

*Research Note*

*Urban-Rural Differentials in  
Infant and Child Mortality in Nepal*

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*Introduction*

The place of residence - usually in the urban-rural dichotomy has generally been regarded as an important area where meaningful differentials in infant and child mortality can be observed. The differentials are largely attributed to such factors as the difference in the standards of living, accessibility of public health and medical care facilities and differences in the social and economic status of the families.

In Nepal there have been very few studies on urban-rural differentials in infant and child mortality. The Demographic Sample Surveys of 1974-75, and 1977-76 have revealed that the crude death rates as well as infant mortality rates have been considerably higher in rural than in urban areas (Central Bureau of Statistics, 1978). Based on the Nepal Fertility Survey 1976, Thapa and Retherford also observed substantially lower infant mortality rates in urban than in rural areas (Thapa and Retherford, 1982). The present paper attempts to establish the extent of the rural-urban differentials in infant and child mortality and to determine what are the socio-economic factors associated with the lower level of such mortality in the urban areas of Nepal.

*Data Source and Methodology*

This study is based on 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 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 also provides the most comprehensive and detailed set of data suitable to examine infant and child mortality by urban-rural residence of the parents.

For the purpose of this study 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, I 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 of births and deaths that occurred in the remote past I 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 deaths and their inclusion would overestimate the past mortality levels. Thus the present analysis includes the cohorts of children born in 1962-71.

*Rural-Urban Differentials in Infant and Child Mortality*

Table 1 presents selected indicators of infant and child mortality: the probability of dying between birth and age one, and the probability of dying between ages one and five. These measures are presented for rural and urban areas and for birth cohorts of 1962-1966 and 1967-1971. Infant and child mortality obtained for these birth cohorts will enable us to investigate the time trend in the rates. A simple ratio of the rural over urban rates has also been shown to provide a measure of the relative differences in the rates.

*Table 1: Infant and Child Mortality by Rural-Urban Residence and Birth Cohorts, 1962-66 and 1967-71*

Birth Cohort	Infant Mortality per 1000			Child Mortality per 1000		
	Rural	Urban	R/U	Rural	Urban	R/U
1962-66	178(3622)	119(109)	1.5	119(2977)	42(96)	3.3
1967-71	158(4859)	132(136)	1.2	104(4091)	25(118)	4.2

Note: Figures in parentheses are number of live births for Infant Mortality and number of children that survived to age one year for Child Mortality.

Source: Nepal Fertility Survey 1976.

The differences in rural-urban rates can be attributed not only to socio-economic and environmental effects but also partly to the small size of the urban areas, as the number of births in the urban areas is very small, which may additionally produce some fluctuations in the rates. Therefore, while interpreting the urban rates one needs to be very careful.

It is evident from this table that infant and child mortality rates are substantially higher in rural than in urban areas. As revealed by

the ratios, the differences are more pronounced for child mortality than infant mortality. This could partly be due to the fact that the effects of the socio-economic status of the parents are more important at children's ages of one to four, these ages are free from perinatal and neonatal risks and environmental factors play major roles. On the other hand, the period of infancy is largely free of the worst effects of the social and economic environment.

Examination of the trend in infant and child mortality in urban and rural areas between the two birth cohorts shows that infant mortality in rural areas declined from 178 per 1000 for the 1962-1966 birth cohort to 158 for the 1967-1971 birth cohort. It is, unfortunately, impossible to make any definite statement concerning the trend - and, for that matter, even the true level, of infant and child mortality in the urban areas. There were only 13 and 18 infant deaths and 4 and 3 child deaths recorded in the two birth cohorts, respectively. There are some further problems of data accuracy in particular, that are equally valid for the urban and rural subsamples. It is quite likely that omissions of infant deaths which occurred shortly after birth increase as the time to which they refer increases. This may have artificially lowered the estimates of infant mortality for the earlier cohort, 1962-1966. A similar problem may be envisaged for rural areas, but because of the large sample size the problem may not be as critical as in the case of urban areas. The problem of omission of deaths may be less serious in the case of child mortality. According to the Nepalese custom, the child has to undergo several ceremonies during its childhood such as the day when solid food is first introduced (between 5 and 7 months), and the first and the second birthday. A child who dies after such ceremonies have been performed will have gained social and emotional values in the family and will thus be less likely to be omitted.

#### *Socio-Economic Determinants of Infant and Child Mortality in Urban Areas of Nepal*

Variations in socio-economic characteristics within urban areas may be expected to produce differences in mortality. Because of the limited size of the urban sample, it is not possible to examine the time trend in infant and child mortality. For the same reason we can include only a limited number of socio-economic variables in the analysis. In Table 2 the infant and child mortality rates in urban areas by selected socio-economic factors are set out.

#### *Region of Residence*

It is to be noted that the capital city of Nepal and the other two towns of the Kathmandu Valley are included in the hill areas. With this in mind it does not come as a surprise that urban infant and child mortality rates are lower in the hills than in the Terai (95 per 1000 as against 184 for infant mortality and 28 as against 42 for child mortality, respectively).

*Childhood Residence of Mother and Father*

Urban infant and child mortality rates are substantially lower among children whose mothers had spent their childhood in a town rather than in a village (56 per 1000 as against 198 for infant mortality and 26 as against 41 for child mortality). Similarly, the children of fathers who were brought up in a town experience lower infant and child mortality than those whose fathers were brought up in a village (110 per 1000 as against 154 for infant mortality and 22 as against 52 for child mortality).

Table 2: *Infant and Child Mortality by Region of Residence, Childhood Residence and Education of Mother and Father in Urban Nepal 1962-71.*

Characteristics	Infant Mortality per 1000	Child Mortality per 1000
Region of Residence		
1. Terai	184(87)	42(71)
2. Hill	95(158)	28(143)
Childhood Residence of Mother		
1. Village	198(121)	41(97)
2. Town	56(124)	26(117)
Childhood Residence of Father		
1. Village	154(91)	52(77)
2. Town	110(154)	22(137)
Education of Mother		
1. No Education	143(168)	35(144)
2. Some Education	91(77)	29(70)
Education of Father		
1. No Education	186(70)	35(57)
2. Some Education	103(175)	32(157)

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

Source: Nepal Fertility Survey 1976

The most plausible reason for this pattern is that those who spent their childhood in a town are likely to be better educated. In addition to this, these parents may be more aware of the health services available and are likely to be more receptive to modern medicine. On the other hand, those who came to the urban areas from villages later in life may

still preserve their traditional attitudes towards health, personal hygiene, child care habits and most importantly, the concept of illness and ways to cure it. Also, some of the rural to urban migrants may have come in search of casual or other jobs and may, therefore, belong to the poorer stratum of the society.

#### *Education of Mother and Father*

Urban infant and child mortality varies by educational attainment of parents. Because of the small sample size it was necessary to categorize education into two groups only: no education and some education. The infant mortality rate is much higher (at 143 per 1000) among uneducated mothers compared to 91 among educated mothers. It is also apparent that differentials in infant mortality exist by education of fathers: the infant mortality rate of 186 per 1000 for fathers who had no education drops to 103 for those who had some education. Obviously the availability of health services in urban areas is not the only factor that reduces infant mortality. Equally important factor is the proper utilization of services. Those who are educated are well aware of the services, the maternal and child health services in particular, and are able to make use of them when they are needed.

Differentials in child mortality also exist by education of mothers and fathers; mothers and fathers with some education experienced lower mortality among their children than their counterparts with no education. However, the differences are not as marked as in the case of infant mortality, though this may be due to the small numbers involved; there were only two and five deaths recorded among the children of fathers with no education and some education, respectively.

#### *Summary*

It has been generally observed that infant and child mortality in almost every developing country is lower in urban than rural areas. There are several reasons behind this difference. In the process of the overall development of the country, development of public health services has often been one of the priority areas. At the outset, most public health programmes tend to be concentrated in urban areas because these are easily accessible and only in the later stages do public health programmes reach the rural areas as well. This has been the trend in most, though not all, developing countries. There have been notable exceptions, in particular in some of the less populous countries, as in Sri Lanka, Malaysia, and Kerala in India.

There are still many remote areas in Nepal not covered by basic health services. Even where a health centre does exist it may be unattended or the services rendered may be inadequate for a variety of reasons. Therefore, the inequality in the availability of health services between rural and urban areas can have significant impact on infant and child mortality. In addition, the lack of knowledge, widespread poverty and traditional beliefs aggravate the health problems in

the rural areas. The same factors may cause underutilization of the available health services.

It has been shown in this paper that infant and child mortality measured as the probability of dying between birth and age one, and the probability of dying between ages one and five, are substantially lower in urban than in rural areas of Nepal. Because of the limited urban subsample it is virtually impossible to make any conclusion about the trends in infant and child mortality over time. To sum up, a lower infant and child mortality in urban areas was observed among children born to: parents whose current residence was in the hills; mothers whose childhood residence was in a town; fathers whose childhood residence was in a town; mothers who had some education; and fathers who had some education. It is also possible that parents' childhood residence and education may be related. The limited size of the urban sample restricted further breakdown of infant mortality by characteristics of the parents. Although education and childhood residence have been found to be important in reducing infant and child mortality in the urban areas of Nepal, it is not possible to determine their independent effect. This obviously calls for further research where a large urban sample would enable detailed analysis of the determinants of infant and child mortality in the urban areas of Nepal.

#### REFERENCES

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