

Sex Differentials in Infant and Child Mortality in Rural Nepal

Bhakta B. Gubhaju

Introduction¹

Contrasting differences are exhibited in the mortality of male and female children. Dyson (1977) noted that child death rates (1-4 years of age) of males are almost invariably higher than those of females in low mortality countries. However, in many other developing countries this pattern does not prevail. Probably the biological disadvantage which male children have is nullified by other factors. Higher child mortality for females than males has been found in the Indian subcontinent, parts of western south Asia and in some populations in northern Africa (Dyson, 1977). Hansluwka and Ruzicka (1982) observed that in high mortality countries, infectious diseases coupled with undernutrition constitute the major causes of child mortality. In such situations, female children are in many instances at a greater disadvantage than male children.

Several studies in India have shown that except for the early period of infancy, female mortality in childhood exceeds male mortality (Arora, 1980; Khosla, 1980; Isely, 1981). The authors relate this abnormality to the social, religious and economic factors that operate against the female offspring.

Studies in Bangladesh provide conclusive documentation of higher female than male mortality shortly after birth and throughout childhood (Mitra, 1979; D'Souza and Chen, 1980; Chen *et al.*, 1981). The higher level of malnutrition among girls than boys was attributed to intra-family allocation of food between children of differing sexes. In Sri Lanka also mortality rates above age one of female offspring of Tamil mothers exceeded those of male offspring (Boulier and Paqueo, 1981). Another study in Sri Lanka has revealed that during the neonatal period, where biological factors favouring females predominate, males have 29 per cent higher mortality than females predominate, males have 29 per cent higher mortality than females, while during the postneonatal period the male mortality rate was only about five per cent higher than that of females. The smaller gap in the postneonatal mortality rate between the two sexes and the persistence of higher female mortality at ages 1-4 and 5-9 have been attributed, at least in part, to the influence of son preference (Nadarajah, 1983).

Sex Preferences in Nepal

In an agricultural country like Nepal, children are highly valued. Their usefulness as a source of labour contributing to the household economy and later in life, as a source of economic support for their

elderly parents is more important than their cost as additional mouths to feed and bodies to clothe (Hitchcock, 1966; Nag *et al.*, 1978). However, there is a tendency in the Nepalese villages for elderly parents to live with sons more often than with daughters (Nag *et al.*, 1978); for this reason, there is, in general, a preference for sons. An overwhelming preference for sons by Nepalese women was revealed in the Nepal Fertility Survey: 97 per cent of women with one son and one daughter indicated a preference for the next child to be a son, and almost three-quarters of women with three living children, two of whom were sons, indicated a preference for another son (Nepal Family Planning and Maternal Child Health Project, 1977). Regarding son preference Hitchcock notes in a hill area of Nepal: 'Pregnant mothers and mothers hoping to conceive visit the Shaman for spells or go to local shrines to pray that they bear a son' (Hitchcock, 1966:48). Despite the strong preference for sons, daughters are also highly regarded and treated with much affection. Unmarried girls of the family and lineage have a high ritual value. Gifts given to them are regarded as gifts given to Goddesses and this is also a way of obtaining religious merit (Hitchcock, 1966).

The value of daughters among the Newars was noted in another study (Nepali, 1965); even after a daughter is married, the emotional attachment to her parents is very strong. The close relationship with her parents' home is expressed in terms of tender feelings as well as in terms of innumerable contacts; it is also widely practised that a married daughter lives with her parents for a few days a week until she gives birth to her first child (Nepali, 1965). Along with the social values attached to the daughters, they are also an important source of labour while still in the parental household. Hitchcock (1966) observed in the hill areas of Nepal that females actively participated in the farm work.

Another study in the hill area of Nepal has revealed that parents wish to have a girl child before a boy child as the girl assumes responsibility at a younger age and is able to ease the family workload (Molnar, 1980). The author goes on to say that although sons provide support for the couple in their old age, if there are no sons, daughters may also provide such support (Molnar, 1980:128).

The children of both sexes in the hills were found to have been treated more or less in the same way by the rest of the family, in particular, the parents and grandparents (Peet, 1978). Anthony (1979) also did not find any systematic variation in child mortality between sexes, implying that parents did not discriminate against female children. However, in the Terai area, sex of the child was shown to be important, female children having higher mortality, but was not consistently significant in determining the survival of the last child (Cochrane, 1981). Another study in the Terai also demonstrated that although more boys than girls were diagnosed as sick, no significant difference was found in treatment (Nepal Family Planning and Maternal Child Health Project, n.d.).

Data and Methodology

The present study examines the sex differentials in infant and child mortality in rural Nepal by birth order of the index child, and the survival status of the preceding sibling. The survival status of the preceding sibling is defined as alive or dead at the time the index child was born. The study is based on the data from the Nepal Fertility Survey 1976 carried out by the Nepal Family Planning and Maternal Child Health Project in collaboration with the World Fertility Survey. The details of the survey methodology and sample design can be found in the Nepal Fertility Survey, First Report (Nepal Family Planning and Maternal and Child Health Project, 1977). Although the major objective of the survey was to identify differentials in patterns of fertility and fertility regulation and to clarify factors affecting fertility, the information gathered from the pregnancy histories of ever-married women aged 15-49 years of age also provides the most comprehensive and detailed set of data suitable for the study of sex differentials in infant and child mortality. The present study is mainly confined to the rural areas of Nepal: of the 5940 women there are 5802 women interviewed in the rural sample.

Infant mortality is measured as the probability of dying of a cohort of live births before reaching age one, and child mortality (1-4 years of age), in turn, is measured as the probability of dying before age five for those of the cohort of births that survived to age one.

In order to calculate the probabilities of dying between birth and age one, and between ages one and five, we excluded from the analysis all children who were born less than five years before the survey to eliminate the effect of truncation. Because of the uncertainty about completeness of reports on births and deaths that occurred in the remote past we excluded from the analysis births that occurred 15 or more years before the survey. In addition, children born more than 15 years before the survey would have a high proportion of those born to younger women; such births are known to be associated with high risk of infant and child death and their inclusion would overestimate the past mortality levels. Thus the present analysis includes only children born between 5 and 15 years before the survey.

Results

Studies carried out so far in Nepal do not provide any conclusive evidence to show higher female than male mortality during childhood. The present study, as shown in Table 1, confirms the findings of others. The probability of dying before age one is higher for males than for females. This trend persists for all birth orders except for the sixths and higher order birth, which have slightly higher female than male mortality. However, the probability of dying between ages one and five for fourth and higher order births is higher for female than male children. The mechanism of how the sex differential in child mortality (higher female than male) appears to operate among higher order births needs further analysis and is elaborated next.

Table - 1

Infant and Child Mortality by Birth Order and Sex of the Child,
Rural Nepal

Birth Order	Infant Mortality*			Child Mortality**		
	Sex of the Child			Sex of the Child		
	Male	Female	Ratio	Male	Female	Ratio
	(1)	(2)	(3)= (2)/(1)	(4)	(5)	(6)= (5)/(4)
1	187 (947)	182 (966)	0.97	95 (770)	104 (790)	1.09
2	164 (854)	156 (802)	0.95	112 (714)	102 (677)	0.91
3	165 (728)	147 (682)	0.89	125 (608)	110 (582)	0.88
4	172 (576)	128 (578)	0.74	119 (477)	125 (504)	1.05
5	165 (425)	147 (423)	0.89	102 (354)	127 (361)	1.25
6+	175 (738)	185 (763)	1.06	97 (609)	121 (622)	1.25
All	175 (4267)	161 (4214)	0.92	108 (3532)	113 (3536)	1.05

Notes: Figures in parentheses are number of live births for infant mortality and number of children that survived to age one year for child mortality.

* Per 1000 live births.

** Per 1000 children that survived to age one year.

Source: Nepal Fertility Survey 1976.

Table - 2

Child Mortality* by Birth Order, Sex of the Child and Survival of Previous Child, Rural Nepal

Birth Order	Dead			Alive		
	Sex of the Child			Sex of the Child		
	Male	Female	Ratio	Male	Female	Ratio
	(1)	(2)	(3)= (2)/(1)	(4)	(5)	(6)= (5)/(4)
2	120 (166)	154 (156)	0.28	110 (546)	87 (520)	0.79
3	168 (125)	153 (124)	0.91	114 (483)	98 (458)	0.86
4	168 (101)	133 (128)	0.79	106 (376)	123 (374)	1.16
5	151 (73)	219 (73)	1.45	89 (281)	104 (288)	1.17
6+	97 (124)	108 (166)	1.11	97 (484)	125 (456)	1.29
All	138 (589)	145 (647)	1.05	105 (2170)	106 (2096)	1.01

Notes: Figures in parentheses are number of children that survived to age one year.

* Per 1000 children that survived to age one year.

Source: Nepal Fertility Survey 1976.

In general, Table 2 suggests that there is no indication of discrimination by sex which might have resulted in higher risk of dying of one sex at the cost of the other. Had there been any sex discrimination, it should be at least apparent in the survival of the higher order births. Two hypotheses may be put forward on this matter. In the case of strong preference for sons, if the previous child has died, the risk of dying of the next child will be lower if it is a male child, as the parents may try harder to protect him by providing the maximum care they can afford. Second, among higher order births, if the previous child is alive, the risk of dying of the next child will be higher if it is a girl, because in a situation where the previous child is alive the girl of the higher birth order may not be very much wanted. She may, for instance, not get adequate attention from her parents. Looking at the ratios in column 3 in Table 2 one can observe that for fifth and higher order births boys have lower probability of dying between ages one and five than girls. This lends some support for the first hypothesis. Also observed in this column is that, in the case where the first child did not survive, the second child being a boy has a relatively lower risk of dying during childhood than if it is a girl. This reaffirms the fact that if the previous child has died the next child being a boy receives much attention from the parents for its survival. The ratios in column 6 of this table also provide support for the second hypothesis: among the fourth and higher order births the probability of dying between ages one and five is higher for girls than boys, among the children of mothers whose previous child is alive. It can also be conjectured here that if the previous child that is alive is a son then the chances of dying of the index child being a girl might further increase, because of the possibility that the existence of the older male competitor decreases the survival chances of the female child. It has quite clearly been observed in Uttar Pradesh, India that there is some possibility that families may give preference to the existing male children rather than to the newborn females (Simmons *et al.*, 1982). This may also be the case in the Nepalese context, but in the absence of the relevant data we are not in a position to confirm it.

Summary

This study has revealed that, in general, there is no indication of higher female than male mortality in infancy and early childhood in rural Nepal. However, when the data are analysed separately for children of mothers whose preceding child is alive and those of mothers whose preceding child is dead, some evidence of higher female than male mortality in early childhood appears to operate. Female children of higher order births, particularly those whose preceding sibling is alive, have higher risk of dying than male children. This may be due to the competition of the children for maternal attention and household resources. In such a situation, female children of higher order births may be in a disadvantageous position.

NOTE

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