

Gender bias in child care and child health: global patterns

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ABSTRACT

Gender-based discrimination is reported across the spectrum of paediatric healthcare including emergency, inpatient, outpatient and preventive care and is mostly reported from South Asia and China with sporadic reports from Africa and South America. Biases against young girls have been documented even in immunisation percentage, home food allocation, seeking medical care for childhood ailments and percentage of household healthcare expenditures allocated to them. Such gender discrimination in access to medical care is likely to have an influence on the overall health of female children. Over the last five decades, the under-5 sex ratios are worsening in India with declining number of girls. Deliberate parental neglect of girls' essential and life-saving medical care is also an important contributing factor apart from sex-selective abortions to the declining gender ratios. Corrective measures and focused action are needed.

INTRODUCTION

Gender-based differences in access to healthcare have been reported in various aspects of healthcare delivery, encompassing preventive, outpatient and inpatient domains of medicine.¹ Majority of published studies, however, have focused on the adult population, with studies from developing and developed countries highlighting sociocultural and diagnostic biases affecting equal access to healthcare.^{2–11} Sociocultural influences are likely to be more important in the paediatric age group, in whom the healthcare-seeking behaviour is dependent upon societal norms and family practices.^{12–13} Demographic impact of male preference can be inferred from population statistics of South and East Asia,¹⁴ where a large region shows higher female under-5 mortality compared to males, in stark contrast to the rest of the world (figure 1).

Demographic studies have suggested that there are biological factors associated with higher male sex ratios at birth, but under conditions of equitable resource allocation, the age-specific mortalities rates are lower among females across all age groups.¹⁵ The same can be seen in the population statistics from the developed countries of the west (figure 1). These under-5 mortality statistics raise concern for gender disparity over and above prenatal sex-selective abortions. In this review, we aim to explore the literature on gender bias in access to healthcare, and its influence on gender-specific mortality in the paediatric population.

RESEARCH METHODOLOGY

We systematically reviewed the data on 'MEDLINE' and 'Web of Science' on 1 March 2013. The search

phrases were decided based on keywords from recent publications in this domain. The preliminary list of 'search phrases' was discussed with paediatricians at the All India Institute of Medical Sciences, New Delhi and additional search phrases were added with an aim to be more inclusive for articles published in this domain. The final search phrases used in the review included 'gender bias girl child', 'paediatric gender bias', 'gender bias healthcare', 'gender bias healthcare', 'gender disparity health' and 'girl child neglect'. The same search phrases were used in Title/Abstract/MeSH or keyword categories to perform a comprehensive search on MEDLINE and Web of Science individually, revealing a total of 1436 unique references. We used EndNote X6.0.1 for Macintosh (Thomson Reuters, New York, New York, USA) to retrieve and organise the references. We manually searched for original research articles comprising retrospective, prospective and cross-sectional studies that demonstrated gender differences in health parameters, including nutritional health, preventive healthcare measures/community health measures and therapeutic healthcare/hospital-based healthcare in any study group below the age of 12, reported from any of the countries in Asia. The articles where gender differences were secondary endpoints or incidental findings were also included. We excluded case series and case reports in any of these categories. We present a list of the final selected journal articles in table 1. Reports from countries outside Asia were also reviewed and those focusing on gender differences in paediatric healthcare, as above, have been discussed in the text.

REPORTS FROM ASIA

Most of the research articles focusing on paediatric gender bias have emerged from Asia, mainly from South Asia and China.^{12–13 16–20} The impact of long-term gender discrimination in these societies has led to millions of 'missing girls'.²¹ Selected examples and associated social factors in a few representative countries are discussed below. There are three main modes of gender bias: prenatal sex selection, differential care and feeding of children and the differential presentation of children for preventative or curative healthcare by their families.

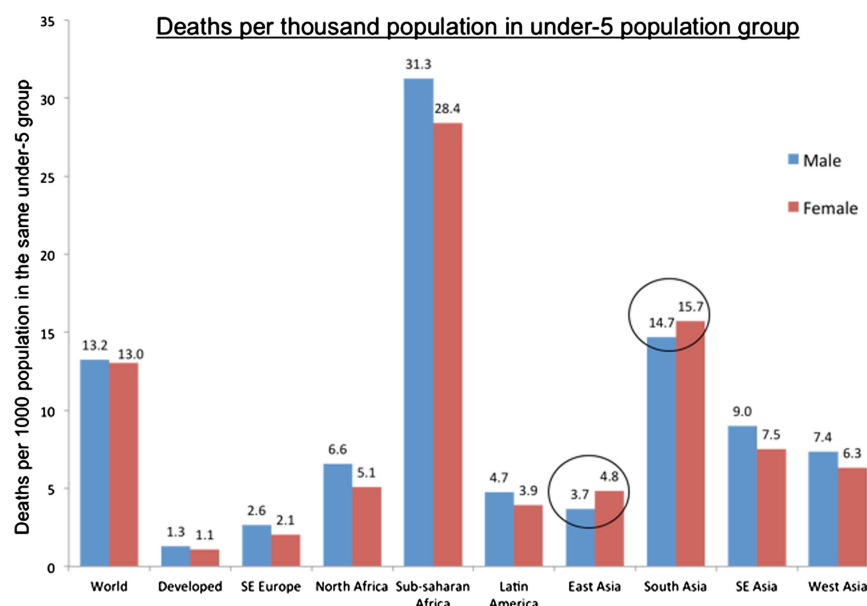
INDIA: THE IMPACT

Gender-based discrimination has been existent in the Indian society for more than a century. The impact of this practice has led to a largely male-biased population sex ratio in India. The current sex ratio of 940 females per 1000 males in India is still far behind that of the developed countries where females have been shown to outnumber males.²² The situation is worse for children aged 0–6 years. This age group has witnessed the

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Figure 1 Analysis of WHO regional estimates for 2008 for assessing regional patterns of under-5 mortality compared for male and female sex across the world. Data reveal excess female mortality in the Indian subcontinent and parts of East Asia in stark contrast to global trends.



maximum decline in sex ratios with consistently falling number of girls over the last 50 years (figure 2) and currently stands at an appalling 914 girls against a thousand boys. Comparing two consecutive census data has revealed that 'made-to-order pregnancies' and 'sex selection' have increased over the last 10 years, with an annual rate of 0.57%,²³ in spite of two decades of

awareness and associated legislation.^{15 24–26} Community studies have shown that urban educated families have the highest rates for prenatal sex selection favouring a male child, and hence, with improving educational standards and better access to medical facilities this practice has increased.²⁷ The data from the sample registration system (2001 to 2007) have attributed 600

Table 1 Original articles from Asia examining gender-related disparity in healthcare in paediatric populations, categorised by country, presented chronologically

Country	Authors (year)	Type of study	N	Outcome
India	Ganatra <i>et al</i> (1994) ⁶²	Cross-sectional	456	In under-5 children, parents were willing to spend more, travel extra distances, seek care from registered physicians for boys compared to girls
	Griffiths <i>et al</i> (2002) ⁶³	Retrospective	8892	No significant differences by gender in weight for age in the under-5 age group in three Indian states
	Boroah <i>et al</i> (2004) ⁶⁴	Retrospective	4000	Children—Immunisation rate and likelihood of getting nutritious diet when the mother is illiterate is 5% less in girls than in boys
	Bhan <i>et al</i> (2005) ⁶⁵	Prospective	85 633	Children—Hospitalisation rates for diarrhoea, acute respiratory infections or other febrile illness were significantly lower for girls
	Sahni <i>et al</i> (2008)* ²⁴	Retrospective	33 524(deliveries)	Single hospital 11 decade review—Second child sex ratios if first born is girl, 716 females versus 1000 males
	Asfaw <i>et al</i> (2010) ¹²	Cross-sectional	†60th Indian National Sample Survey (NSS) data set	Higher adjusted rate of hospitalisation for boys, higher outside borrowing/extreme measures for boys versus girls for meeting hospitalisation expenditures
	Ramakrishnan <i>et al</i> (2011) ¹³	Prospective	405	Lesser proportion of girls underwent recommended cardiac surgery for paediatric congenital heart disease
	Singh <i>et al</i> (2012) ³⁶	Cross-sectional	‡1972(1992–93), 3930 (2005–06)	Gender-based within-household inequality against females in immunisation—Persistent but improved in the past 10 years
Nepal	Pokhrel <i>et al</i> (2005) ⁵³	Retrospective	8112	Children—Gender was a factor-determining choice of external care and choice of bearing the expenditure required for treatment with a bias towards males, although not statistically significant.
Bangladesh	Dancer <i>et al</i> (2008) ⁶⁶	Cross-sectional	5172	2004 Bangladesh Demographic Health Survey (BDHS) analysis—Better nutritional status for males versus females, higher z-scores for height for age
	Rousham <i>et al</i> (1996) ⁵²	Prospective	1366	Height and weight for age—Less for females in landless, poor households
	Mitra <i>et al</i> (2000) ²⁰	Prospective	496	In children, females more likely to die of severe diarrhoea, late presentation to hospital
Pakistan	Nuruddin <i>et al</i> (2009) ⁴⁹	Cross-sectional	3740	Higher female versus male under-5 mortality, but not attributed to differential healthcare-seeking behaviour
China	Attane <i>et al</i> (2009)* ¹⁹	Retrospective	†Census data—Multiple years	Census data analysis—Proves existence of lethal healthcare neglect in females in provinces of China

*Data not directly focusing on healthcare allocation, but significant due to large population-based studies exposing gender-based neglect of girls.

†Numbers not explicitly reported/census data sets.

‡Number of eligible households, two separate cross-sectional time points.

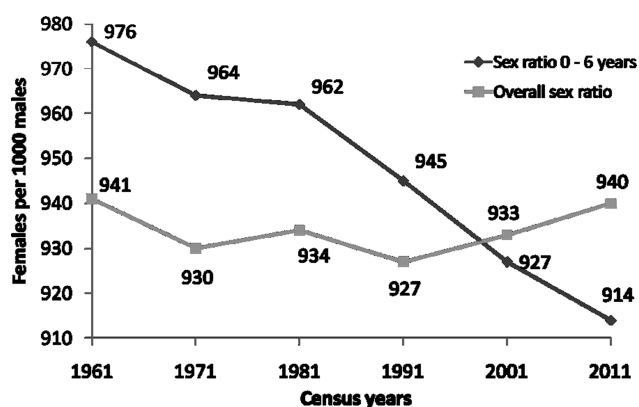


Figure 2 Declining sex ratio in the age group 0–6 years (Data adapted from Census data 1961–2001, 2011 data represent gender composition of population in provisional population totals—Census India, 2011).

thousand missing girls every year to prenatal sex determination and selective termination of the female fetus in India.²⁸ Detailed analysis of the WHO data for global burden of disease 2008¹⁴ reveals that the problem of gender-selective mortality in the paediatric age group is mostly limited to the countries in the Indian subcontinent (figure 1).

Healthcare neglect among young children may also contribute to the differential mortality rates. There seems to be a biological influence on higher male sex ratios at birth but under conditions of equitable resource allocation, the age-specific mortalities rates are lower among females across all age groups.¹⁵ Despite the mortality advantage of the female sex under ideal conditions, the sex-specific under-5 mortality rates in India (male—98; female—105) show a definite gender bias against the female child.²⁹ A trend of mortality bias against girls in the postneonatal period is evident from the 'Million Death' study data.³⁰ The study reports an unfavourable under-5 mortality rate of 90.2 per 1000 live births for females compared to 82.2 per thousand for males, despite the fact that the neonatal mortality rate is lower for girls at 33.5 compared with 40.1 for boys. Therefore, the mortality rate for the postneonatal period is 41.7 for boys and 56.7 for girls. A subgroup analysis of the data presented in the study reveals that the bias against girls is common in India and is prevalent among varied socio-economic and demographic categories (figure 3).

India: hospital-based healthcare

Many studies have reported the state of neglect for girls in India and its culture. Studies in North India^{31–32} have shown a difference in hospital attendance between males and females, which was seen in outpatient (65% males vs 35% females) and inpatient (84% males vs 16% females) paediatric settings. It was also noted that the duration from admission to death was shorter in girls, possibly due to delayed hospital admissions.³¹

A recent study by our group¹³ brought to light discrimination against girls in opting for life-saving procedures for congenital heart disease. At the end of 1 year of follow-up among 405 patients, only 44% of girls underwent cardiac surgery compared to around 70% of the boys. The qualitative aspect of the paper draws attention to the deep-rooted social prejudices against girls, including differences in matrimonial prospects even after successful surgical procedures, lack of support from family and relatives for the treatment of girls and lesser conviction among

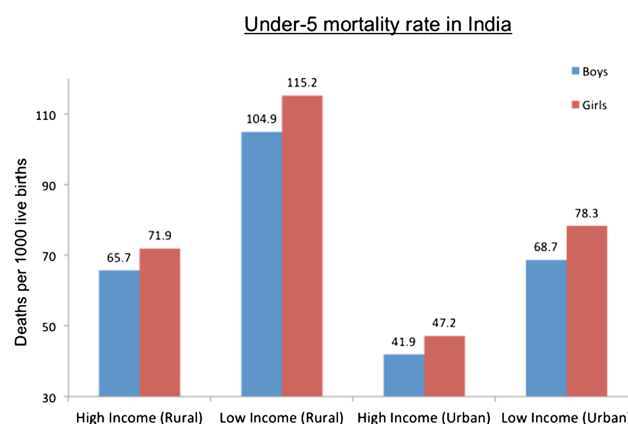


Figure 3 Subgroup analysis of the under-5 mortality rate among major socio-economic and demographic groups (from data presented in the Million Death study).

parents of female patients to dedicate their time and resources, compared to those of male patients.

Another study in 2010³³ has also highlighted gender disparities in healthcare-seeking behaviour in most childhood cancers in India. In this study, a comparative review of the National Cancer Registry Program of India has shown that data from many major Indian cities show much higher male preponderance with cities like Ahmedabad, Delhi, Chennai and Mumbai showing ratios of 2.24, 1.92, 1.55 and 1.34, respectively, in comparison with a male to female sex ratio of 1.2:1 for all cancers in resource rich countries, possibly a manifestation of gender differences in the healthcare-seeking behaviour of the Indian population. Although other studies have also suggested a similar bias against girls,³⁴ evidence for such deductions is largely indirect and more focused studies are required to explore the extent on this bias completely.

India: community healthcare

There are many examples of discrimination for basic healthcare necessities of girls in India. Demographic analysis of data obtained from National Family Health Survey by Pande (2003)³⁵ has shown that female children have lower rates of vaccination (13% lower) than males of the same age group, with the females faring much worse in households with higher number of male siblings and total siblings. The same study also brought to light long-term nutritional deprivation among girls in the same study population with 6% higher rate of being severely stunted as compared to boys. Gender-based nutritional and immunisation biases have also been reported by a few studies from India.^{36–40} A follow-up observational study conducted in West Bengal showed that for episodes of fever, diarrhoea and acute respiratory infections fewer girls received medical attention from qualified medical professionals and such treatment was sought after longer delay compared to the boys: 21.2 ± 9.5 h for girls versus 8.3 ± 4.5 h for boys.⁴¹ Girls were shown to be more stunted and underweight compared to the boys living in similar low-resource households. The lean body mass among the females declined with age, opposite to what is expected.⁴¹ Even medical expenditure for similar illnesses on healthcare services borne by the families varied significantly (INR (Indian National Rupee) 45 for girls vs INR 77 for boys). Families in the lower socio-economic strata are more likely to spend for medical facilities including boys rather than girls, as revealed by analysis of the national registry data from India.²¹

CHINA: LIMITED EVIDENCE

The story presented by the Indian society is replicated in China as well,¹⁹ although fewer studies are available to conclude whether the bias is as widespread. China has a large number of missing girls, widely attributed China's 'one-child policy', a cultural preference for male heirs, availability of prenatal diagnostic testing and weak enforcement antisex-selective abortion laws.^{42 43} Back in the 1990s when the issue of gender bias was first highlighted in the literature, a thorough evaluation of the life and death statistics from 1950 to 1990 for China revealed an excess female mortality in the under-5 age group and a high rate of female child abandonment.⁴³ United Nations has estimated that together, India and China have over 163 million missing women caused by a multitude of explicit and implicit biases against girls.⁴⁴ Another study recently estimated 40 million missing girls in China and inferred that the 'one-child policy' is considered the single most important factor fuelling the gender gap and male excess.¹⁸ However, population analysts have shown that a significant part of the missing girl problem in China is a result of neglect of girls in preventive and curative healthcare.¹⁹ This paper disputes state-enforced fertility as the most important cause for excess female mortality by quoting examples from provincial differences in China, with low (1.39 children/woman—Heilongjiang) as well as high (2.37—Xinjiang) fertility authorised provinces demonstrating near-normal sex ratios (107 males per 100 females at birth) compared to the Hainan province where high authorised fertility (2.14) is coexistent with pronounced sex imbalances (130 males per 100 females at birth). Medium to higher levels of fertility (>1.5), regional ethnic differences and extreme poverty are shown to impact healthcare neglect more as financial stability and male education allows for 'made-to-order pregnancies'.¹⁹ There are reports of trend towards gender bias in immunisation in rural China; however, pooled cross-sectional data failed to reveal any significant effect of gender.⁴⁵ Although indirect evidence points towards unequal healthcare for girls in China, focused studies are needed to further understand whether such a bias in healthcare access results in significant differences in outcome.

OTHER EXAMPLES FROM ASIA

Societal gender bias is culturally as prevalent in other Asian countries as well, including Pakistan, Bangladesh, Nepal, South Korea and Vietnam.^{8 17 21 46–50} These societies have cultural similarities to India and China including preference for sons over daughters and the resultant male predominant sex ratios through sex selection in pregnancies.^{17 40 48} Paediatric healthcare suffers a significant bias against girls in these countries. In Pakistan, it is shown that mothers who suffered from childhood neglect or bias further propagate male preference.¹⁷ There have been sporadic studies showing differences in basic household necessities and food allocation⁴⁰ as well as seeking medical attention for serious medical disorders like infective endocarditis.⁵¹ A study from Thatta, Pakistan, reports excess postneonatal female mortality compared to age-matched males not attributable to gender bias in healthcare-seeking behaviour; however, authors admit that the study was potentially underpowered and could be affected by recall bias given its retrospective design.⁴⁹

In Bangladesh gender bias in healthcare has received a lot of attention. Various economic and mathematical research models have also been able to unearth some of the intrinsic pro-son bias in the Bangladeshi society by focused subgroup analysis. An outpatient cross-sectional study revealed that fewer tuberculosis

cases were reported, less robust diagnostic effort and treatment initiation rate in females compared to males.⁵⁰ This study showed such bias across the range of ages. A paediatric study revealed that females had double the mortality rate compared to males in severe infections like infectious diarrhoea; delayed reporting and delayed hospitalisation with much more severe symptoms at presentation were clearly demonstrated in girls.²⁰ As is expected there is much higher bias among daughters of poorer socioeconomic strata which was greatly exaggerated in times of severe adversities, like natural disasters.⁵² In Nepal, healthcare choices have been shown to be associated with significant gender bias. Delays in disease reporting as well as opting for poorer quality of healthcare services are observed in girls compared to boys.^{53 54}

BEYOND ASIA

Sporadic reports of gender bias in paediatric healthcare have been reported from underdeveloped and developing nations in other parts of the world as well. Reports from Egypt^{55 56} and Tunisia⁵⁷ suggest lower healthcare expenditures on girls compared to boys along with lower access to immunisation and basic medical care for common illnesses like diarrhoea. Similar reports have emerged from parts of South America as well; in rural Peru girls in infancy and early childhood had much lesser healthcare access and parental time, effort and money in managing their health problems; this practice has been equated to 'passive infanticide'.⁵⁸ In Chile, young girls below the age of 2 years receive less than 40% of the preventive healthcare used for boys of this age group.⁵⁹ These reports are sporadic and may not be representative of the societal structure or healthcare-seeking behaviour in these countries or population groups. We could not come across any paper on gender-based discrimination in paediatric healthcare from the developed nations of the world including the USA, Europe, Canada and Australia.

THE WAY FORWARD

Abolishing gender bias in child healthcare is a major challenge. The medical practices associated with 'sex selection' can be controlled by strict regulations against medically assisted gender selection. We really do not know the extent of bias in the management of ill children by colluding health professionals who are themselves products of a gender-biased culture; but such a bias should be amenable to educational initiatives on a shorter timescale. However, the problem of passive infanticide that seems to permeate the societies in South Asia is a bigger challenge and is much harder to handle, as it requires infrastructural overhaul and social awakening. This bias seems to stem from a deeply rooted social evil and the road to female emancipation is an uphill one; however, there are encouraging examples from a few population groups in the Indian subcontinent itself that have succeeded in eliminating it. States in southern India, with similar per capita incomes as the rest of the country, are shining example with practically no gender bias over the last couple of decades, largely attributed to a progressive societal attitude and high levels of literacy in the general population.⁴⁸ Another study in Bangladesh has documented that commitment towards alleviation of gender bias in healthcare has the potential to overhaul the sociocultural practices in existence over centuries. Maternal education and not economic progress was found to have the maximum impact on bringing about a change in existing beliefs.⁶⁰ Recent studies have shown that the female neglect in food allocation and poor nutritional status is improved remarkably with access to subsidised staple food and subsidised

healthcare is believed to have a similar impact of healthcare allocation.⁶¹

In India, education and improved access to healthcare seems to paradoxically encourage sex-selective abortions.²⁷ Directed research is warranted to better understand the societal factors that are responsible for propagating gender bias. Studies have suggested that gender-based discrimination is more prevalent among people of lower socioeconomic and educational status,¹³ yet there is no evidence to suggest that the discrimination disappears with improving education or economic status. Even strict legislation and enforcement for years have failed eliminate sex-selective abortions in India. Change in societal norms and empowering women are likely to have long-term impact in reducing sex-selective abortions and gender-based discrimination in healthcare; however, it may be difficult to achieve across a diverse country like India. As physicians, our priority in tackling gender bias should be to advocate and promote policies that will bring about the much-needed societal change of education and empowerment of women. Meanwhile, there needs to be a definite effort on the part of policy makers to specifically focus on eliminating the gender discrimination in healthcare allocation independent to pursuing the national economic development goals.

To conclude, gender bias in paediatric healthcare is widely prevalent, especially in resource-limiting conditions of the developing and underdeveloped countries in Asia, South America and Africa that have been associated with societal son preference. Gender-based discrimination exists in medical, surgical and preventive spheres of paediatric healthcare. India and China, together constituting one-third of the world's population, report majority of gender-based discrimination. The selective abortion of female fetuses, which has received most attention, is only a part of the problem that has led to millions of 'missing girls' in the last couple of decades. Although the medical practices associated with sex selection can be controlled by strict regulations against medically assisted gender selection, the problem of passive infanticide that permeates the society is a bigger challenge which is much harder to handle and requires infrastructural overhaul and social awakening.

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