Sex preference in urban Nepal

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Introduction: Altered sex ratio at birth is strong indicator of bias against unwanted sex. Sex selection is currently possible through advanced technology of pre implantation sex selection, prenatal sex diagnosis and sex selective abortions. In Nepal, though preference for sons is strong, there is no evidence of altered sex ratio at birth on country wide basis.

Methods: This retrospective study was done at Patan Hospital, Kathmandu, Nepal. All live born babies born during a period of five years (2003 to 2007) were divided into three groups-first live born babies, second live born babies and the rest grouped as third and subsequent live born babies. Their sex was recorded and results were analyzed.

Results: Over the entire study period, 114 boys were born for every 100 girls (normal being 102 to 106 boys for every 100 girls). For the first live births, the ratio was 106 boys to 100 girls. For the second live birth, it was 118 to 100. For third and successive births this ratio was 177 to 100.

Conclusion There was a highly significant decrease in proportion of female births for third and successive births. Over the years, there is some decrease in proportion of female births in all three groups. However, it is statistically not significant that there is a practice of sex selective abortions in practice in Kathmandu.

Key words: Sex preference, prenatal sex diagnosis, sex selective abortions

Introduction

Sex ratio (proportion of male to female) at any given time represents biological, social and health conditions as well as discriminatory behavior in society. Sex ratio is highest at conception and is known as primary sex ratio or sex ratio at birth (SRB). It then decreases till delivery through fetal mortality. This is known as the secondary sex ratio. There is further decrease in the ratio during infancy and childhood. This decrease accelerates during adulthood and old age through excess male mortality. Sex ratio is especially sensitive to migration differentials by sex. It is calculated that sex ratio is not meaningful for less than 10,000 people. Normal sex ratio at birth is 102-106 boys per 100 girls. [1]

An altered SRB is a strong indicator of the preconception sex selection or targeted abortion of fetuses of an unwanted sex.

Before the advent of modern technologies of sex selection, patterns of gender discrimination consisted of strong male preference by use of folk methods to conceive sons, female infanticide and neglect of girls. These methods had limited reliability and had social constraints. Due to high fertility rates, this resulted only in a mild increase in the number of boys.

Fertility rates have gradually come down. Technology has advanced. Sperm sorting and pre implantation genetic diagnosis (PGD), chorionic villus sampling (CVS), amniocentesis and ultrasound make sex selection possible. Patterns of gender discrimination currently influence sex ratio through pre implantation sex selection, prenatal sex diagnosis and sex selective abortions

These methods of sex selection have led to the masculinization of sex ratios at birth in many countries of

the world. In addition to India and China; South Korea, Taiwan, Hong Kong, Vietnam, Azerbaijan, Armenia and Georgia also exhibit the same phenomenon. Gender discrimination is a key demographic feature of South Asia.[2] In 2007, sex ratio at birth in China and India was 117, in contrast to the normal ratio of 102-106.[3] Sons bring income, honor, continue the family lineage, provide security for their parents in old age and perform religious rites at time of death. The need for dowry for female children, and the ability to demand a dowry for boys exerts considerable economic pressure on families, who view girls as liabilities and often use extreme measures to avoid having them.[4]

In Nepal too, preference for sons is very strong, due to the country's longstanding patriarchal social structure.[5] Over the years, total fertility rate is declining in all developmental regions of Nepal (Figure 1), literacy rate is improving and access to medical care (in this context prenatal ultrasound and induced abortions) is increasing at least in urban Nepal. Although anecdotal information points to the existence of prenatal selection, the child sex ratio (CSR) at birth in Nepal
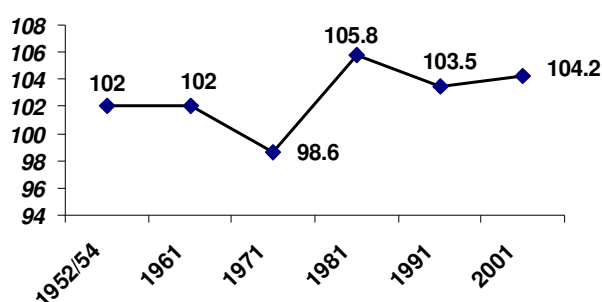

Fig. 1: Trends in SRB1 (sex ratio at birth below one year of age) in Nepal, 1952/54-2001[7]

is still within biological norms (Table 1). However, rapid assessments of sex ratios at birth (SRB 1) in 1991 and 2001 consistently showed that in a number of districts in the southern Terai plains the sex ratio was skewed in favor of male babies. (UNFPA and CREHPA, 2007)

Table 1: Trends in SRB: DHS 1996-2006[6]

Source and year	Sex ratio at birth
DHS 1996	104
DHS 2001	103
DHS 2006	104

Three Demographic Health Surveys done in Nepal[6] and trends in sex ratio in children under one year of age (SRB1) do not provide any evidence that child sex ratio is in favor of male babies[7].

However, availability of technology for sex detection and a strong preference for sons in Nepal, it was felt worthwhile the situation in urban setting. Thus this study was carried

out with a view to see trends in SRB among babies delivered at Patan hospital over the last five years.

Hypotheses

There is no hospital based study about sex ratio at birth in Nepal. We made the following hypotheses before the study to guide data collection and analysis:

1. With decrease in fertility, increase in available medical facilities, and prevalence of son preference, sex selection of female fetuses and female feticide is occurring in urban Nepal.

2. Families usually do not practice sex selection during their first pregnancy. As a result the sex ratio of first born children is within normal range. However, couples are more likely to practice sex selection among subsequent pregnancies, leading the sex ratio for subsequent children to be skewed in favor of male babies.

Materials and methods

This retrospective study was conducted at Patan Hospital, Kathmandu, Nepal. About 7000 babies are born in this hospital annually. For the purpose of this study, information was collected from the birth register of the maternity ward for the years 2003 to 2008. All live born babies were divided in three groups – first live born babies, second live born babies and the rest grouped together as third and subsequent live born babies. Sex of the baby was recorded for first live birth, second live birth and third and subsequent births. The data thus collected was then analyzed.

Results

Figure 2 show the total number of male and female births at Patan Hospital in the last five years. During this time, a total of 31,288 live born babies were born. Out of these 17,439 were male babies and 13849 were female babies. Over the years there has been a steady increase in number of live births.
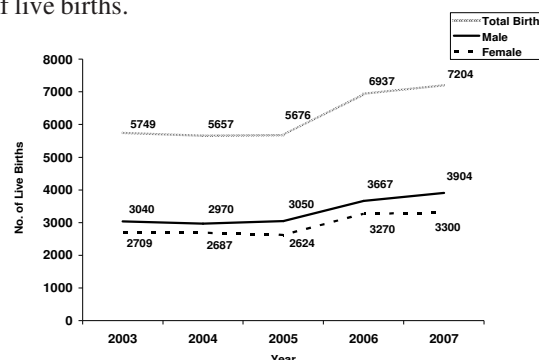

Fig. 2: Live births at Patan Hospital over last five years

Table 2: Number of live births according to birth order and sex

| Year | Total Births | 1st Birth | | 2nd Birth | 3rd Successive Birth | | |
		Male	Female	Male	Female	Male	Female
2003	5749	1889	I781	892	762	259	166
2004	5657	1824	1724	897	801	249	162
2005	5676	1838	1707	926	773	288	144
2006	6937	2149	2043	1194	1054	324	173
2007	7204	2170	2017	1418	1118	316	165
Total	**31,223**	**9870**	**9272**	**5007**	**4628**	**1472**	**810**

For each year, we calculated the number of boys born for each 100 girls in three groups (Table 3).

Table 3: Sex ratios at birth in different orders of birth by years

| Year | Male | Female | Males per 100 Females | | |
			1st birth	2nd birth	3rd birth
2003	4040	2968	106.6	117.6	156
2004	2970	2687	105.8	112	153.7
2005	2758	1624	107.7	119.7	200
2006	3667	3270	105.2	113.3	187.3
2007	3804	3300	107.6	126.8	191.5
Total	**17,439**	**13,849**	**106.4**	**118.2**	**177.3**

Over the entire study period, 114 boys were born for every 100 live girls Normal being 102 to 106 boys for every 100 girls. For the first live births, the ratio was 106 boys to 100 girls, for the second live birth it was 118 to 100. For the third and successive live births put together, the ratio 177 to 100 (Figure 3).
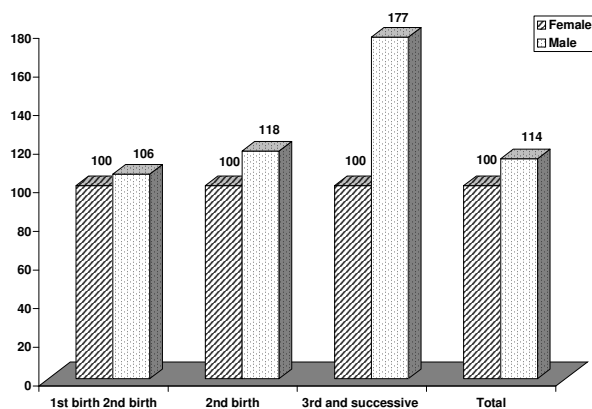

Fig. 3: No. of live born male babies born to every 100 live born girls

As evident in table 3 and figure 3, there is a clear tendency towards an increase in SRB from the first to second live births, and an even greater increase from second to third and subsequent live births.

Figure 4 shows the trend of sex ratios at birth over the five year period.

The percentage of female babies in each of the three birth categories was also calculated.
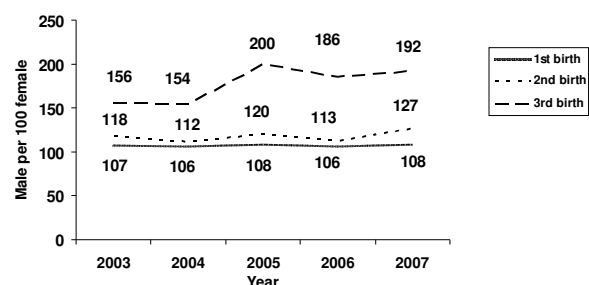

Fig. 4: Trend of male female ratio

Table 2 clearly shows that the female proportion decreases with subsequent birth categories. Aggregate chi square p-value is 0.000000. This is very highly significant.

Table 4: Association of female percentage with birth order

| Birth Order | Sex | | |
	Male (%)	Female (%)	Total
I	9870 (51.5)	9272 (48.5)	19142 (100)
II	5327 (54.1)	4508 (45.9)	9835 (100)
III	1436 (63.9)	810 (36.1)	2246 (100)

The proportion of female in percent is decreasing as birth order increases. Aggregate chi square p-value=0.000000 (highly significant)

The male-female ratio for each year was analyzed separately (Table 3).

Activities (CREHPA) and UNFPA, in five districts of Kapilvastu, Parsa, Dhanusha, Kathmandu and Gorkha found that incidence of prenatal sex determination and sex selective abortions was low. In the survey only 3 percent of women who had ever been pregnant had sought prenatal sex determination test and only 14 percent of the women who ever had an induced abortion had done so following prenatal sex selection. However 46% of married women preferred a son in first pregnancy and 81% of women with daughter in first pregnancy, wanted a son in second pregnancy. 57% of pregnant women, and 100 % of their husbands and mother in-laws were aware of prenatal sex determination technology and the majority of them knew

Table 5: Association of years and sex in different three birth orders

| Years | I Birth | | II Birth | | III Birth | |
	Male	Female	Male	Female	Male	Female
2003	1889	1781	892	762	259	166
2004	1824	1724	897	801	249	162
2005	1838	1707	926	773	288	144
2006	2149	2043	1194	1054	324	173
2007	2170	2017	1418	1118	316	165
Chi-square p value	**0.9651**		**0.2425**		**0.1962**	

The association of years and proportion of male and female are not seen significant. But as birth order raise p-value is in decreasing order

Discussion

In our study we found a Sex Ratio at Birth for the entire study period to be 114 boys to 100 girls. This is skewed towards male sex. There is a highly significant shift in SRB in third and subsequent pregnancies in favor of boys. This high degree of statistical significance (p-value 0.000000) can only be possible because of prenatal sex determination (ultrasound, in context of Nepal) and sex selective abortions. The same is probably happening in births all over Kathmandu, other urban areas in Nepal and in the Terai.

In the 2001 census, SRB was 106 or more (range: 106-109) only in 7 districts in the Terai (Saptari, Siraha, Dhanusha, Mahotari, Bara ,Parsa, Kapilbastu) and one hill district (Gorkha) [7]. The fact that SRB is still within normal range in most of Nepal despite prevalence of sex selection was explained by the fact that SRB only declines after 5 to 10 years of sex selection.[8]

In contrast to the findings of this study, a study done by the Center for Research on Environment, Health and Population

where to obtain it [5]. The findings of increased SBR in these districts and the high degree of knowledge regarding sex selection among respondents, indicate that the there was under-reporting of cases of sex selection in the CREHPA study.

Ethics of prenatal sex selection and female infanticide has been widely discussed [8-14].

Alteration in SRB from biological norms will have serious implications [5, 14]. The family composition and patterns will change. Marriage squeeze will occur. Increased migration of unmarried men, trafficking in women, demand for commercial sex with increase in sexually transmitted diseases and gender based violence are feared scenarios. This impact will be felt most on underprivileged men population. Additional dangers are decreasing female participation and political weight.

We recommend that prospective studies be carried out to study sex ratio at birth according to the sex of the preceding child. Dissemination of these findings would sensitize medical practitioners to gender issues. Research is also required to explore the factors that motivate couples to seek abortion services in government approved abortion (CAC) facilities, and the possible linkages between prenatal sex determination and demand for second trimester abortions.

Sex preference in urban Nepal

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