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Gender Biased Sex Selection: Key Issues for Action

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Introduction

This discursive paper is intended to spell out the key issues, concerns, and challenges facing evidence-based policies and actions to address the practice of sex selection, in contexts where persistent gender discrimination and bias against girls and women provide a major impetus for the practice. The evidence on which the paper is based is mainly derived from parts of East and South-Central Asia, where the practice is significant, and has been raising concern among governments, international agencies, and civil society. The paper does not focus per se on the practice of sex selection for family balancing purposes, which is known to exist in other parts of the world, although it makes some remarks about the need to sort out the evidence of gender biased versus non gender biased sex selection. The time dimension of the paper is the period of the last three decades when the practice has become numerically significant, although it draws upon earlier historical and ethnographic evidence to highlight some critical aspects of causes and consequences. Its principal intention is not to provide an exhaustive review of either the literature or the evidence, but to identify key elements that are important to guide policies and actions for the future. It also points to gaps in the evidence and analysis that need to be filled in as soon as possible. While the paper draws on evidence from different countries, most of the discussion of issues reflects on the Indian experience largely because of the availability of material in English, and because of my own familiarity with the evidence and the context.

Background

Sex selection – what is it?

The technology for modern day sex selection has been evolving and diffusing quite rapidly in the last three decades. Sex selection is a two step practice. The first step includes methods for *sex detection* such as amniocentesis, ultrasonography, chorionic villus sampling, and more recently a simple blood test on the pregnant woman. As with ultrasound and other techniques, amniocentesis was developed to support foetal medicine, but was one of the earliest of the modern methods of sex detection. It is based on using a hollow needle inserted abdominally into the amniotic sac to draw a sample of the amniotic fluid containing fetal cells, usually between the 15th and 20th week of pregnancy; its purpose is to count and analyse the number of chromosomes present including the sex chromosomes. Because the procedure involves certain risks to the fetus¹, requires a skilled practitioner and ongoing ultrasound, and can only be done well into the second trimester, it has largely been supplanted by ultrasound imaging which is less invasive and less complicated. The accuracy of sex detection using two-dimensional ultrasonography is poor before the 12th week of pregnancy, and hence this is also a second trimester procedure, although it is fairly reliable early in the second trimester.

Some evidence exists to suggest that three-dimensional ultrasonography can be more reliable in the late first trimester, but this is not much in use at present. Among other first trimester tests is chorionic villus sampling, which involves extracting and testing a small piece of the placenta, and therefore is invasive and has risks similar to amniocentesis. The least invasive first trimester test is a blood test based on drawing a small sample of maternal blood in which fetal cells can be found. It is low risk and only requires the existence of lab testing capacity. Although this test is not in wide use as yet in Asia, anecdotal evidence suggests that it has now become available in major cities in the northwest of India.

The second step in sex selection is the actual act of *choosing* whether or not to undertake or continue the pregnancy based on the desired sex. This step can be done at any of three stages: *pre-implantation* via sperm sorting or pre-implantation genetic diagnosis – PGD - using IVF embryos², *post-implantation* via abortion, or *post-birth* through infanticide or child neglect.

¹ Such as membrane rupture, or ongoing leakage resulting in foetal loss, indirect foetal injury, infection or miscarriage.

² Pre-implantation methods do not actually involve two separate steps of sex selection since they use prior technological intervention to decide the sex of the fetus.

Before modern techniques became available, infanticide and neglect were the main methods by which families dealt with unwanted children, and these practices existed outside Asia as well.

Each of these methods has different legal, ethical, health and human rights implications. Post-birth methods are negative on all four grounds, as is obvious. On the other hand, post-implantation elimination of an unwanted foetus was not illegal in countries like China, India, Vietnam or South Korea, (where abortion has been legal for many years and for a wide range of reasons) until specific laws to tackle sex selection were enacted after the mid-1980s (Ganatra 2008; Table 1; reproduced below). These newer laws vary across countries. For example, in the five countries in the table, sex selective abortion has been made illegal in China, Vietnam and Nepal, but is not illegal in India or S Korea. In India, it is sex determination that is illegal, not the consequent abortion. The health, ethics and human rights implications of post-implantation methods are more complex, and have been the subject of intense public debate. We will address these in greater depth later in the paper.

Pre-implantation methods currently have an ambiguous legal status in the region, e.g., the 2002 Amendment to India's Pre-Natal Diagnostics and Testing (PNDT) Act (1994/1996) made pre-conception methods also illegal. The Act has now become the PCPNDT Act (2002/2003) incorporating legal barriers to sperm sorting and PGD. Such barriers do not exist in all countries. Pre-implantation methods raise fewer health, ethical, human rights concerns *per se* as far as the techniques themselves are concerned. It is arguable, however, that their use for gender biased sex selection may raise both ethical and human rights questions mainly concerning the exercise of individual choice and rights versus collective or social aims; we address these later in the paper.

Table 1. Laws and policies relating to sex selection and abortion in selected Asian countries

Country	Prenatal sex determination	Abortion
China ²⁴	Banned since 1989. Penalties include fines, revocation of licence. Pre-implantation sex selection is also prohibited.	Abortion available and widely accessible since 1953. Sex selective abortion prohibited since 1994, no criminal penalties.
India ^{18,25}	Banned since 1994. Pre- and peri-conception techniques prohibited from 2002. Penalties include seizure of machines, fines, jail terms and revocation of licence.	Since 1971, abortion legal to 20 weeks for a broad range of indications: risk to the woman's life, physical and mental health, contraceptive failure in married women, rape and fetal anomaly.
Nepal ²⁶	Banned in 2002, penalties include 3–6 months imprisonment.	Abortion legalised in 2002. Available on request for 12 weeks and for limited conditions to 18 weeks. The law bans sex selective abortion; penalties include 1 year imprisonment.
South Korea ¹⁹	Prohibited since 1987. Penalties increased in 1994 to include imprisonment, a fine up to US\$12,000 and revocation of licence.	Legalised in 1973 and allowed to save the life of the woman, for rape, incest and some birth defects, and medical conditions. In practice, abortion widely available.
Vietnam ^{17,27}	Determining sex through traditional or modern means prohibited in 2003. Violations can be fined.	Abortion has been legal since 1960. Sex selective abortion banned in 2003. Penalties include fines.

Source: Ganatra (2008), p 92

As mentioned, technology and practice have been evolving rapidly in East and South-Central Asia. While there are only vestiges of infanticide remaining, largely in very rural or backward areas where it has been a traditional practice and where newer techniques have not yet arrived, neglect of girl children through poorer feeding, clothing and health care still exists, although there is some evidence of changes in this regard, as discussed below. Amniocentesis followed by second trimester abortion emerged as the new technique of the 1980s, but was fairly rapidly overtaken by second trimester ultrasound followed by elimination if the foetus was identified as female. Ultrasound technology has spread rapidly in both China and India with the use of portable machines. While there is a thriving second hand market in refurbished machines, the main manufacturers are well-established firms such as General Electric. At present relatively inexpensive³ palm-top machines have become available in Vietnam and possibly elsewhere.

³ Advertised on the internet for US \$ 2200

Not all sex selection is gender biased. Thanks to the proliferation of Assisted Reproduction Technologies (ARTs), it has become more possible for women and couples to balance their children, choosing a girl if they already have a boy, and vice versa. Barring those who object in principle to ARTs or the use of embryos or stem cells, the general agreement is that there are no major health, rights or ethics issues inherent in such balancing. One could of course argue (and some do) that such choices are a slippery slope leading to eugenics, but this argument may be more relevant for choices made to prevent disability rather than to select a particular sex. This paper does not go into these issues as they do not constitute a major concern at this stage in Asia, although it should be noted that, with the increasing use and availability of ART services, they may become so in the future.

A more immediate issue is that there has been almost no analysis to date that decomposes the observed sex ratios⁴ in Asia into components due to sex balancing versus gender bias (Sen and Mukherjee, draft). Bhat and Zavier (2007) found, using the 1998-99 National Family Health Survey (NFHS-2) data, that there was a statistically significant increase in the sex ratio at birth (SRB) at third or higher parity for women who had no previous sons. While there was some tendency in the reverse direction for women who had no previous daughters, this was smaller, and the difference from the normal in this case could, they argue, be due to sampling error. However, data from the Special Fertility and Mortality Survey (SFMS) of 1.1 million households conducted under the Sample Registration System in 1998 in India recorded a much lower SRB of 91 (as compared to the normal of 105) (SFMS, 2005; p 12; Statement – 10) at second parity for women who had a son as the first child. This might suggest, assuming plausibly that there is no bias against sons in India, that there may be some amount of sex balancing going on (Sen and Mukherjee, 2009), and bears further investigation.

Brief summary of evidence, data limitations and issues

The normal sex ratio at birth (SRB) varies around 104 – 106 males per 100 female births as a compensation for the greater biological vulnerability of boys, evidenced by male mortality below 5 years of age being normally 10 – 20% higher. As a result the child sex ratio (CSR) is normally

⁴ In this paper we use the standard international definition of the sex ratio (number of males per 100 females).

lower than the SRB and this decline continues as the cohort ages, resulting in longer life expectancies for women and a sex ratio below 100 for the older population. This normal pattern has not, however, been observed in some of the most populous parts of Asia.

Historical data for India shows the overall sex ratio in the population steadily increasing according to census data going back to the early 20th century (Visaria 1971). This was largely due to a growing differential between the mortality of females versus males at different ages in the population. Since the 1980s, however, it is the SRB that has been shifting significantly in favour of males. Guilmoto (2007) synthesizes these data as follows:

“...In 2005, six Asian countries reported a severe sex-ratio imbalance, with levels for children above 108: India, South Korea, Georgia, Azerbaijan, China and Armenia. Detailed figures for China and India show that the child sex ratio in these countries has long been above normal values, as seen in the data from the 1950s and 1960s. But in addition to this legacy, the situation worsened in these countries from the early 1980s onwards. This was the case especially for Azerbaijan and China, where, by 1990, the sex ratio among children had already reached the record value of 110. Along with China, several Caucasian countries had a child sex ratio above 115 in 2005, while countries outside of Asia usually record values of 101-105....”

In 1950, three out of the four regions of Asia had a normal SRB – 105 in West and Southeast Asia, and 106 in South-Central Asia. East Asia has long been much more masculine, however, with SRB reaching 109 already by the mid-century. The situation in these four regions remained unchanged until the 1980s. Thereafter, there was an increase in SRB in East Asia from 1980-85, and in South-Central Asia from 1985-90, while the situation remained normal elsewhere in Asia. A further deterioration occurred in East Asia in the early 1990s, with SRB eventually reaching 114 in 2000-05 under the influence of China and, to a lesser extent, South Korea. In South-Central Asia, trends are mainly driven by India, where SRB increased to 107. In 2000-05, five countries in West and East Asia had a very unbalanced SRB, with values above 110. China’s most recent SRB estimate is above 120. India is in an intermediate position, as the national SRB average was 108 during this time period, though the country’s northwestern states do record values close to those of China...” (pp 2-3)

The most recent evidence from China - data collected by the intercensus survey in 2005 on a 1% sample of the population - was analysed by Zhu, Lu and Hesketh (2009). They found that, while sex ratios were high across all age groups and residence, they were highest in the 1-4 age group. Although SRB was close to normal for first parity, it went up sharply for second parity, reaching

levels of 143 – 149 in rural areas. This was especially true for rural areas where families were allowed to have a second child if the first was a girl.

Differently from China and S.Korea, the rise in SRB in India has been faster in the urban areas, among better off households, and more educated women. The 2001 Census suggested that, although there had been some improvement relative to the 1991 Census in the overall population sex ratio (from 108 to 107), the sex ratio for the (0-6) age group worsened from 106 to 108. Bhat and Zavier's (2007) analysis of the NFHS-2 data for the late 1990s together with the fertility data from the 2001 census showed that SRB was still within the normal range in southern and eastern India, but was abnormally high in the north-west. Interestingly, they found that prenatal diagnostic tests (PNDT) were much more used in the south, but their 'misuse' for gender biased sex selection was greater in the northwest. This suggests that the availability of the technology per se does not mean it will be misused, and that other factors are more critical. Important among these was the sex of existing children, with the absence of a son as the first child being associated with a very high probability of a male birth as the second child.

Zhu, Lu, and Hesketh (2009) estimated that in 2005 there were 32 million more males than females under the age of 20 in China, and that 1.1 million excess births of boys occurred in that year. Kulkarni (2007) estimated a deficit of girls in the 0-14 age group of 9.852 million in 2001 of which 38 percent was attributable to excess female mortality, and the remaining 62 percent to abnormal SRB as well as errors such as age mis-reporting. He also estimated an annual average of 612,000 sex selective abortions during the period 1981- 2005 (Kulkarni, 2007; Table 4). Of the estimated totals of around 8 – 11 million abortions per year in India, this would constitute between 5.5 to 7.8% of the total.

It is important in looking at the evidence to take note of the fact that, while there is broad agreement among analysts that there is a problem of gender biased sex selection, the data need to be handled with care. For example, in India, there are four types / sources of data – the decennial population census, the Sample Registration System (SRS), the NFHS, and various qualitative studies. In addition the Special Fertility and Mortality Survey (SFMS) was conducted in 1998. Bhat and Zavier (2007) caution about the possible effects of age misreporting (which would

particularly affect small intervals such as the (0-6) age-group), and point to the need for ensuring cross-checks to rule out the effects of under-reporting of female births in order to ensure the accuracy of estimates. Kulkarni (2007) points out that the SRB estimates from the SRS and the SFMS (also collected by the SRS) are considerably higher than those from NFHS-1, NFHS-2 and the census. While SRS (1998-2000) and SFMS (1997) estimates for the SRB were 111.4 and 111.2, NFHS-2 (1998-99) gave an SRB of 107.0, a large difference. Similarly, the Census 2001 SRB estimate was 110.4 against an SRS estimate of 113.3 for 2001-03 (Kulkarni, 2007; Table 1). Cautions about the data call for greater care in the analysis, especially as the subject is one that has elicited great concern beyond the group of trained demographers.

While there have been a number of qualitative studies, the best known recent study for India is the one by John, Kaur, Palriwala et al (2008) for selected districts in five of the worst affected states (Madhya Pradesh, Rajasthan, Himachal Pradesh, Haryana and Punjab). They concluded that there is clear and marked 'daughter aversion' in these districts, but they also found that, with the growing prevalence of the small family norm, "...families increasingly do not want extra sons either. It is also the case that more and more families are having one boy and one girl,...(but) significant numbers are having one son, two sons, two sons and a daughter, but hardly anyone has only daughters. Family planning is therefore planning for one or two sons, and secondarily allowing for the birth of at most one daughter..." (p 85).

Ethnographic insights

"The birth of a son enhances my status, while that of a girl lowers my head. Land is the mother for Jats and looking after it is akin to caring for your mother. If boys are there, the land will be looked after, but if there are only girls then the land will be sold. Boys are the owners of land, they are the tree of the house that flowers and fruits" (a Jat father; quoted in Dagar 2007; p 113)

Although the language of 'son preference' and 'daughter aversion' have become commonly accepted in the discourse on sex selection, these terms may be over-simple as they tend to direct attention to personal choice and emotional affect. Ethnographic studies point to complex and varied sets of interlocking historical factors that manifest finally as lower sex ratios. In South Korea, social engineering during the Choson dynasty (14th to early 20th centuries) replaced

bilateral family inheritance systems by a rigid patriarchal and patrilineal system that "...detailed the roles and status of each member of a household and lineage, under the unchallenged authority of the male head of the family. These authoritarian kinship relations were mirrored through the political hierarchy, culminating in obeisance to the king..." (Chung and Das Gupta, 2008; p 760). The son became central to the family's inheritance, the transfer of landed property, and key rituals including the worship of ancestors as part of a neo-Confucian ideology. The daughter became expendable. In China, while the Maoist period broke with the old Confucian patriarchal families and reinforced this by doing away with private property in land and private inheritance, the coincidence of the economic reforms post 1979 with the application of the one-child policy brought son-preference back in a major way in the 1980s (Banister, 2004).

In the northwest of India, the work of Das Gupta (1987, 1995) and Kaur (2004; 2008) show that there existed a complex system of managing family size relative to farming needs, together with the need to keep property intact. These needs were met through a combination of patrilineal inheritance, non-marriage of younger sons, fraternal polyandry, and female infanticide. Das Gupta (1995) points to some of the parallels with historical Europe, where younger sons of the landed often could not marry, and excess daughters were sent off to convents with a dowry. Kaur (2008) points to the fact that younger sons traditionally were also discriminated against as their labour was recruited to the family farm but they were often not allowed to marry or start families. The need to keep property intact appears to have been a major factor in northwest India, a region where land was more widely distributed among a numerous group of *jat* peasant farmers (unlike the landlords of Pakistan's Punjab), and where over time, irrigation and later the spread of the Green Revolution technology brought rising incomes and improved infrastructure. The cultural and marriage practices of the *jats* included strong patrilocality so that daughters were viewed as "*paraya dhan*" – the wealth of others – and therefore both a burden (in terms of the need to control their sexuality in order to preserve the family's honour) and a cost (in terms of their daily consumption, as well as the dowry that they took with them in marriage). Processes of cultural diffusion carried such practices to other, lower castes, and also to the urban areas. As families moved to urban areas, they tended to retain links to the land, and also began to view dowry as an important means to accumulate wealth and consolidate consumption, possibly a growing replacement for the place of land in the new urban economy.

From the above, it becomes clear that it is important to understand the rise in sex ratios, and the normalization of the use of gender-biased sex selection beyond the affective frame of personal ‘preference’ and ‘aversion’, in terms of marriage systems, family formation, and property, as well as the impetus and policies of modernizing states. *In this sense, rising sex ratios can be seen as sentinel indicators for a potent mixture of property / marriage / family formation systems, and ritual orders in which gender discrimination and bias are deeply entrenched, with social policy and technology playing key exacerbating roles.*

Dimensions of the problem

The discussion up to this point in the paper provides a quick review of key aspects of the problem of gender biased sex selection and declining sex ratios in Asia. Developing effective and sustainable policies and actions requires addressing key dimensions of the problem – health, human rights including demographic and gender discrimination / bias consequences, and technology. This section of the paper explores these dimensions.

Health implications

Traditional post-birth forms of sex selection implied, as seen earlier, higher infant and child mortality and morbidity through infanticide (Das Gupta, 1995), and neglect of girl children involving biased feeding practices, inadequate clothing during winter, and less and lower quality health care (DasGupta, 1987).⁵ Infanticide as a practice has also been documented for China (Banister, 2004). ICRW (2009) found through an analysis of NFHS-1 (1992-93), NFHS-2 (1998-99) and NFHS-3 (2005-06) that although overall levels of severe stunting declined during the period for both boys and girls, rural girls with two or more older sisters had significantly higher risk of severe stunting than other children. These childhood differentials are likely to carry over into adolescence and into the nutritional (including anemia) status of young pregnant women, calling for targeted policy and programme attention to higher parity girls. The study also found a

⁵ It should be noted that neglect of girl children can happen even in the absence of a sex selection impetus. Some of the earliest discussion of sex differentiated feeding practices was for Bengal, not an area known for sex selection either historically or contemporaneously (Chen, Huq and D’Souza, 1981; Sen and Kynch, 1983)

significant female disadvantage in terms of full immunization even in 2005-2006, even though immunization is free and provided through mass public campaigns. However, these differentials appear to be falling.

The shift from the mid-1980s on away from post-birth towards greater use of post implantation techniques (second trimester ultrasound followed by induced abortion) has almost certainly reduced the problem of infanticide even though it may not have disappeared altogether. There is some evidence that girls in families that successfully achieve their desired sex composition of children (one boy and one girl, or two boys and a girl) receive better treatment (Das Gupta, 1987). Data on health and nutrition from three of the districts with high sex ratios suggest less discrimination against such girls (John, Kaur, Palriwala et al, 2008)

A serious health concern is the elevated risk posed by increasing numbers of unsafe second trimester abortions, although it must be borne in mind that the estimated percentage of sex selective abortions in the total may be only 6 – 8 % for India (see p 7 above). More stringent enforcement of the PCPNDT Act in India after 2001 may have driven at least some abortions underground to unsafe providers, since there is considerable public confusion about the legal status of abortion and sex selection, and this has been compounded by public media campaigns as we discuss later. Ironically, a shift to more efficient and earlier sex selection (e.g. through sperm sorting, or early to mid first semester detection through a blood test) would lower these health risks. The current period of the policy struggle to change behavior through legal barriers and communication campaigns is possibly the period with the riskiest direct consequences for women's health, especially access to safe abortion.

The ICPD Programme of Action (para 8.25) and the ICPD Plus Five Review's Key Actions (para 63) provide the current agreed inter-governmental consensus regarding access to safe abortion and post-abortion counseling.⁶ Many of the Asian countries under discussion permit legal

⁶ ICPD Plus Five Key Actions para "63. (i) In no case should abortion be promoted as a method of family planning. All Governments and relevant intergovernmental and non-governmental organizations are urged to strengthen their commitment to women's health, to deal with the health impact of unsafe abortion as a major public-health concern and to reduce the recourse to abortion through expanded and improved family planning services. Prevention of unwanted pregnancies must always be given the highest priority and every attempt should be made to eliminate the need for abortion. Women who have unwanted pregnancies should have ready access to reliable

abortion under a wide range of circumstances, although some have made abortion for sex selection illegal. From a health standpoint, and as agreed by governments, the position is clear – abortion should be safe; women should have access to services to manage complications, and providers should be trained and equipped to ensure that abortion is safe and accessible.

Recognising that rising sex ratios are sentinel indicators for bias and discrimination does not alter this. It implies that policies and actions intended to prevent gender biased sex selection should not put at risk women's access to safe abortion services for purposes other than sex selection. Even where abortion for sex selection has been made illegal as in China, Vietnam and Nepal, women should have access to quality services for the management of complications as agreed at ICPD. Most important, policies and actions of governments, agencies, and other organizations including ngo's should focus on approaches to minimizing biased sex selection that do not risk women's access to safe abortion (Ganatra, 2008). This is discussed further in the final section.

Human Rights

The violation of the right to health of millions of young girls is a major violation of human rights, but as we have seen above, it is largely a result of the gender bias underlying sex selection, rather than of the process of sex selection itself. But there are also other human rights linked issues. Guilmoto (2007) referred to the problem of rising sex ratios as a “demographic tragedy of the commons”, where the exercise of individual rights has negative social consequences. He defines having a normal sex ratio (or more accurately, the absence of gender biased sex selection) as a classic ‘public good’. Public goods by definition call for collective and

information and compassionate counselling. Any measures or changes related to abortion within the health system can only be determined at the national or local level according to the national legislative process. In circumstances where abortion is not against the law, such abortion should be safe. In all cases, women should have access to quality services for the management of complications arising from abortion. Post-abortion counselling, education and family planning services should be offered promptly, which will also help to avoid repeat abortions. (ii) Governments should take appropriate steps to help women avoid abortion, which in no case should be promoted as a method of family planning, and in all cases provide for the humane treatment and counselling of women who have had recourse to abortion. (iii) In recognizing and implementing the above, and in circumstances where abortion is not against the law, health systems should train and equip health-service providers and should take other measures to ensure that such abortion is safe and accessible. Additional measures should be taken to safeguard women's health.” (NB: 63 (i) is ICPD POA 8.25 in toto)

social action since it is not in the individual interest to behave in a manner that ensures them, and may require different methods to modify individual behaviour. An orderly traffic system which benefits everyone, even though it requires the limitation of the individual right to the thrill of reckless driving, is a classic public good. The ‘goodness’ of a public good results from the consequences of having or not having it, and does not imply a value judgement about its *intrinsic* worth.⁷ Thus, the value of an orderly traffic system does not derive from the intrinsic worth of ‘orderliness’ but rather from its consequence in terms of public safety.

This distinction is important in the case of sex selection because the public debate has been considerably muddied by the emotive language of ‘murder’, ‘killing’ etc which have been used to make the case that there is something intrinsically wrong with sex selection itself.⁸ However, this ‘intrinsic’ position is difficult to defend since sex selection can be done for a variety of reasons and using a variety of methods. If sex selection is to be countered on public goods grounds, it has to be on the basis of its consequences, not anything inherent or intrinsic. From this perspective, it is important to examine the consequences of gender biased sex selection to understand in what sense its absence might be considered a genuine public good.

The demographic consequence that has received the greatest public attention is the ‘marriage squeeze’ or the phenomenon of ‘bare branches’ (Hudson and Den Boer, 2004) as it has been called. It has been pointed out (Guilmoto, 2007; Zhu, Lu, Hesketh, 2009) that a significant adult male surplus after 2020 is unavoidable as a result of the previous excess of male births since 1980. The bare branches argument raises the fear of the public security consequences of large numbers of unmarried young men with few responsibilities and a tendency to congregate together to make trouble. Our reading of the history suggests this may not be the first time or the only region that has experienced this phenomenon, since unmarried younger sons were not uncommon historically in the northwest of India as we have seen. But they tended in earlier times to be well rooted in the family structure and the peasant economy, and their numbers were nowhere near what they are likely to be in the near future.

⁷ In technical economics, a public good does have certain intrinsic features - non-rivalry and non-exclusion – but this is not relevant for this discussion.

⁸ See Copelon, Zampas, Brusie et al (2005) for a clear counter statement to this rhetoric.

Chowdhry (2005) argues that the combination of reduced likelihood of marriage with poor employment prospects is a volatile one for badly educated young men who are no longer willing to work in agriculture in the state of Haryana in northwest India. In their search for social status and power, these young men become collectively the enforcers of traditional caste hierarchies and rituals, including importantly the prevention of the breaking of marriage and gender norms and taboos. Allying with older men in traditional caste panchayats, these young men become the self-appointed guardians of the gender and caste orders, taking the law into their hands through threats and acts of violent vigilantism.

Two sets of potential consequences are important from a human rights perspective: the effect of compensating for the marriage squeeze through what have been called ‘across-region marriages’ – brides being brought to Punjab and Haryana from distant states such as Bengal, Andhra or even Tamilnadu (Kaur, 2004); and the possibility of increased violence against women. Kaur (2004) observed that the brides imported in this way typically moved from very poor natal households (with no possibility of dowry) into landed households and did not appear to suffer serious discrimination because of their unusual background. Chowdhry (2005) found on the other hand that many of these women were little more than chattel at the whim of the man who had ‘bought’ them, and suffer poor living conditions, insecurity, sexual assault and generalized violence. These diametrically opposing accounts of the results of the marriage squeeze point to the need for additional evidence before stronger conclusions can be reached. One can of course argue that, even if the evidence isn’t entirely in, such large distortions from the normal sex ratio are likely to have unexpected and negative social consequences. But this uncertain expectation is a milder basis for public action than the current public rhetoric would claim.

A rather different angle to the issue of human rights is posed by the question of whether controlling the practice of sex selection constitutes a violation of reproductive rights? The ICPD Programme of Action provided a definition of reproductive rights that included notions of responsibility.⁹ The critical question is what constitutes women’s or families’ “responsibilities to

⁹ **ICPD POA 7.3** – “...It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents. In the exercise of this right, they should take into

the community” and who determines what these may be. Particularly in the context of sexuality and reproduction, responsibility can be construed to include different projects of social engineering, including enforced child bearing, eugenics, or other similar measures. Especially in a context of rapidly evolving reproductive technologies, rights advocates are quite sensibly concerned that (mixing metaphors) letting the state into the bedroom can be a slippery slope. The counter argument that women choosing to avert the birth of daughters are not really free to exercise their rights since they are operating under severe social and familial constraints doesn't hold much water, since this is true of almost all rights.¹⁰ People exercise their rights, in whatever arena, not in an ideal world but in whatever messy circumstances they may find themselves.

Against the argument in favour of the unfettered exercise of reproductive rights including selecting sons over daughters is the unknown weight of the consequences of a biased sex ratio. Both sides would agree about the need to address the gender discrimination that is part of the larger causal structure leading to biased sex selection. There would also be agreement about the importance of identifying the negative consequences of abnormal sex ratios, and tackling them. The question is what to do about the act of sex selection itself which pits rights against practices that are sentinel indicators of gender bias and may function to perpetuate that bias (although the evidence for this needs to be strengthened). To some extent governments have already acted by making either sex detection or sex selective abortion illegal. But the intensity with which the law should be implemented or can be implemented without jeopardizing access to safe abortion is still open to question.

Technological considerations

Before considering the experience with different policy options, we look again at the evolution of technology. As already argued, the technology for both sex detection and sex choosing have been moving rapidly to earlier and earlier stages in the conception – implantation – gestation

account the needs of their living and future children and their responsibilities towards the community. The promotion of the responsible exercise of these rights for all people should be the fundamental basis for government- and community-supported policies and programmes in the area of reproductive health, including family planning...”

¹⁰ That women themselves assert and exercise these choices is amply evidenced by the qualitative studies (John, Kaur, Palriwala et al, 2008)

cycle. Sex selection technology is also increasingly a by-product of reproductive technology more generally. This technology is entering the countries of the region even as they have been liberalizing and opening their economies on the basis of the promotion of private entrepreneurship. In this context, controlling the spread of sex detection technology has been quite difficult, especially in an open democratic environment like India. In the wake of the public furore created by the publication of the child sex ratio data from the 2001 Census, and the amendment of the PNDT Act, there has been some move to tighten the spread and functioning of sex detection centres. The extent to which this may also have reduced access to safe abortion is a source of serious concern.

Beyond the effectiveness of attempts to control ultrasound technology is the necessity to regulate its use better. As Bhat and Zavier (2007) pointed out, there is extensive use (but not much misuse for sex selection) of prenatal ultrasound in the south of India where health services are known to be more accessible. Anecdotal evidence suggests that women are advised to have more than one scan done, sometimes as many as four or five. International standards for ultrasound use suggest that most of these are at best unnecessary. The American College of Obstetricians and Gynecologists, (ACOG) (2009) stated, "The use of either two-dimensional or three-dimensional ultrasonography only to view the fetus, obtain a picture of the fetus, or determine the fetal sex without a medical indication is inappropriate and contrary to responsible medical practice." In addition, the following quote from AETNA (no date) is worth noting:

"...The Society for Maternal-Fetal Medicine (SMFM) has stated that a fetal ultrasound with detailed anatomic examination (CPT 76811) is not necessary as a routine scan for all pregnancies (SMFM, 2004). Rather, this scan is necessary for a known or suspected fetal anatomic or genetic abnormality (i.e., previous anomalous fetus, abnormal scan during pregnancy, etc.). Thus, the SMFM has stated that the performance of this scan is expected to be rare outside of referral practices with special expertise in the identification of, and counseling about, fetal abnormalities (SMFM, 2004).

SMFM has also determined that no more than one fetal ultrasound with detailed anatomic examination is necessary per pregnancy, per practice, when medically necessary (SMFM, 2004). Once this detailed fetal anatomical exam is done, a second one should not be performed unless there are extenuating circumstances with a new diagnosis. The SMFM has stated that it is appropriate to repeat the detailed fetal anatomical ultrasound examination when a patient is seen by

another maternal-fetal medicine specialist practice, for example, for a second opinion on a fetal anomaly, or if the patient is referred to a tertiary center in anticipation of delivering an anomalous fetus at a hospital with specialized neonatal capabilities... ”AETNA (no date)

At present little is being done to regulate the overuse of fetal ultrasound in India despite the attention it has recently received because of its misuse for sex detection.

Laws, Policies, Actions

Summary of issues

This section starts with a brief summary of the main issues raised thus far, as a context for discussing different laws, policies, and actions and their effectiveness as well as other consequences, intended and unintended. These issues are as follows:

1. The structural reasons for gender biased sex selection have existed historically in large parts of East and South Central Asia in the form of strong patrilineality and patrilocality, and systems of marriage, family formation, property and ritual that privileged the eldest son over other progeny, with higher birth order daughters being at the bottom of family hierarchies. Starting with the 1980s, the rapid availability of foetal detection technologies, combined with reduced family sizes and, in some instances, stringent family planning policies such as the one child policy, allowed the realization of family size and composition goals through the use of ultrasound and selective abortion.
2. Ethnographic evidence suggests that, while discrimination against daughters in central, it needs to be located within the context of the factors identified above, if one is to understand why women themselves choose biased sex selection. It is important to locate policy questions not in terms of individual choices (and related ideas of sin and morality) but in terms of structural interlinked causes and consequences that have to be addressed structurally, and not individually. Sex ratios should be viewed as *sentinel indicators* for a complex of interlinked structural factors which merit greater focus.
3. Data on the progression of the sex ratio shows significant variation among countries and different patterns, with patrilineality as the most common factor.

4. The rapid evolution, ease of use, and wide spread of detection technology combined with abortion makes it difficult to control. More stringent attempts to control either ultrasound use or sex selective abortion have the potential to drive (and are already driving) both detection and choice underground where they may be unreliable, expensive and unsafe.
5. There is scope for improving the quality of data analysis in order to tackle inconsistencies between different data sets and puzzling anomalies, as well as to address key questions.
6. Key health implications of sex selection include the effects of the continuing neglect of girl children and the special problems of higher parity girls, the consequences of which are being carried over into adolescence and child-bearing with adverse effects on sexual and reproductive health including maternal mortality. One ironic result of gender biased sex selection appears to be that daughters born out of choice are treated better in terms of health and access to other family resources.
7. A major health concern is that stringent legal measures and the absence of clear guidance for communications and media efforts has been driving *all* abortions underground, reducing access and rendering them unsafe.
8. So far as human rights are concerned, there are additional concerns beyond those associated with the right to health summarized above. As discussed earlier, it is difficult to make an argument that sex selection *intrinsically* violates human rights since the practice has multiple reasons and methods, and involves no *direct* harm to or violation of the rights of other human beings.¹¹ Therefore the argument against it must rest, not on its intrinsic nature, but on its consequences.¹²
9. The consequence that has received much attention is the marriage squeeze. It is clear that there will be a surplus of men in the (20-49) age group of between 20 – 40 million each in China and India during the period 2030 to 2050 (Guilmoto, 2007). The implications of this are somewhat hypothetical at present, although there is some emerging evidence of unmarried young men beginning to constitute themselves into negative social collectivities. However, non-marriage is not the only factor at work, but appears to interact with other factors such as unemployment, and the relative weight of different

¹¹ That human rights apply from birth is well acknowledged in law and is based on the foundational human rights statement, the Universal Declaration of Human Rights, whose Article 1 states clearly: "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood." For a discussion, see Copelon, Zampas, Brusie et al (2005).

¹² Differently from FGM or other violence against women, for instance

factors is unknown. This phenomenon needs to be followed both quantitatively and with more qualitative, including ethnographic, methods. The evidence on the effects of compensating for the marriage squeeze through ‘importing’ brides from long distances is mixed – both relatively smooth assimilation and increased violence have been noted. This too requires more and consistent tracking. Other potential consequences such as aggravated generalized violence against women through greater male domination of public spaces have been hypothesized, but the evidence so far is anecdotal. Overall, making a human rights case against gender biased sex selection (except for the right to health) at this point is not yet on very strong evidentiary ground.

10. With this relatively weak basis, it is not easy to argue convincingly at present for the derogation of individual reproductive rights (expressed through son preference) on the basis of a perceived public good. However, various governments have already acted to legally limit either sex detection or sex selective abortion. What methods should be used to discourage gender biased sex selection, and how much relative emphasis there should be on the act of sex selection itself versus its causes and consequences is the key policy challenge.

We next examine three types of actions that have been taken to address the problem in recent years – laws against sex selection, supportive measures for girls and women, and communications and media campaigns.

Legal measures against sex selection

All sides in the public debate agree that, insofar as the causes as well as the emerging consequences of biased sex selection lie in gender-based discrimination (even if mixed with other factors), they should be tackled. But there has been some worry that this requires changing social norms and empowering girls and women, which takes time, and may indeed be too slow. Hence, it has been argued, it is necessary to have effective laws with punitive sanctions against sex selection itself.

Two kinds of legal sanctions exist as detailed in Ganatra's (2008) Table 1 (reproduced above) – those that criminalize sex determination, and those that are directed at sex selective abortion. These are implemented through a range of additional controls including fines for disseminating information (Vietnam), requiring signage against sex selection at clinics, attempting to control the sale of ultrasound machines. Despite all this, the problem has continued to grow, the laws have not been implemented seriously (as in India), and sex detection has continued to grow. Even in China, with its greater degree of government control, the prohibition against sex selective abortion (since 1994) has not had much impact.

More recently, under the pressure of civil society campaigning, some state and local authorities have begun implementing the PCPNDT law in India more rigorously, using money incentives for informants, sting operations and the like. In 2004, Guiyang in China introduced strict controls on abortion after 14 weeks. A range of similar measures, e.g., restricting second trimester abortions, or tracking all pregnant women throughout pregnancy have been considered and selectively implemented in India. The difficulty of distinguishing in practice between the legal and illegal use of ultrasound, and the confusion in communicating a nuanced message that is against sex selection but not against abortion per se, has had serious negative impacts on women's access to safe abortion for any reason in the public sector.

Some examples from India of this shrinking access are as follows. It has been recently noted that abortion services have become less available in many Primary Health Centres and even District Hospitals in the public sector in India, and drugs for medical abortion are not being procured by either the national or state governments. In the state of Rajasthan, the Director of Health Services recently ordered an informal ban on the sale of medical abortion drugs at pharmacies. There is a lack of budget line items in state and national budgets for procuring equipment and commodities for safe abortion services, setting up training centres and training of doctors; gradual erosion of the Medical Termination of Pregnancy (MTP) cells at the state level leading to weakening of reporting of abortion; absence of any national level indicator under the National Rural Health Mission (NRHM) to measure access to safe abortion; no notification of revised MTP guidelines or formation of state level MTP committees (in contrast to formation of district PCPNDT committees and funds available for these). In addition, two flagship programmes under the large

National Rural Health Mission (to incentivize institutional delivery; and health insurance for the poor) both exclude abortion. As service availability in the public sector (at best never very strong) has declined, and the private sector has become increasingly a target of raids for sex selective abortions, prices have been driven up, and the misperception that all abortions are illegal has been strengthened.

It is absolutely necessary from the viewpoint of public health, therefore, and in keeping with international agreements that this weakening of safe abortion access and services be reversed. It would be a great irony if the laws against sex selection and their methods of implementation ended up by denying women the possibility of legal and safe abortions for valid reasons, even though they have not been very effective in actually preventing biased sex selection.

Supportive measures for girls and women

A number of supportive measures have been undertaken recently in all countries. ICRW (2009) has compared a range of such measures in both China and India as part of the 'Counting Girls' project. Two legal changes of importance in India are the Hindu Succession (Amendment) Act, 2004 that (with some loopholes) makes it possible for daughters to inherit family property almost on par with sons; and the Maintenance and Welfare of Parents and Senior Citizens Act, 2007 that requires both sons and daughters to be responsible for the care of parents in proportion to the share of property inherited. Although it will take time before these legal changes work to modify behaviour, they constitute a major change in the legal basis of patriliney and care in old age.

A number of positive measures have also been tried. Many programmes have been confused in their orientation but the 'Ladli' programme in Haryana appears to have learned from the mistakes of previous programmes and therefore holds promise. 'Ladli' is a conditional cash transfer programme that is available to all families with at least two daughters and provides cash for each daughter conditional on immunizations and school enrolment and no early marriage. In China, programmes to support poor mothers, to help poor girls go back to and remain in school, and to provide old age pensions so as to reduce dependence on sons are all being tried.

In South Korea, legal changes to allow women to retain rights in their natal families after marriage and to allow women-headed households have also strengthened women's economic position (Ganatra 2008).

How much of a role such measures played in the remarkable turnaround of the SRB in South Korea after 1995 is not very clear. Many of the other measures are too recent to be able to judge their impact. It is very important that these positive measures be properly monitored and evaluated in order to be able within the next five years to judge clearly what works and what doesn't and why.

Communications and Media Campaigns

A positive example of a successful effort was the 'Love your daughters' media campaign in South Korea. More dubious have been some of the media campaigns against sex selection in India which have provided misinformation and mixed up sex selection and abortion. The legality of abortion is often not mentioned; the foetus is personified, and the "...language and images ...convey blood, murder and killing. The concept of sex selective abortion as a sin or immoral is also often used..." (Ganatra, 2008; p 93). Unfortunately, a number of these are part of the official informational messages that have been put out. A recent feasibility study (Naqvi 2006) in four of the main states with high SRB in India provides some useful pointers to how the power of mass media can be harnessed more effectively. It recommends using tele-dramas along with other methods in order to accurately fill knowledge gaps about health, rights and laws, and also to unravel and challenge attitudes.

This summary review of policies and actions is not adequate, and has only been able to pinpoint some concerns and directions. Based on the issues raised earlier, the following actions need support:

- Strengthening data collection and analysis, including dealing with data inconsistencies, and ensuring a strong balance of quantitative, qualitative and ethnographic methods to effectively tackle the rapid changes taking place;

- Paying greater attention to a balance of preventive and supportive measures with strong monitoring and evaluation;
- Addressing key health concerns: tackling the nutrition, health and education needs of (especially) higher parity girls; ensuring that services for safe abortion, including medical abortion are strengthened and made more accessible; regulating the over-use of ultrasound for foetal scanning;
- Using responsible and effective communications and media campaigns that are effective and that avoid language and images that vilify abortion.

Facts to Ponder

One of the remarkable success stories of reversal is that of S. Korea where SRB rose from around 106 in 1980 to around 115 in the mid-1990s, and then declined dramatically to become normal by 2007 (Guilmoto 2007). Chung and Dasgupta (2007) identify how economic and cultural changes, urbanization, rising female education and employment interacted with government policies and campaigns to bring about this change. Although each setting has its own specific features and economic and cultural factors vary, the experience of South Korea does point to the possibility of change, especially in a time of rapid economic growth.

Recent data from the SRS in India suggest that there may be some turn around in the SRB in the current decade in states like Gujarat, Haryana, Punjab, and UP even as some others may have worsened. These observations are too tentative at present to draw conclusions about trends. They do however suggest that a balanced, nuanced and less precipitate approach to policy is essential if women's health and rights are to be secured and promoted.

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