preference is so strong and sex-selective practices so common that, at the population level, the number of boys being born is much greater than the number of girls. This is notably the case in a number of South and East Asian countries [10].

At the individual and family level, the primary consequence of son preference is the intense—and intensely internalized—pressure placed on women to produce male children. In the past, when having a large number of children was desirable and the norm, one option was to simply allow a family to grow until a son—or the requisite number of sons—was born; even so, female infanticide—the most drastic possible expression of son preference—was not uncommon. Today, son preference is jutting up against widespread desires for smaller families [8].

Since abortion in Pakistan is basically a clandestine affair, the exact prevalence of even induced abortion is not known. Most of the

studies on abortion have used data from hospitals [11-13] or are based on the interviews with health care providers [14-15]. Two researchers [16,17] have studied the issue of sex-selective on the basis of Sex-Ratio at birth (SRB). The natural human sex ratio at birth was estimated, in a 2002 study, to be close to 106 boys to 100 girls [18]. Human sex ratio at birth that is significantly different from 106 is often assumed to be correlated to the prevalence and scale of sex-selective abortion. Studies based on SRB only point to the presence of sex-selective abortion but not its prevalence. Moreover, this method is known to give accurate estimates only in countries where complete registration of births is available [19], which is not the case in Pakistan. Under such conditions, only the direct estimation can provide the evidence of existence and estimates of sex-selective abortion. The present study was undertaken to ascertain the prevalence of sex selective abortion in rural areas of Pakistan through direct estimation.

## 2. MATERIALS AND METHODS

The present cross-sectional study is based on the data collected for a survey to determine the quantum of domestic violence against women in rural districts of Pakistan. The study was conducted in three provinces; Balochistan, Punjab and Sindh during 2011-14. The fourth province, Khyber Pakhtunkhwa was not included because of political turbulence at that time.

The sample size was calculated through Epi- Info - 7 using prevalence of domestic violence at 65% reported by Human Rights Commission of Pakistan [20], relative margin of error 5%, power study of 80%, confidence level of 95% and a design effect of 1.7. The calculated sample size was 4,885 married women aged 18 - 49 years.

Two districts from each province and study areas from those districts (148 Union Councils) were selected through a random sample with the help of Federal Bureau of Statistics (now called Pakistan Bureau of Statistics, PBS). The sampled districts were Jaffarabad and Nasirabad from Balochistan; Jacobabad and Kashmore from Sindh and Muzaffargarh and Dera Ghazi Khan from Punjab. Majority of study areas (84%) were rural.

The data was collected through questionnaires administered by female interviewers, who were from the local areas and were familiar with local

language and culture. They were trained in the art of data collection. For this study, a subset of data comprising of only those women, who had ever been pregnant (n=4,620), was utilized.

The study was funded by Rutger-WPF Pakistan. Ethical approval was obtained from Hope Pakistan, a National Institute of Health, USA approved IRB.

The consent to conduct the study / interview was obtained at two levels; first from Head of the Household (male or female) and then from sampled woman. If Head of the Household refused to grant permission, next sample household was approached. Secondly, every sampled women was explained the purpose of the interview in local language and the interview was only conducted after obtaining her consent.

The data so collected was analysed by using SPSS-19.

## 3. RESULTS AND DISCUSSION

The distribution of study population according to socio-demographic characteristic is shown in Table 1. The age of subjects ranged from 18 to 49 years with a mean age  $\pm$  SD of  $33.5 \pm 9.1$  years (median age = 32 years). The majority of women (90.7%) were currently married, 6.2% were widows, 1.4% were divorcees and 1.7% were separated. Nearly two-third of the population (63.5%) had no formal education. Only 4.1% had more than 10 years of schooling. The number of children / family ranged from one to 18 with a median of 2 girls and 2 boys.

Out of 4,620 women, 968 women (20.9%) had induced abortion. The highest prevalence of induced abortion was in Punjab (32.1%), followed by Balochistan (23.4%) and Sindh (7.3%) showing a statistically significant difference among three province. Among these 968 women, the reason for abortion in 338 women (34.9%) was presence of female fetus. Some of these women (67.1%) reported to have sex of the child confirmed by ultrasonography, while others (32.9%) were told by their Traditional Birth Attendants that they might be carrying a female foetus. Ultrasonography is easily available in most of the cities and large villages. It is used by medical practitioner, qualified and unqualified as well as some traditional medical practitioners and clandestine abortion clinics.

**Table 1. Socio-demographic characteristics of study population**

<b>Variables</b>	<b>Median</b>	<b>Range</b>
Age (years)	32 (Mean 33.5 ± 9.1)	18-49
Age at marriage (years)	16	9-37
No. of children	4	1-18
Boys	2	1-11
Girls	2	1-10
Family income in Pak rupees	6, 000	1,000-100,000
<b>Variable</b>	<b>Number</b>	<b>Percent</b>
<b>Education</b>		
No schooling	2933	63.5
Primary (5 years schooling)	616	13.3
Middle (8 years schooling)	252	5.4
Matric (10 years schooling)	328	7.1
Intermediate (12 years schooling)	118	2.6
Graduation (14 years schooling)	45	1.0
Post-graduation (> 14 years schooling)	21	0.5
Other / No information	307	6.6
<b>Marital status</b>		
Married	4193	90.7
Widow	287	6.2
Divorced	63	1.4
Separated	77	1.7

**Table 2. Prevalence of sex-selective abortion according to province and districts**

Province	District	No. of ever pregnant women	Women who ever had induced abortion		Women who had sex-selective abortion		Sex selective abortion after ultrasound		Sex selective abortion without ultrasound	
			No.	% <sup>a</sup>	No.	% <sup>b</sup>	No.	% <sup>c</sup>	No.	% <sup>d</sup>
Balochistan	Naseerabad	749	124	16.5	92	74.2	57	61.9	35	38.1
	Jaffarabad	771	231	30.0	130	57.6	86	66.1	44	3.9
Balochistan		1520	355	23.4	222	62.5	143	64.4	79	35.6
Punjab	D.G. Khan	815	271	33.2	86	31.7	62	72.1	24	27.9
	Muzaffargarh	747	230	30.8	8	3.5	4	50	4	50
Punjab		1562	501	32.1	94	18.8	66	70.2	28	29.8
Sindh	Kashmore	772	27	3.5	9	40.9	7	77.7	2	22.3
	Jacobabad	766	85	11.1	13	59.1	11	84.6	2	15.4
Sindh		1538	112	7.3	22	22.3	18	81.8	4	20.0
<b>All 3 provinces</b>		<b>4620</b>	<b>968</b>	<b>20.9</b>	<b>338</b>	<b>34.9</b>	<b>227</b>	<b>67.1</b>	<b>111</b>	<b>32.9</b>

*a* = Percentage of induced abortions

*b* = Percentage of sex selective abortions

*c* = Percentage of sex selective abortions after ultrasound (e.g. 57 / 92 x 100)

*d* = Percentage of sex selective abortions without ultrasound (e.g. 35 / 92 x 100))

The prevalence of sex-selective abortion varied not only among provinces but within various districts of the same province (Table 2). The prevalence of sex-selective abortions was 62.5% in Balochistan, 22.3% in Sindh and 18.8% in Punjab showing a significantly higher ( $P < .0001$ ) prevalence in Balochistan than the other two provinces whereas the difference between

Punjab and Sindh was non-significant.

Traditionally sex ratio at birth (SRB) is the used for estimating the number of sex selective abortions. The generally accepted "norm" for SRBs is between 104 and 107 males per 100 females [18]. Normally, as seen in the late 1960s when fetus sex detection technologies were not

available, SRB at any birth order did not differ widely from its average value for all births. When SRB drops below 0.95 it is generally inferred as owing to sex-selective abortions. This drop became more evident after mid-1980s, when prenatal sex detection technologies became easily available. While providing relatively accurate information on the health and status of fetuses during gestation, ultrasounds can also inform parents of the sex of their baby before birth. This access to gender information has caused a surplus of sex-selective abortions throughout China and, to a lesser extent, India [19].

The strength of son preference in Pakistan closely parallels that of the neighboring region of India's northwestern plains. Thus, logically, demand for Sex-selective abortion in Pakistan would also be strong. However, obtaining data to assess this possibility is especially difficult. Data inadequacy is the most prominent in Pakistan out of other Asian countries and that includes the lack of census data, survey data, and local studies. Other factors that make the study of sex-selective abortion in Pakistan especially difficult include the negative view of Pakistani Islam toward abortion in general and stronger denial by many experts that sex-selective abortion is practiced in Pakistan at a similar level of neighbouring countries [21]. Few studies pointing out the existence of sex-selective abortion in Pakistan have used SBR to measure sex-selective abortion [16,17]. The present study is the first study from Pakistan, where data has been collected directly from the women.

Several different factors have been identified to influence levels of sex-selective abortion. The regression analysis performed by Retherford and Roy [22] on data from India's first and second National Family Health Surveys revealed that characteristics associated most strongly with sex-selective abortion, after controlling for the other variables, are geographic region, child's birth order, number of living sons, and two socioeconomic characteristics - mother's education and mother's media exposure. Women sampled from Balochistan had all these characteristics. The percentage of women with no formal education was 90% in Balochistan compared to 65% in Punjab and 72% in Sindh. The number of children in Balochistan ranged up to 18 compared to 12 in Punjab and Sindh. The mean monthly income of the household in Balochistan was Rs. 4,000/- (US\$ 40/-) compared to Rs.5, 000/- in Sindh and Rs.8,000/- in Punjab. Gill and Mitra-Kahn [23] have identified daughter devaluation manifested in women's subordination within the family, a consequence of the patriarchal kinship systems, as a major factor in sex-selective abortions. The daughter devaluation practices have been reported to exist in study districts with a higher prevalence in Balochistan than the other two provinces (Table 3).

It is difficult to correctly identify why parents take active steps to avoid having daughters. A study from rural area of China based on interviews with parents has revealed that such studies do not yield unbiased results because it is unlikely that parents, who have avoided having daughters, will

**Table 3. Prevalence of daughter devaluation customs in study areas**

Name of custom	Explanation	Balochistan		Punjab		Sindh	
		Jaffarabad	Naseerabad	DG Khan	Muzaffargarh	Kashmore	Jacobabad
<b>All figures represent percentages</b>							
Vanni, Swara, Sang Chatti, Badal, Bazo WattaSatta.	Custom of giving girls to other party to settle murder dispute	27	24	4	0	17	5
PaitLekhai	Exchange marriage	55	62	47	44	58	66
Selling of Bride	Pledging the fetus	17	10	4	4	3	13
Marriage with Quran	Paying money to get a bride	0	1	0	0	0	0
Budle Sullah	Practice to keep inheritance of girls	0	0.9	0	0.3	0	0
	Custom to settle dispute other than murder	0	0.9	0	0.3	0	0

answer truthfully [24]. Hence, reasons that are given for the move to actively avoid having daughters will be speculative and must derive their credence from coherence with the surrounding cultural matrix [23]. Given the cultural milieu, the conviction that daughters are dispensable makes it not only desirable, but permissible to intervene in order to discourage female births. Such a choice is satisfied by sex-selective abortions or in extreme cases, physical violence and murder [25].

In a recent study UNFPA [8] has highlighted three factors contributing to Sex-selective Abortions. First and foremost is Son preference, which constitutes the primary factor behind sex selection. It stems directly from the requirements of patrilineal and patrilocal household structures, in which girls and women have a marginal social, economic and symbolic position, and consequently enjoy fewer rights. Old age security is an additional factor as sons, rather than daughters, are expected to provide support to their parents throughout their life. The second factor is the growth of prenatal diagnosis technology, which enables parents to know the sex of their unborn child. Coupled with abortion, legal or not, sex determination may lead to pregnancy termination. The rise in SRB in specific countries has indeed often been linked to the spread of ultrasound technology through the private healthcare system. The future may see newer technologies that make it even easier to select the sex of one's offspring. In addition to these demand and supply factors, low fertility represents the third factor because it exacerbates the potential need for sex selection – by reducing the probability of having a son in smaller families. Local fertility restrictions and spontaneous rapid fertility decline below replacement levels tend to compel parents who want both a son and a small family size to resort to sex selection.

#### 4. CONCLUSION

The present study is one of the few studies from any Asian country, where the data for sex-selective abortion was collected directly from the women. The study highlights both the existence as well as the prevalence of sex-selective abortions in Pakistan. However, the study has certain limitations. First, the study is limited to few rural areas and missed the data from urban areas. Second, the study was based on data collected primarily to gauge the extent of Gender-based Violence. Therefore more detailed

information regarding sex-selective abortion could not be collected. Third, the study lacked qualitative data. To get more insight into the phenomenon of sex-selective abortion, larger studies including samples from urban areas as well are needed. Besides prevalence, qualitative data i.e. Focus Group Discussions / In-depth Interviews / Informal Discussions of the women opting for sex-selective abortions and their spouses should be conducted.

#### CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

#### ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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