

Preventing gender-biased sex selection

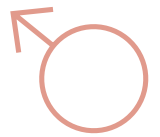
An interagency statement
OHCHR, UNFPA, UNICEF, UN Women and WHO



World Health
Organization

Preventing gender-biased sex selection

An interagency statement
OHCHR, UNFPA, UNICEF, UN Women and WHO



OFFICE OF THE HIGH COMMISSIONER FOR HUMAN RIGHTS



WHO Library Cataloguing-in-Publication Data

Preventing gender-biased sex selection: an interagency statement OHCHR, UNFPA, UNICEF, UN Women and WHO.

1.Sex preselection - ethics. 2.Gender identity. 3.Prejudice. 4.Sex ratio.5.Human rights abuses. I.World Health Organization.

ISBN 978 92 4 150146 0

(NLM classification: QS 638)

© **World Health Organization 2011**

All rights reserved. Publications of the World Health Organization are available on the WHO web site (www.who.int) or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int).

Requests for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – should be addressed to WHO Press through the WHO web site (http://www.who.int/about/licensing/copyright_form/en/index.html).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

Contents

Abbreviations and acronyms	iv
Executive summary	v
Introduction – the causes and prevalence of sex selection	1
Human rights considerations	3
The implications of son preference	5
Lessons learnt from current responses	6
Recommendations for action	9
Conclusion	12
Annex 1: Notes on the origin of sex selection	13
Annex 2: Methods of sex selection	14
References	16

Abbreviations and acronyms

CEDAW	Convention on the Elimination of All-forms of Discrimination against Women
CRC	Convention on the Rights of the Child
CVS	chorionic villus sampling
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICPD	International Conference on Population and Development
JSK	Jansankhya Sthirata Kosh – National Population Stabilisation Fund.
OHCHR	Office of the United Nations High Commissioner for Human Rights
PGD	pre-implantation genetic diagnosis
SRB	sex ratio at birth
UNFPA	United Nation Population Fund
UNICEF	The United Nations Children’s Fund
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
WHO	World Health Organization

Executive summary

The biologically normal sex ratio at birth ranges from 102 to 106 males per 100 females. However, ratios higher than normal – sometimes as high as 130 – have been observed. This is now causing increasing concern in some South Asian, East Asian and Central Asian countries.

The tradition of patrilineal inheritance in many societies coupled with a reliance on boys to provide economic support, to ensure security in old age and to perform death rites are part of a set of social norms that place greater value on sons than daughters. In addition, a general trend towards declining family size, occasionally fostered by stringent policies restricting the number of children people are allowed to have, is reinforcing a deeply rooted preference for male offspring. As a result, women are often under immense family and societal pressure to produce sons. Failure to do so may lead to consequences that include violence, rejection by the marital family or even death. Women may have to continue becoming pregnant until a boy is born, thus putting their health and their life at risk.

Sex selection can take place before a pregnancy is established, during pregnancy through prenatal sex detection and selective abortion, or following birth through infanticide or child neglect. Sex selection is sometimes used for family balancing purposes but far more typically occurs because of a systematic preference for boys. Although the relatively recent availability of technologies for the early determination of sex has provided an additional method for sex selection, this is not the root cause of the problem. Where the underlying context of son preference does not exist, the availability of techniques to determine sex does not necessarily lead to their use for sex selection.

States have an obligation under human rights laws to respect, protect and fulfil the human rights of girls and women. In addition, more than 180 States are signatories to the 1994 Programme of Action

of the International Conference on Population and Development (ICPD). As part of this undertaking States agreed to:

... eliminate all forms of discrimination against the girl child and the root causes of son preference, which result in harmful and unethical practices regarding female infanticide and prenatal sex selection.

United Nations (1994); paragraph 4.16

At the same time, States have an obligation to ensure that these injustices are addressed without exposing women to the risk of death or serious injury by denying them access to needed services such as safe abortion to the full extent of the law. Such an outcome would represent a further violation of their rights to life and health as guaranteed in international human rights treaties, and committed to in international development agreements.

Governments in affected countries have undertaken a number of measures in an attempt to halt increasing sex-ratio imbalances. Some have passed laws to restrict the use of technology for sex-selection purposes and in some cases for sex-selective abortion. These laws have largely had little effect in isolation from broader measures to address underlying social and gender inequalities. In some settings, legal and policy measures aimed at redressing deep-seated inequalities between boys and girls have been passed. These include laws for more equitable patterns of inheritance, and measures such as direct subsidies at the time of a girl's birth, scholarship programmes, gender-based school quotas or financial incentives, or pension programmes for families with girls only. These efforts have often been coupled with campaigns to raise awareness and to change people's mindsets and attitudes towards girls. Governments have thus already taken action in a number of ways, with varying degrees of success, and there are lessons that can be learnt from this.

However renewed and concerted efforts are now needed by governments and civil society, including efforts to address the deeply rooted gender discrimination against women and girls which lies at the heart of sex selection. First, there is an urgent need for more-reliable data on both the real magnitude of the problem, on its social and health consequences, and on the impact of interventions. Such data is needed to provide a sound evidence base for carefully planned and coordinated policy development and action. Second, guidelines on the ethical use of the relevant technologies should be developed and promoted through health professional associations. Third, supportive measures for girls and women should be put in place, including measures to ensure improved access to information, health care services, nutrition and education; measures to improve their security; and measures such as the provision of incentives to families with daughters only. Fourth, States should develop and promote enabling legislation and policy frameworks to address the root causes of the inequalities that drive sex selection. Policies will be needed in areas such as inheritance laws, dowries, and financial and other social protection in

old age, while also ensuring that laws and policies reflect a commitment to human rights and gender equality. Finally, States should support advocacy and awareness-raising activities that stimulate discussion and debate within social networks, and more broadly within civil society, in order to strengthen and expand consensus around the concept of the equal value of girls and boys.

This OHCHR, UNFPA, UNICEF, UN Women and WHO joint interagency statement reaffirms the commitment of United Nations agencies to encourage and support efforts by States, international and national organizations, civil society and communities to uphold the rights of girls and women and to address the multiple manifestations of gender discrimination including the problem of imbalanced sex ratios caused by sex selection. It thus seeks to highlight the public health and human rights dimensions and implications of the problem and to provide recommendations on how best to take effective action.

This joint statement reflects the activities of individual agencies around an issue of common concern. The principles and policies of each agency are governed by the relevant decisions of its governing body. Each agency implements the interventions described in this document in accordance with these principles and policies, and within the scope of its mandate.

Introduction – the causes and prevalence of sex selection

Imbalances in the overall population sex ratio contrary to the biological norm (BOX 1) were observed as early as the mid-19th century (Guilmoto, 2007a). Similarly, the phenomenon of skewed sex ratios at birth or in early childhood is not a recent development. In India, for example, census data show skewed child sex ratios dating back to the early 20th century (Visaria, 1971). Such disparities almost always reflect a preference for boys as a result of deeply embedded social, cultural, political and economic factors (see **Annex 1**). In the past, this preference for boys resulted in the killing or neglecting of female infants. Since the early 1980s, the availability of ultrasound and other diagnostic technologies which can detect the sex of a fetus has in some parts of the world led to an accelerated increase in sex-ratio imbalances at birth.

Although the relatively recent availability of technologies that can be used for sex selection has compounded the problem, it has not caused it. In settings where there is no underlying context of son preference, the increased availability of such techniques is not associated with their use in sex selection. This has been demonstrated by an analysis of national data in India in which prenatal diagnostic tests (for reasons other than sex selection) were found to be much more widely used in the south where sex-ratio imbalances do not exist than in the north where they do (Bhat & Zavier, 2007). Modern

technologies such as ultrasound and DNA blood tests are therefore only a means by which to achieve an end, and are not the root of the problem (Ganatra, 2008; Sen, 2009). The rise in sex-ratio imbalances and normalization of the use of sex selection is caused by deeply embedded discrimination against women within institutions such as marriage systems, family formation and property inheritance laws.

Patterns of sex-ratio imbalances

Analysis of available national census data indicates that in recent decades, sex-ratio imbalances in favour of boy children have grown in a number of South Asian, East Asian and Central Asian countries, and there is broad agreement concerning the problem of gender-biased sex selection. However, further analysis based on more-complete data of better quality is urgently needed to further our understanding of the phenomenon and its trends. Currently, for example, sex ratios at birth are not always available at national level and many countries report instead on childhood sex ratios.

In China, the sex ratio at birth increased from 107 in 1982 to 120 in 2005 based upon data from the 1982 population census and from a 2005 1% Population Sample Survey (Li, 2007). In India, estimates based on Census of India data indicated little change during a similar period (from 107.3 in 1981 to 106.5 in 2001) while those based on sample registration surveys

Box 1: Normal patterns in the sex ratio

The sex ratio is defined as the ratio of males to females in a population, and is generally expressed as the number of males per 100 females.^a The sex ratio at birth is usually expressed as the number of boys born alive per 100 girls born alive (OECD, 2010). The term “child sex ratio” is used to refer to the ratio of boys to girls in a defined age group – typically 0–6 years but occasionally 0–4 and 0–5 years (UNICEF, undated; JSK, undated). In most countries, the normal sex ratio at birth varies between 102 and 106 males per 100 females (NationMaster, 2009). Because of the greater biological vulnerability of boys, male mortality below 5 years of age is normally 10–20% higher than female mortality. As a result the child sex ratio is normally lower than the sex ratio at birth and this decline continues as the cohort ages, often resulting in a sex ratio below 100 (i.e. fewer men than women) in the older population.

^a In India, the sex ratio is expressed as the number of females per 1000 males

indicated an increase from 109 in 1982–1984 to 113.6 in 2003–2005 (Kulkarni, 2007). Data from countries in Central Asia (e.g. Armenia, Azerbaijan and Georgia) also showed similar increases (Guilmoto, 2007b; NationMaster, 2009). In Viet Nam, the national average sex ratio at birth appeared to slightly increase from between 105 and 107 during 1989–99 to between 107 and 108 during 2002–2006 (Institute for Social Development Studies, 2007). In the Republic of Korea, the sex ratio at birth was estimated to be 109 in 1985 reaching 115 in 1994 (KNSO, 2004) but was reported to have declined more recently to 107.

While national data may not always be compelling, data at the sub-national level reveal much higher disparities in sex ratios at birth. Analysis of the most recent data from China shows that while the sex ratio at birth is more skewed in rural areas, the ratios in large cities had also increased in 2005 compared to 2000 (Li, 2007). The analysis included Beijing (increasing from 115 to 118), Tianjin (113 to 120) and Shanghai (116 to 120). These findings suggest that son preference is still a strong influence, and is increasingly being acted upon by those living in cities.

In India there are also substantial regional variations. Southern India exhibits normal sex ratios but there are marked disparities in some northern states. For example, in the Gurdaspur and Sangrur districts of Punjab, data indicate a sex ratio for children aged 0–1 years of 132 (Census of India, 2001). Rises in the sex ratio at birth have also been faster in urban areas, among better-off households and among more-educated women (Census of India, 2001).

In general, sex-ratio imbalances across affected countries increase as birth order increases. As a result, the ratio is more skewed among second, third or higher birth-order children compared to first-borns. This indicates an increasing desire for boys as the number of girl children increases (Kim, 2004; Wu, Viisainen & Hemminki, 2006; Li, 2007). Thus, in China, while the sex ratio at birth was close to normal for first-order births, it rose sharply for second-order births (reaching levels of 174–212 in one province) and for third-order births (over 200 in four provinces) even though these accounted for only 4.3% of the total number of births (Zhu, Lu & Hesketh, 2009). A similar pattern has been observed in two northern states in India (Guilmoto, 2007b). In the Republic of Korea, sex ratios at birth among third-born and fourth-born children began to rise dramatically in the mid-1980s and peaked at their highest level (over 200) in the early 1990s. Since then, there has been a downward trend in sex-ratio imbalances among higher-order births (Kim, 2004).

Human rights considerations

Preventing discrimination

Many pervasive social, cultural, political and economic injustices against girls and women – from fewer educational and employment opportunities to less autonomous decision-making power (e.g. in choosing a partner) and the inability to inherit property – constitute violations of the right of women to non-discrimination. This was clearly recognized at the International Conference on Population and Development (ICPD) in 1994 and in the associated Programme of Action which enjoined governments to:

... eliminate all forms of discrimination against the girl child and the root causes of son preference, which result in harmful and unethical practices regarding female infanticide and prenatal sex selection.

United Nations (1994); paragraph 4.16

States also have an obligation under international human rights law to respect, protect and fulfil the human rights of women, as elaborated for example in the International Covenant on Civil and Political Rights (ICCPR); the International Covenant on Economic, Social and Cultural Rights (ICESCR); the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW); and the Convention on the Rights of the Child (CRC).

States therefore have an obligation to take active steps to counter discrimination and to uphold the rights of women. For example, CEDAW Article 5(a) requires states to modify social and cultural patterns of conduct:

...with a view to achieving the elimination of prejudices and customary... practices which are based on the idea of inferiority or the superiority of either of the sexes or on stereotyped roles for men and women.

CEDAW (1979)

Reproductive rights and prenatal sex selection

In 1994, more than 180 States adopted the ICPD definition of reproductive rights, recognizing that:

...reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents.

United Nations (1994); paragraph 7.3

The right to the highest available standard of health enshrined in the ICESCR has been further interpreted to include the provision of interventions and services:

...aimed at the prevention and treatment of diseases affecting women, as well as policies to provide access to a full range of high quality and affordable health care, including sexual and reproductive services.

CESCR (2000), General Comment 14, paragraph 21

With specific regard to abortion, the ICPD Programme of Action five-year review recommended that all parties should:

...deal with the health impact of unsafe abortion as a major public-health concern and... reduce the recourse to abortion through expanded and improved family planning services.

UNFPA (1999); paragraph 63i

¹ See: ICCPR (1966), Article 2; ICESCR (1966), Article 2; CEDAW (1979); and CRC (1989), Article 2.

It was also agreed that:

...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.

UNFPA (1999); paragraph 63iii

Restricting access to certain reproductive technologies in order to prevent an imbalanced male-to-female ratio in a given society should not result in the curtailing of the human rights of women. In addition to the difficulty of enforcing the legal prohibition of sex detection and resulting sex-selective abortions, evidence shows that if women do not have access to safe abortion services they often turn to unsafe options (WHO, 2007) – or if they cannot terminate a pregnancy, they are forced into childbearing until a boy has been born. Various United Nations human rights treaty monitoring bodies have established that the rights

of women and girls to life, health and development are violated when they undergo an unsafe abortion because safe services were denied to them, or are forced to carry an unwanted pregnancy to term. Ensuring access to services for safe abortion to the full extent of the law at all times is crucial, as is working with communities to address the social norms and practices that increase the vulnerability of women and girls to the health risks associated with unsafe abortion.

Sex selection in favour of boys is a symptom of pervasive social, cultural, political and economic injustices against women, and a manifest violation of women's human rights. Such injustices must be addressed and resolved without exposing women and children to the risk of death or serious injury through denying them access to needed services – and thus further violating their rights (Dickens et al., 2005).

The implications of son preference

Implications for women's lives and health

One notable consequence of the continued disproportionate importance given to boys is the huge pressure put upon women to produce sons. In a context of declining family size, restrictive policies on reproduction and access to unregulated health services, this pressure can have particularly debilitating effects on the mental and physical health of women.

It is against the backdrop of this intense pressure from family members and broader social norms that women seek to discover the sex of a fetus. Currently, this is usually done around the 14th to 16th week of pregnancy when the most widely used detection technique (ultrasonography) becomes effective for determining sex. In some circumstances, they may be forced by their family or community to have an abortion because they are carrying a female fetus (CESCR, 2005).

In situations where abortion is restricted for sex-selection purposes, terminating a pregnancy for this reason is likely to involve an unsafe procedure carrying high risks. Even where abortion is legal, as in India, some health-care providers have reacted to sex selection by denying access to abortion – resulting in women seeking clandestine abortions with elevated risks to their health (Sen, 2009). The pressures to engage in sex selection in a gender discriminatory environment not only directly affect women's reproductive decisions (with implications for their health and survival) they also put women in a position where they must perpetuate the lower status of girls through son preference.

In addition, it is also women who have to bear the consequences of giving birth to an unwanted girl child. These consequences can include violence, abandonment, divorce (or being forced to live with an additional wife) or even death (Ganatra, Hirve & Rao, 2001; Li, 2007). They may have to continue with pregnancies until a boy child is born, thus putting their health and life at further risk.

Implications for surviving unwanted children

The neglect of girl children as a result of son preference has been well documented (Das Gupta, 1987; Li, 2007) and typically involves biased feeding practices, inadequate clothing during winter, and less and lower-quality health care. A recent analysis of surveys in India found that rural girls with two or more older sisters had a significantly higher risk of severe stunting than other children (ICRW, 2009). These childhood differentials are likely to carry over into adolescence and into the nutritional status (including anaemia) of young pregnant women. The study also found that females were at a significant disadvantage in terms of receiving full immunization in 2005–06, even though immunization is free and provided through mass public campaigns. However, this phenomenon appears to be declining (ICRW, 2009). Where families successfully achieve their desired sex ratio (one boy and one girl, or two boys and one girl) there is some evidence that girls receive better treatment (Das Gupta, 1987).

Implications for society

The significant over representation of males in some populations resulting from an excess number of male births since the 1980s inevitably impacts on entry into partnership or marriage by women and men. There is evidence of a possible increase in violence against women as the lack of women available for marriage in some areas leads to women from other regions being trafficked to be forcibly married – and of brides being shared among brothers (Guilmoto, 2007a). These women are often unable to speak the local language, are deprived of their family environment and are under intense pressure to produce male children. More in-depth research is needed to determine the impact of imbalanced sex ratios on men, women and whole societies.

Lessons learnt from current responses

Governments in affected countries have undertaken a number of measures in an attempt to address sex-ratio imbalances. These have included legal measures to restrict the use of relevant technologies, as well as policy and advocacy measures geared towards improving the status of girls and women, and countering discrimination. There are a number of lessons which can be learnt from these responses.

Legal measures – prohibition

In five Asian and South Asian countries² legal restrictions on the use of technology for sex-selection purposes (either for sex determination or abortion) have been put in place over the past three decades. These restrictions have included laws that prohibit determination and disclosure of the sex of the fetus (except on medical grounds), those that prohibit abortion for sex-selection purposes and those that prohibit any advertising relating to prenatal sex determination. Such laws are associated with punishments such as fines and/or imprisonment for anyone contravening them. Laws are also implemented through a range of additional control approaches, such as stipulating the precise conditions under which women are eligible for prenatal procedures, or regulating the sale of ultrasound machines.

Despite these legal measures, it is difficult to prove that any particular ultrasound examination was used to determine sex rather than for other appropriate and legitimate reasons. An ultrasound examination has many appropriate medical uses, such as determining the age of the fetus, monitoring its healthy development and detecting abnormalities. Communicating the sex of the fetus can be done discretely, even silently, and prosecuting offenders is therefore practically

impossible. Similarly, proving that a particular abortion was sex-selective is equally difficult. Following an ultrasound examination, women can go to a different clinic to have an abortion while providing a reason that is acceptable within the legal framework (Ganatra, 2008).

Because of these and other difficulties in implementing restrictions on the use of technologies and services for a particular reason, restrictions tend to become more encompassing. This can then have harmful effects on women when access to these technologies and services is needed for valid medical or non-medical purposes. In the case of abortion, the proportion of sex-selective abortions to abortions for other non-medical reasons has been estimated at between 2.5% and 17% among married women in community-based studies in West India (Ganatra, Hirve & Rao, 2001; Malhotra et al., 2003; Elul et al., 2004). In one survey in rural China, 36% of married women acknowledged undergoing sex-selective abortions (Junhong, 2001 cited in Ganatra, 2008). This means that a very large percentage of women seek abortions for other reasons, and any restrictions in place may put their health and lives in jeopardy – particularly if they are poor and less well educated – and may also violate their human and reproductive health rights (Ganatra, 2008).

Restricting access to technologies and services without addressing the social norms and structures that determine their use is therefore likely to result in a greater demand for clandestine procedures which fall outside regulations, protocols and monitoring. Discouraging health-care providers from conducting safe abortions for fear of prosecution thus potentially places women in greater danger than they would otherwise face.

² China in 1989 and 1995 – see: People's Republic of China (1995); India in 1983, 1994 and 2002 – see: Government of India (1994); Nepal in 2002 (as a restriction on liberalized abortion law) – see: Thapa (2004); the Republic of Korea in 1987 – see: Villa (2006); and Viet Nam in 2003 – see: Government of Viet Nam (2003).

It is clear that, while intending to effect a common good, restrictive laws and policies implemented in isolation from efforts to change social norms and structures can have unintended harsh consequences, and may violate the human rights of women. Prohibitive legal responses should be seen as a demonstrable attempt on the part of government to redress sex-ratio imbalances, based on the hypothesis that combating the use of technology for non-medical reasons will lead to a rapid halt in sex selection. Yet there is wide agreement that the causes of biased sex selection lie in gender-based discrimination, and that combating such discrimination requires changing social norms and empowering girls and women. These long-term processes will require sustained effort and political commitment (Ganatra 2008; Sen, 2009).

Legal and policy measures supportive of girls and women

A number of supportive measures have also been undertaken recently in many countries. In India, the Hindu Succession (Amendment) Act passed in 2004 makes it possible for daughters to inherit family property almost on a par with sons, and the Maintenance and Welfare of Parents and Senior Citizens Act passed in 2007 requires both sons and daughters to be responsible for the care of parents in proportion to the share of property to be inherited (ICRW, 2009). Although these legal changes do not by themselves modify behaviour, they constitute a major shift in the legal basis of inheritance and care in old age (Sen, 2009). They also send out a clear message that the legal rights of men and women are to be recognized as equal.

Other measures to support girls or families that only have girls can take many forms, including direct subsidies at the time of birth, scholarship programmes, gender-based school quotas and financial incentives aimed at improving their economic situation. China has undertaken a major campaign to promote recognition of the value of girls called Care for girls. This comprehensive

approach includes broadcasting positive messages about girls, incentives to the parents of daughters, housing and pension payments for rural parents with daughters, and the encouragement of matrilineal marriages (Xinhua, 2006; Li, 2007; Ganatra, 2008). After an initial successful pilot project, the campaign was expanded to the 24 counties with the most severe imbalances in the sex ratio at birth, and results indicate a positive effect on sex ratios (Li, 2007). However, a recent evaluation indicated that in some counties the campaign was introduced without local support and that the introduced policies contradicted existing social policies such as those relating to land and inheritance rights (Zhenzhen & Löfstedt, unpublished, 2009). This highlights the need for a more-unified system of social policy, and for sustainable and long-term approaches rather than short-term measures.

Advocacy and awareness activities

An essential element in efforts to reduce sex-ratio imbalances are advocacy, sensitization and awareness-raising programmes conducted by both governments and nongovernmental organizations. By addressing and involving relevant social and other networks (such as health personnel and young women and men) these activities aim to change mindsets and attitudes towards girls, and to increase recognition of the value of girls and women in society. Approaches include showcasing women's successes and the contributions they have made to their family. These are particularly successful when they provide correct information from trusted sources, stimulate debate at local and national level, and lead to an explicit endorsement of attitudes that are supportive of greater equality.

Lessons already learnt from efforts to eliminate female genital mutilation – another practice that is deeply imbedded in the culture in some places and yet is discriminatory and harmful to girls – can be very useful in this respect (UNICEF, 2010). For example, the use of “empowering education” helps people to examine their own beliefs and values

related to a particular practice in a dynamic and open way without being viewed as threatening. Educational sessions will be empowering if they serve not only to impart new knowledge but also to provide a forum for participants to exchange experiences, and help them to reveal and share their complex inner feelings and examine conflicting attitudes (WHO, 2008). Experience has shown that activities that are judgemental and which criticize people for undertaking “bad” behaviour are not as effective as those which stimulate discourse and dialogue around positive values. Such values include trying to do the best for daughters and families, with discussions providing useful opportunities for communities to explore alternatives to harmful practices (Mackie & LeJeune, 2009).

In India, a variety of communication methods have been used to engage rural and urban communities, young people, religious and political leaders, and medical professionals. Radio and TV drama, traditional channels of communication and the press have all been used extensively by both government and civil society organizations. A

feasibility study on the use of the media to reduce recourse to sex-selective abortion recommended fictional TV drama as an ideal vehicle to address the issue as the practice involves conflicts between generations and between husbands and wives, set against issues of sexuality and reproduction – elements that form the core of mainstream fictional dramas (Naqvi, 2006). The study also found that the core target group for media campaigns should be young unmarried women as they are the most open to questioning values and behaviours. Most importantly, any such campaigns must involve the participation of people from the communities that are affected or being targeted. In some cases, media messaging must be carefully crafted as, in some cases, it has reinforced gender inequalities by becoming negative or judgemental, and sometimes providing inaccurate information about access to safe and legal abortions (Ganatra, 2008).

Experience also indicates that broad, integrated and systematic approaches need to be taken if efforts to eliminate son preference are to succeed (BOX 2). Such approaches should involve not only governmental actors but also nongovernmental

Box 2: The Republic of Korea – a success story

In the 1980s and 1990s, the Republic of Korea had a highly imbalanced sex ratio at birth that reached almost 116 (KNSO, 2004). By 2007, the ratio had returned to 107. It appears that a combination of factors contributed to this shift. Two decades of exceptional economic growth led to fundamental changes in Korean society with a shift away from a farm-based economy, increasing desire for small families, increasing urbanization, greater participation of women in the workforce with better employment opportunities, and parents having retirement savings for old age (Guilmoto, 2007b; Ganatra 2008). All of these factors contributed to an increase in the status and value of women and their greater autonomy (Chung & Das Gupta, 2007). Several laws – such as allowing women rights and responsibilities within their birth family even after marriage, and recognizing women-headed households – were seen to be beneficial, as was a Love Your Daughter media campaign. In addition, the highly organized and controlled health system in the Republic of Korea was able to regulate sex-determination tests more effectively than is the case in China or India (Kim, 2004). In a recent decision, the Constitutional Court ruled that parents have the right to know the sex of the fetus, indicating a level of confidence in the current situation where girls and boys are equally desired (Asia Pacific News, 2008).

organizations and other opinion-makers and advocates to ensure that the social norms and structural issues underlying gender discrimination are addressed. Within this framework, legal action is an important and necessary element but is not sufficient on its own. More research is needed to determine which mix of policies and interventions work best in which context and why.

With rapid economic and social changes taking place in many Asian countries, there may be some room for optimism concerning rapid changes in

attitudes towards the value of girls and women. In China, recent research shows that the younger generation are starting to reject the strong stereotypes and son preference promoted by the older generation, and that they have no explicit discriminatory attitudes towards girls and women (Zhenzhen & Löfstedt, unpublished, 2009). Similar trends are being noted in India. Such trends should continue to be reinforced with appropriate policies and actions.

Recommendations for action

Experience gained from efforts to address other traditional practices that are harmful to women – most notably those made to eliminate female genital mutilation – has shown that long-term change can only be achieved when a broad range of actors is engaged in a concerted effort (WHO, 2008; UNICEF, 2010). The following recommendations are therefore addressed to all stakeholders involved, including governments, international agencies, nongovernmental organizations, professional associations and community groups. Specific recommendations have been based upon a review of the data on sex selection, its human rights implications and upon experiences gathered to date, and some may be more appropriate in some contexts than others.

More-reliable data

To provide a sound basis for policy development and action, more-reliable data are now needed on:

- The magnitude of gender-biased sex selection – data from a variety of sources including national censuses, registration systems, population surveys and qualitative studies need to be analysed in order to give a more complete and consistent picture of the situation and its complexities. Micro-level or sub-national sex ratio at birth (SRB) data should also be generated and analysed, alongside an analysis of its interplay with socioeconomic variables to help understand the factors that could lead to improvements. Particular attention should be given to monitoring levels of SRB over time so that reliable trend data can be ascertained.
- Determinants and health and social consequences – all the determinants and consequences of skewed sex ratios must be assessed using different types of research, including qualitative studies that explore the contextual realities that underlie sex-selection motivations and practices, and their effects on different age and population groups.
- Impact of interventions – indicators for tracking change and the impact of interventions must be developed and used. Indicators should include not only the sex ratio at birth but also other markers of gender discrimination or gender inequality. Methodologies should also be developed to evaluate the impact of legislative changes, new policies, incentive programmes, and awareness and media efforts. Documenting and analysing the reasons for the success or failure of specific and collective interventions must be part of this process and be given high priority and sufficient resources.

Use of technology

Technology is not the root cause of sex selection. Any policies or guidelines on the use of technology in obstetric and fetal medicine should take into account the need to:

- Promote responsible use – using professional associations, guidelines on the use of technologies should be developed and promoted that proscribe the use of technologies by unqualified people, and their promotion for sex-selection reasons and/or profit. The use of such technologies by unauthorized providers can be limited by requiring the licensing of practitioners and by prohibiting the advertising of sex-selection services.
- Avoid reinforcing gender discrimination – for example, women should be able to access health care without spousal authorization.
- Avoid reinforcing inequities – efforts to limit sex selection should not limit economic, social and/or geographical access to technology for health reasons by all individuals.
- Ensure women's access to safe abortion and other services – efforts to manage or limit sex selection should also not hamper or limit access to safe abortion services. This should be part of broader efforts to protect the right of women to have access to legitimate sexual and reproductive health technologies and services.

Supportive measures for girls and women

Addressing the root causes of gender discrimination and inequalities requires taking supportive measures for girls and women. Such measures must focus on securing the foundations for the self determination of girls and women by improving:

- access to information, health care services and nutrition;
- access to education; and
- personal security – including protection from coercion.

Additional measures may also need to be taken in the form of policies that are implemented and monitored to ensure that high birth order girls (i.e. those born second, third or fourth in a family) have equal access to education and health services. For example, short-term measures such as providing incentives for families with daughters only may help to increase the perceived value of girls, while longer-term efforts to change deep-rooted thinking and attitudes take effect.

Legislation and policy

Laws and policies can be important tools for providing State support for women's rights and the achievement of gender equality. Addressing the phenomenon of imbalanced sex ratios at birth is a key opportunity for States to examine their current legislative framework and the extent to which laws and policies are in line with their human rights commitments. Broadly speaking, States should develop and promote legal frameworks and socioeconomic policies that will sustain gender equity and equality, and in particular encourage active participation from civil society. Specific actions in this area include:

- elaborate and implement policies to address the root causes of son preference – including policies on inheritance, dowry, financing old age and other personal security issues, education and the determination of surname;
- analyse the impact of laws and policies on gender equality – and modify these to ensure that they are consistent with human rights commitments; and
- strengthen policies to provide safe abortion services to the full extent of the law – including policies to ensure supplies, training and equipment in accordance with ICPD+5; paragraph 63 (UNFPA, 1999), and to ensure that both health-care providers and the general public know the legal status of abortion in the country and how women can access safe and legal services.

Advocacy, communication and community mobilization

The social norms that govern son preference will ultimately have to change within families and within social networks. Thus, advocacy to change attitudes and behaviour towards girls and women has to be a central part of work to redress gender inequalities manifested through sex-ratio imbalances. It is therefore very important to give high visibility to leaders and other personalities and influential groups that support fulfilling the human rights of girls and boys equally, and who therefore oppose prenatal sex selection.

With the aid of other agencies, governments should give their full support to the development of innovative activities that stimulate discussion and debate, and that bring greater consensus around the concept of the equal value of girls and boys. Such advocacy initiatives should use all available media – particularly television and radio – which provide opportunities for telling stories and for debate. Governments, nongovernmental organizations and other groups must ensure that media and other campaigns against sex selection do not jeopardize knowledge of – or access to – safe abortion services. Their content should therefore be very carefully constructed with the broadest possible participation from civil society to ensure that it is not stigmatizing or judgemental. As a result, mass-media initiatives should be supported by:

- systematic and rigorous assessments of the behaviour-change impact of existing government and nongovernment mass-media campaigns and other outputs on sex selection; and
- the rigorous pre-testing of all proposed mass-media outputs.

As with all programmes that aim to encourage behaviour change, it will be essential to complement national-level activities with mutually reinforcing activities at the local level in order to

fully engage communities. Particular attention will also need to be given to engaging health care professionals to ensure that they are fully aware of the issues around sex selection, and are in a position to act responsibly and in accordance with guidelines.

Conclusion

Imbalanced sex ratios at birth are an increasing cause of concern in some South Asian, East Asian and Central Asian countries, particularly as they are indicative of persistent and underlying gender discrimination against girls and women. Such discrimination, and the intense pressure to produce sons, has serious and profound effects on the mental and physical health of women.

The increasing availability of technologies such as amniocentesis and ultrasonography has facilitated an increase in the occurrence of sex selection. However, this in itself is not the root cause of the problem. Although governments and other concerned parties have attempted to restrict or prohibit the use of such technologies, experience indicates that legal restrictions in isolation from broader social policies and other measures to address deep-seated social norms and effect behaviour change may be ineffective and may even detrimentally impact upon the human and reproductive rights of women. Medical and other health-related technologies should instead be regulated to ensure that they are only used by qualified individuals in full accordance with the evidence-based guidelines of professional associations.

The prevention of gender-biased sex selection will require major commitment and sustained and concerted efforts by governments, civil society, international agencies and all others working towards the goal of gender equality. A carefully planned and systematic approach involving stakeholders at all levels is needed to put in place supportive legal and policy measures for girls and women. This must be combined with the use of non-judgemental and non-coercive mass-media strategies and other social measures to encourage behaviour change. Imbalanced sex ratios are an unacceptable manifestation of gender discrimination against girls and women and a violation of their human rights.

Annex 1: Notes on the origin of sex selection ³

What motivates people to seek ways of sex selection in childbearing? Historically, in many societies, there have been sets of social norms that have promoted the higher social status of men.

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.

Jat father quoted in Dagar (2007)

Patrilineal family systems – in which property is inherited through the male line – have been dominant, and the responsibility for economic, sociocultural and religious functions vested in male descendants. Sons are therefore seen as essential for the survival of the family and for social security in old age, and are thus valued more highly than daughters.

As a result, males have power and control over resources, particularly land and property, and over the women of the family. At the state level this power can be reflected in national laws and policies – contributing to the subordinate position of women both in private where they are economically dependent upon men and publicly where they have little or no decision-making power and are seen as a burden (Das Gupta et al., 2003; Murphy, 2003; Chow & Berheide, 2004). When combined with the general trend towards declining family size, sometimes resulting from stringent policies that restrict the number of children in a family, continuing son preference becomes the driving force behind imbalanced sex ratios.

Ethnographic studies point to a complex and varied set of interlocking historical factors that eventually manifest as higher sex ratios. In the Republic of Korea, social engineering during the Choson

dynasty (14th to early 20th centuries) replaced bilateral family inheritance systems with 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 & Das Gupta (2007)

Thus sons became central to a family's pattern of inheritance, the transfer of landed property and key rituals including the worship of ancestors as part of a neo-Confucian ideology. Daughters came to be viewed as expendable. In China, the Maoist period represented a break from the old Confucian patriarchal family model – reinforced by the abolition of private property in land and private inheritance. The coinciding of major economic reforms after 1979 with the application of a one-child policy led to a revival in son preference in the 1980s (Banister, 2004).

In Northwest India, the work of Das Gupta (1987, 1995) and Kaur (2008) revealed the existence of a complex system of managing family size relative to farming and property-related needs. These needs were met through a combination of patrilineal inheritance, non-marriage of younger sons, fraternal polyandry and female infanticide. Das Gupta (1995) pointed to some of the parallels with historical Europe where the younger sons of the landed often could not marry, and excess daughters were sent to convents with a dowry. Kaur (2008) noted that younger sons were also traditionally 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

³ Based upon Sen (2009).

⁴ All cited in Li (2007).

numerous group of Jat peasant farmers (in contrast to the landlords of the Pakistan Punjab) and where irrigation and the later spread of Green Revolution technology gradually 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 as both a burden (in terms of the need to control their sexuality in order to preserve family honour) and a cost (in terms of their daily consumption and the dowry

that they took with them in marriage). A process of cultural diffusion then carried such practices to other, lower, castes and to urban areas. As families moved to urban areas they tended to retain links to the land and began to view dowry as an important means to accumulate wealth and consolidate consumption – possibly as a replacement for the place of land in the new urban economy.

Annex 2: Methods of sex selection

Sex selection can occur before a pregnancy becomes established (pre-implantation), prenatally or following birth. The first step typically involves prenatally determining the sex of a fetus. The methods used for this include amniocentesis, ultrasonography and chorionic villus sampling. Recent developments in prenatal sex detection include a simple blood or urine test on the pregnant woman which can be performed before the 12th week of pregnancy.

As with ultrasound and other techniques, amniocentesis was developed to support fetal medicine, and was one of the earliest of the modern methods of sex detection. Because the procedure involves certain risks to the fetus, it requires a skilled practitioner and can only be performed between the 15th and the 20th week of pregnancy. Although the use of amniocentesis has largely been supplanted by the simpler and less invasive ultrasound imaging, the accuracy of sex detection using two-dimensional ultrasonography is poor before the 12th week of pregnancy (Efrat et al., 1999). There is some evidence that three-dimensional ultrasonography can be more reliable before the 12th week of pregnancy but this is not widely used at present. Other first-trimester tests include chorionic villus sampling which

involves extracting and testing a small piece of the placenta, and is therefore invasive with risks similar to amniocentesis. A less-invasive procedure in the first trimester is a blood test performed from the 7th week of pregnancy based upon the drawing of a small sample of maternal blood in which fetal cells can be found. It appears to be highly accurate (Bustamante-Aragones et al., 2008), has very low risk and only requires the availability of laboratory testing capacity. Although this test is also not in wide use as yet in Asia, anecdotal evidence suggests that it has now become available in major cities in the north-west of India (Sen, 2009). The least-invasive procedure would appear to be a newly available urine test which can be conducted from 10 weeks after conception and can predict with 90% accuracy the sex of a fetus (CNN International, 2009).

Sex determination is then followed by the second step of choosing whether or not to undertake or continue a pregnancy based on the desired sex. This step can be taken at any of three stages – pre-implantation via sperm sorting or pre-implantation genetic diagnosis (PGD) using in-vitro fertilized embryos of pre-determined sex; post-implantation via abortion; or following birth through infanticide or child neglect. Pre-implantation sperm sorting

aims to increase the chances of conceiving a child of the preferred sex but there is little long-term evidence concerning the safety of this method, while its effectiveness depends upon the use of other assisted-reproduction techniques and varies widely. Before modern techniques became available, infanticide and neglect were the main methods by which families dealt with unwanted children. With the advent of prenatal technologies, it seems likely that infanticide has declined (Sen, 2009).

Definitions

Amniocentesis – use of a hollow needle inserted abdominally into the amniotic sac to draw a sample of the amniotic fluid containing fetal cells. Usually performed between the 15th and 20th week of pregnancy, its purpose is to count and analyse the number of chromosomes present (including the sex chromosomes) to screen for genetic abnormalities. Amniocentesis is an invasive procedure and involves risks to the fetus such as membrane rupture, ongoing leakage of the amniotic fluid resulting in fetal loss, indirect fetal injury, infection or miscarriage.

Chorionic villus sampling (CVS) – is the removal of a small piece of placenta tissue (chorionic villi) from the uterus during early pregnancy to screen the baby for genetic defects. CVS can be performed through the cervix (transcervical) or through the abdomen (transabdominal). Medline Plus, National Institutes of Health (available at: www.nlm.nih.gov/medlineplus/ency/article/003406.htm).

Infanticide – family members can control whether a child (of the unwanted sex survives), either through killing or through neglect which leads to death. Infanticide is considered a criminal offense (Postnote No. 198, 2003).

Pre-implantation genetic diagnosis (PGD) – involves the removal of a single cell from an embryo and analysis of the chromosomes and DNA. This is

performed three days after fertilization when the embryo consists of about eight cells and does not appear to affect development. Only embryos with the required genetic characteristics are placed in the woman's uterus. This could mean for example choosing embryos that are of the desired sex or are known not to be affected by a particular genetic disorder. The pregnancy rate per PGD cycle is typically less than 20% which is slightly lower than that for in vitro fertilization (Postnote No. 198, 2003).

Sperm sorting – sperm carry either an X chromosome or a Y chromosome and all eggs carry an X chromosome. If an egg is fertilized by an X-bearing sperm, the fetus will be female while a Y-bearing sperm will produce a male fetus. Sperm sorting aims to produce a sample with a higher proportion of either X-bearing or Y-bearing sperm, thus increasing the chance of conceiving a child of the preferred sex (Postnote No. 198, 2003).

References

- Asia Pacific News (2008). *South Korea court rules parents may know baby's sex*. 31 July. Available at: www.channelnewsasia.com/stories/afp_asiapacific/view/364083/1/.html (accessed 02 July 2009).
- Banister J (2004). Shortage of girls in China today. *Journal of Population Research*, 21(1):19–45.
- Bhat M, Zavier F (2007). Factors influencing the use of prenatal diagnostic techniques and the sex ratio at birth in India. *Economic and Political Weekly*, 42(4):2292–2303.
- Bustamante-Aragones A et al. (2008). Foetal sex determination in maternal blood from the seventh week of gestation and its role in diagnosing haemophilia in the foetuses of female carriers. *Haemophilia*, 14(3):593–598.
- CEDAW (1979). Convention on the Elimination of All Forms of Discrimination Against Women. Adopted by the United Nations General Assembly on 18 December 1979; entry into force 03 September 1981. Available at: www2.ohchr.org/english/law/cedaw.htm (accessed 22 July 2009).
- Census of India (2001). Office of the Registrar General and Census Commissioner, India. Available at: http://censusindia.gov.in/Census_And_You/gender_composition.aspx (accessed 25 June 2009).
- CESCR (2000). General Comment No. 14: *The right to the highest attainable standard of health*. Geneva, Committee on Economic, Social and Cultural Rights (E/C.12/2000/4).
- CESCR (2005). *Concluding observations on China*. Geneva, Committee on Economic, Social and Cultural Rights (E/C.12/1/Add.107, paragraph 36).
- Chow E, Berheide CW (2004). *Global perspectives: Women, family and public policies* (Chinese Edition). Social Science Document Press.
- Chung W, Das Gupta M (2007). The decline of son preference in South Korea: the roles of development and public policy. *Population and Development Review*, 33(4):757–783.
- CNN International (2009). *Pregnant with girl or boy? At home test may help you*. Web-based news bulletin, 09 June. Available at: www.cnn.com/2009/HEALTH/06/09/gender.prediction.test/ (accessed 20 July 2009).
- CRC (1989). Convention on the Rights of the Child. New York, United Nations. Adopted by the United Nations General Assembly on 20 November 1989; entry into force on 02 September 1990. Available at: www2.ohchr.org/english/law/crc.htm (accessed 22 July 2009).
- Dagar R (2007). Rethinking female foeticide: perspective and issues. In: Patel T, ed. *Sex Selective Abortion in India – Gender, Society and New Reproductive Technologies*. New Delhi, Sage Publishers, 91–134.
- Das Gupta M (1987). Selective discrimination against female children in rural Punjab, India. *Population and Development Review*, 13(1):77–100.
- Das Gupta M (1995). Fertility decline in Punjab, India: Parallels with historical Europe. *Population Studies*, 49(3):481–500.
- Das Gupta M et al. (2003). Why is son preference so persistent in East and South Asia? A cross-country study of China, India and the Republic of Korea. *Journal of Development Studies*, 40(2):153–187.
- Dickens B et al. (2005). Sex selection: treating different cases differently. *International Journal of Gynecology and Obstetrics*, 90:171–177.
- Efrat Z, Akinfenwa O, Nicolaidis KH. First-trimester determination of fetal gender by ultrasound. *Ultrasound in Obstetrics and Gynecology*, 1999, 13(5):305–307.
- Elul B et al. (2004). *Unwanted pregnancy and induced abortion: data from men and women in Rajasthan*. New Delhi, Population Council.
- Ganatra B (2008). Maintaining access to safe abortion and reducing sex ratio imbalances in Asia. *Reproductive Health Matters*, 16(31 Supplement):90–98.
- Ganatra B, Hirve S, Rao V (2001). Sex-selective abortion: evidence from a community based study in western India. *Asia-Pacific Population Journal*, 16(2):109–124.
- Government of India (1994). Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994. Available at: www.medindia.net/Indian_Health_Act/the-pre-natal-diagnostic-techniques-act-rules-introduction.htm (accessed 22 July, 2009).

- Government of Viet Nam (2003). Decree 104/2003/ND-CP. Detailing and guiding the implementation of a number of articles of the population ordinance. Hanoi.
- Guilmoto C (2007a). *Characteristics of sex ratio imbalance in India and future scenarios*. New Delhi, UNFPA. Paper prepared for the 4th Asia and Pacific Conference on Sexual and Reproductive Health and Rights, Hyderabad, India, October 2007. Available at: www.unfpa.org/gender/case_studies.htm (accessed 24 June 2009).
- Guilmoto C (2007b). *Sex-ratio imbalance in Asia: trends, consequences and policy responses*. New York, UNFPA. Paper prepared for the 4th Asia and Pacific Conference on Sexual and Reproductive Health and Rights, Hyderabad, India, October 2007. Available at: www.unfpa.org/gender/case_studies.htm (accessed 24 June 2009).
- ICCPR (1966). International Covenant on Civil and Political Rights. Adopted by the United Nations General Assembly on 16 December 1966; entry into force on 23 March 1976. Available at: www2.ohchr.org/english/law/ccpr.htm (accessed 22 July 2009).
- ICESCR (1966). International Covenant on Economic, Social and Cultural Rights. Adopted by the United Nations General Assembly on 16 December 1966; entry into force on 3 January 1976. Available at: www2.ohchr.org/english/law/cescr.htm (accessed 22 July 2009).
- ICRW (2009). *Postnatal discrimination against Indian girls: severe stunting, 1992–2006*. International Center for Research on Women. Fact Sheet #3, Counting girls: policy interventions with potential to address daughter discrimination in India and China. Washington, ICRW.
- Institute for Social Development Studies (2007). *New “common sense” family planning policy and sex ratio in Viet Nam*. UNFPA. Available at: www.unfpa.org/gender/case_studies.htm (accessed 20 September 2009).
- JSK (undated). *Why population matters*. Jansankhya Sthirata Kosh – National Population Stabilisation Fund. Available at: http://jsk.gov.in/child_sex_ratio.asp (accessed 28 September 2009).
- Junhong C (2001). Prenatal sex determination and sex selective abortion in central China. *Population and Development Review*, 27(2):259–280.
- Kaur R (2008). Dispensable daughters and bachelor sons: sex discrimination in north India. *Economic and Political Weekly*, XLIII(30):109–114. Available at: www.scribd.com/doc/4435246/Dispensable-Daughters-and-Bachelor-Sons-Sex-Discrimination-in-North-India (accessed 19 October 2010).
- Kim D (2004). Missing girls in South Korea: trends, levels and regional variations. *Population (E)*, 59:865–878.
- KNSO (2004). Korean Statistical Information System. On-line statistics database. Korea National Statistical Office. Available at: <http://kosis.nso.go.kr> (accessed 26 June 2009).
- Kulkarni PM (2007). *Estimation of missing girls at birth and juvenile ages in India*. New Delhi, UNFPA.
- Li S (2007). Imbalanced sex ratio at birth and comprehensive intervention in China. Paper prepared for the 4th Asia and Pacific Conference on Sexual and Reproductive Health and Rights, Hyderabad, India, October 2007. Available at: www.unfpa.org/gender/case_studies.htm (accessed 24 June 2009).
- Mackie G and LeJeune (2009). *Social Dynamics of Harmful Practices: A New Look at the Theory*. Innocenti Working Paper, UNICEF Innocenti Research Centre.
- Malhotra A et al. (2003). *Realizing reproductive choice and rights – abortion and contraception in India*. International Center for Research on Women.
- Murphy R (2003). Fertility and distorted sex ratios in a rural Chinese county. *Population and Development Review*, 29(4):595–626.
- Naqvi F (2006). *Images and icons: harnessing the power of mass media to promote gender equality and reduce practices of sex selection*. New Delhi, BBC World Service Trust, India. Available at: www.bbc.co.uk/worldservice/trust/researchlearning/story/2006/11/061114_sex_selection_downloads.shtml (accessed 03 July 2009).

- NationMaster (2009). Available at: www.nationmaster.com/graph/peo_sex_rat_sex_rat_at_bir-people-sex-ratio-ratios-birth (accessed 25 June 2009).
- OECD (2010). *Glossary of statistics*. Available at: <http://stats.oecd.org/glossary/detail.asp?ID=2447> (accessed 19 October 2010).
- People's Republic of China (1995). Law on maternal and infant health care. Available at: www.unescap.org/esid/psis/population/database/poplaws/law_china/ch_record006.htm (accessed 22 July 2009).
- Postnote No. 198 (2003). *Sex selection*. London, Parliamentary office of science and technology. Available from: www.parliament.uk/post/pn198.pdf (accessed 28 June 2009).
- Sen (2009). Gender biased sex selection. Key issues for action. Available at: <http://www.dawnnet.org/research-analyses.php?theme=2&id=29> (accessed 1 March 2011).
- Thapa S (2004). Abortion law in Nepal: the road to reform. *Reproductive Health Matters*, 12(24 Supplement):85–94.
- UNICEF (2010). The dynamics of social change – Towards the abandonment of female genital mutilation/cutting in five African countries. Innocenti Insight. UNICEF Innocenti Research Centre, Florence, Italy.
- UNICEF (undated). *Declining sex-ratios – a matter of concern*. Roopa Bakshi. Available at: www.unicef.org/india/child_protection_1360.htm (accessed 20 September 2009).
- UNFPA (1999). *Key actions for the further implementation of the Programme of Action of the International Conference on Population and Development*. New York, United Nations Population Fund.
- United Nations (1994). *Programme of Action of the International Conference on Population and Development*. New York, United Nations. Available at: www.un.org/ecosocdev/geninfo/populatin/icpd.htm (accessed 18 October 2010).
- Villa A (2006). Sex preferences and fertility trends in South Korea. *Asia-Pacific Social Science Review*, 6(2):153–161.
- Visaria P (1971). *The Sex Ratio of the Population in India*. Monograph No 10, Census of India, 1961. Government of India, New Delhi, Controller of Publications.
- WHO (2007). *Unsafe abortion: global and regional estimates of incidence of unsafe abortion and associated mortality in 2003*. 5th Edition. Geneva, World Health Organization.
- WHO (2008). *Eliminating female genital mutilation: an interagency statement*. Geneva, World Health Organization. Available at: www.who.int/reproductivehealth/publications/fgm/9789241596442/en/index.html (accessed 09 November 2009).
- Wu Z, Viisainen K, Hemminki E (2006). Determinants of high sex ratio among newborns: a cohort study from rural Anhui province, China. *Reproductive Health Matters*, 14(27):172–180.
- Xinhua (2006). China promotes girls to avoid glut of bachelors. *China Daily*, 08 August.
- Zhu WX, Lu L, Hesketh T (2009). China's excess males, sex selective abortion, and one child policy: analysis of data from 2005 national intercensus survey. *British Medical Journal*, 338:1211.

For more information, please contact:

Department of Reproductive Health and Research
World Health Organization
Avenue Appia 20, CH-1211 Geneva 27, Switzerland
Fax: +41 22 791 4171
E-mail: reproductivehealth@who.int
www.who.int/reproductive-health

Front cover photo - © The World Bank



**World Health
Organization**

ISBN 978 92 4 150146 0



9 789241 501460