Chapter V

TRENDS AND DIFFERENTIALS IN MORTALITY

A. Introduction

A systematic analysis of the trends and differentials in mortality in Nepal is handicapped by the lack of adequate and reliable data. The usual source of data on deaths for mortality studies is the vital registration system. In Nepal, a project for extensive vital registration was started only in 1977 and no results are as yet available from this project. The principal alternative sources of mortality data are the three national censuses of 1952/54, 1961 and 1971, and the data obtained in the national sample surveys.

Questions relating to mortality were asked in all three censuses. The 1961 census included a tabulation of deaths occurring in the preceding Nepalese calendar year by age and sex, but it would appear that there was considerable under-reporting of deaths at this census.[1] Data on children ever born and children surviving were collected in the 1971 census[2] and these data permit the derivation of infant and childhood mortality rates by application of indirect techniques. Other techniques for estimating mortality prior to 1974 were based on the age-sex distribution from the 1952/54, 1961 and 1971 censuses and estimated growth rates derived from the census totals. These techniques, which were developed in the early 1960s, are based on the stable population theory which requires that certain demographic conditions be met. An important condition, that the population should bot be subject to external migration, was not met for Nepal, which has had substantial international migration to India in the past.

During 1965-1966, a national health survey was conducted in Nepal with the assistance of the Thomas A. Dooley Foundation. The limited data from the survey provided the basis for estimating infant mortality as well as crude death rates.

However, owing to the weakness in sample design and methodology, this survey is generally considered "inaccurate in its reporting on population matters."[3] The initiation of the demographic sample survey in 1974-1975 and its repetition in the mid and late 1970s provided data on mortality for the 1970s. the relevant data collected in the various rounds of this survey formed the basis for estimating crude death rates and age and sex specific mortality rates and for constructing life tables.

As noted earlier, the estimation of mortality levels in Nepal, in the absence of vital statistics, has largely to a dependence on sample surveys and indirect techniques of estimation based on census age-sex data. Experience elsewhere, as well as in Nepal, has shown that censuses and sample surveys have serious limitations in providing accurate data on deaths and mortality levels. The various limitations of the data have therefore to be borne in mind in interpreting the estimates obtained from such data.

B. Trends in Mortality

1. *Crude Death Rate*

The incidence of deaths among a population is generally measured by the crude death rate, which is the number of deaths in a year per thousand of the mid-year population. Although the crude death rate has several limitations in the detailed study of mortality, it is esily computed and is a simple and convenient measure for examining approximate trends in mortality.

In the absence of vital registration data, several estimates of the country's crude death rate at different points of time have been made on the basis of census data, using indirect methods of estimation and population models. Based on the demographic analysis of the 1952/54 census, the United Nations[4] estimated the crude death rate at 30 per thousand for the same period. Thakur[5] estimated a crude death rate of 44 per thousand on the basis of the adjusted age data of the 1952/54 census by the application of the backward survival ratio method. Vaidiyanathan and Gaige,[6] using the 1952/54 data, and the 1961 census data, arrived at an estimated crude death rate of 36.7 per thousand population for 1954 following a quasi-stable population model approach of Lopez.

The united Nations[7] also arrived at a crude death rate of 36.6 for the period 1955-1960 based on the estimated population for 1955 and the results of the 1961 population census. By applying the stable population analyses to the age distributions of the 1961 and 1971 censuses, the Central bureau of Statistics[8] estimated a crude death rate of 27.0 for the period 1953-1961 and 21.4 for the period 1961-1971. The 1952/54 and 1961 census age distributions adjusted for under-enumeration formed the basis of estimation of birth and death rates by Krotki and Thakur.[9] Two methods proposed by the United Nations were used by the authors: census survivorship leading to a death rate and, through growth rate, to a birth rate; secondly, the adjusted proportions at different ages, and the growth rate, determining the choice of a model "stable" population whose parameters were assumed to be those of the Nepalese population. Both estimates gave almost identical results, the crude death rate for 1961 being 33 per thousand of the population. By applying the over-all survival ratio (OSR) method to the smoothed as well as unsmoothed data of the 1952/54 and 1961 censuses, Gubhaju[10] estimated the crude death rate for 1961 at 27.0 (unsmoothed) and 34.2 (smoothed). Rama Rao and Kulkarni[11] using the 1961 age-sex distribution and the average annual rate of increase between 1951 and 1961, estimated the death rate in 1961 to be 29.8 per thousand of the population.

The results of the national health survey[12] conducted in 1965-1966 indicated a crude death rate of 27 per thousand of the population. According to estimates prepared by the United Nations Population Division,[13] the average crude death rate was 25.9 for the period 1965-1970 and 20.3 for the period 1970-1975. The results of the various rounds of the demographic sample survey showed a crude death rate of 19.5 for 1974/75[14], 22.2 for 1976[15] and 17.1 for 1977/78.[16]

The various estimates are summarized in table 28. it will be seen from the table that the crude death rates in the 1950s were very high and that there has been a gradual decline in these rates over the years.

"The high death rate obtained for Nepal can be attributed to three factors: the geographic feature, the inadequacy of medical and health services, and the low level of economic development. Nepal is a mountainous country covering an area of 141,000 sq. km. along the Himalayas with the population settled in scattered hamlets and villages, which make communication difficult. The development of modern medical and health services was started only recently and there was hardly one doctor for a population of 80,000 in 1958. to add to these problems, the low level of living associated with a per capita income

Table 28. Estimates of crude death rates, 1952-1978

Period/ Year	Source	Crude death rate
1952/54	United Nations [a]	30.0
1953-1955	Thakur [b]	44.0
1954	Vaidiyanathan and Gaige [c]	36.7
1955-1960	United Nations [d]	36.6
1953-1961	Central Bureau of statistics [e]	27.0
1961	Gubhaju(unsmoothed data) [f]	27.1
	(smoothed data)	34.2
	Krotki and Thakur [g]	33.0
	Rama Rao and Kulkarni [h]	29.8
1965-1966	National health survey [i]	27.0
1965-1970	United nations [j]	22.9
1961-1971	Central Bureau of statistics [e]	21.4
1971	United States Bureau of the census [k]	24.0
1970-1975	United Nations [j]	20.3
1974-1975	Demographic sample survey [l]	19.5
1975	United States Bureau of the census [k]	21.0
1976	Demographic sample survey [m]	22.2
1977-1978	Demographic sample survey [n]	17.1

Source: a United nations, *Demographic Yearbook 1960,* table 15.

b H.N. Thakur, *Population Projections for Nepal, 1955-1975* (Kathmandu, Central Bureau of Statistics, 1963).

c K.E. Vaidiyanathan and Frederick H. Gaige, estimate.

d United Nations, *Demographic Yearbook 1963,* table 23.

e Government of Nepal, *The Analysis of the Population Statistics of Nepal* (Kathmandu, Central Bureau of Statistics, 1977).

f. B.B. Gubhaju, "Fertility and mortality in Nepal", *Journal of the Nepal Medical Association,* vol. 13, Nos. 5 and 6, October and December 1975, pp. 115-128.

g. K.J. Krotki and H.N. Thakur, "Estimates of population size and growth from the 1952-54 and 1961 census of the Kingdom of Nepal", *Population Studies,* vol. 25, No. 1, March 1971.

h G. Rana Rao and V.S. Kulkarni, "Derivation of life tables for Nepal by the application of the Coale-Demeny stable population model," paper submitted to the Demographic Training and Research Centre, Bombay, 1969.

i Robert M. Worth and Narayan K. Shah, *Nepal Health Survey 1965-1966* (Honolulu, University of Hawaii Press, 1969).

j United Nations, *Demographic Yearbook 1972,* table 23.

k United States Bureau of the Census, Country Demographic Profiles, "Nepal", November 1979 (mimeo).

l Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Second Year Survey, 1976,* report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, February 1977.

m Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Second Year Survey, 1976,* report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, February 1977.

n Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Third Year Survey 1977-1978,* Kathmandu , July 1978.

Of about 50 U.S. dollars make even the minimum standards of nutrition, clothing and housing beyond the reach of the common man. We, therefore, conclude that our estimate of the death rate of 36.7 is not inconceivable under the circumstances prevalent in Nepal."[17]

The estimated crude death rates also indicate that there was a substantial decline in these rates during the 1950s and 1960s and a slight decline during the 1970s. The crude death rate dropped to about 20 per thousand in 1974-1975 and may have declined below this level in 1977-1978.[18] The decline in the death rate has been due to the progress and expansion of the public health programmes and to the raising of the health standard of the population during the last three plan periods.[19] Moreover, through international co-operation, a programme was successfully implemented to control malaria, a disease which until recently was one of the chief causes of morbidity and mortality in the country.

The mortality experience of Nepal seems to conform to the patterns observed in a large number of developing countries. As was pointed out by Ruzicka:

> "the pace of mortality reduction may be faster from the high to the medium level of mortality than from a medium to low mortality. It was sometimes suggested that the former may be achieved by determined

> implementation of preventive health programmes within the framework of existing health infrastructure and without substantial increases in the standards of living of the population or major socio-economic development. In contrast, the latter may require development of health services and major social and economic change to be achieved first, or concurrently."[20]

Despite the decline in recent years, the current death rates of Nepal are among the highest rates persisting in the low income countries. Nepal has still a long way to go in the matter of achieving satisfactory health standards for her people. Malnutrition, measles, tuberculosis and other respiratory diseases, and water-borne intestinal infections are still a great hazard to the general health of the population. Strenuous efforts in curtailing infectious diseases through such programmes as vaccination campaigns are badly needed. In addition, the health services, in terms of both facilities and staffing, need further strengthening. There is now only one doctor per 40,000 of the population and the number of hospitals and hospital beds is still far below the adequate level. Moreover, most of these facilities are concentrated in the urban areas and are in accessible to the larger section of the rural population.

2. *Infant Mortality Rates*

In all population, infants under one year of age are subject to much greater risks of death than persons ate any higher age except old age, and for this reason it is customary to calculate an infant mortality rate.[21] The probability of death to an infant in the first year of life is a sensitive indicator of over-all health conditions prevailing in the country.

In the absence of vital registration data, several studies have attempted to estimate the infant mortality level in Nepal by indirect techniques. On the basis of the 1952/54 census data, Vaidiyanathan and Gaige[22] estimated an infant mortality rate of 260 for males and 250 for females in 1954. For the period 1961-1971, Gubhaju[23] estimated a mortality rate of 200 for male infants and 186 for female infants. The estimate of infant mortality bases on the results of the Nepal health survey[24] ranged from 130 to 208 in 1965-1966. After making corrections to the 1971 census data, the Central Bureau of Statistics obtained an estimated rate of 172 infant deaths per thousand live births.[25]

Estimates of infant mortality rates for the 1971s have been based on the results of the three rounds of demographic sample survey[26] conducted in 1974-1975, 1976 and 1977-1978. According to the 1974-1975 survey, infant mortality rate for males was estimated at 141.2 and for females at 123.0. The 1976 survey reported a rate of 128.4 for males and 137.9 for females. The results of the 1977-1978 survey showed an infant mortality rate of 109.9 for males and 97.9 for females.

The various estimates of infant mortality are summarized in table 29. On the assumption that, despite their shortcomings and limitations, the estimates reflect adequately the sex patterns of infant mortality, it may be concluded that infant mortality among male children is higher than among female children and that there has been a considerable decline in these rates over the past twenty years. nevertheless, the current rates in Nepal are higher than those in most developing countries of Asia. While reliable data are not available to ascertain the major causes of infant mortality in Nepal, it is generally suspected that most of the deaths in infancy and early childhood are due to malnutrition, intestinal parasitic and infectious diarhoeal diseases and other similar respiratory infections.

3. *Life Expectancy*

Another indicator of the health status and mortality level of a country is the expectation of life at birth, that is, the average number of years a

newborn child can be expected to live if throughout its life it were exposed at each age to the risks of death reflected in the age-specific death rates for the period for which the estimates are made. The technique commonly employed to measure this expectancy is the life table, though expectancy values are also estimated from other mortality parameters such as child mortality and infant mortality using model life tables.

Table 29. Estimates of infant mortality rates, 1954-1978

Period /Year	Source	Estimated infant mortality rate		
		Males	Females	Both sexes
1954	Vaidiyanathan and Gaige [a]	260	250	-
1961-1971	Gubhaju [b]	200	186	-
1965-1966	Nepal health survey [c]	-	-	130-208
1971	Central bureau of stastics [d]	-	-	172
1974-1975	Demographic sample Survey [e]	141	123	133
1974-1976	United States Bureau of the Census [f]	135	130	133
1976	Demographic sample Survey [g]	128	138	134
1977-1978	Demographic sample Survey [h]	110	98	104

Sources: a K.E. Vaidiyanathan and Frederick H. Gaige, "Estimates of abridged life tables, corrected sex-age distribution and birth and death rates for Nepal, 1954", *Demography* (India), vol. II, No. 2, December 1973.

b B.B. Gubhaju, " An abridged life table construction for Nepal for the period 1961-1970", Research, Planning and Evaluation Division, Nepal FP/MCH Project, 1974.

c Robert M. Worth and Narayan K. Shah, *Nepal Health Survey, 1965-1966* (Honolulu, University of Hawaii Press, 1969).

d Central Bureau of Statistics, *Population Projection for Nepal 1974-86, Kathmandu, 1974, p. 12*

e Central Bureau of Statistics, *The Demographic Sample Survey of Nepal 1974-1975,* report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, May 1976.

f United States Bureau of the Census, Country Demographic Profiles, "Nepal", November 1979.

g Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, 1976, Second year Survey,* report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, February 1977.

h Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Third year Survey, 1977-78,* Kathmandu July 1978.

Several life tables for Nepal have been constructed on the basis of the census as well as sample survey data. On the basis of the 1952/54 census data, the Central Bureau of Statistics[27] estimated the expectation of life at birth of 25.6 for males and 25.7 for females for this period. The estimates of Vaidiyanathan and Gaige[28] for 1954 are somewhat higher: 27.1 for males and 28.5 for females. The estimate of the Central Bureau of tatistics[29] for the period 1953-1961 was 35.2 for males and 37.4 for females. Rama Rao and Kulkarni[30] estimated a life expectancy at birth in 1961 of 34.2 for males and 33.6 for females. These estimates are very close to estimates prepared by the United States Bureau of the Census[31] for the same year: 34.7 for males and 32.5 for females.

There are two estimates available regarding the average expectation of life at birth for the decade 1961-1971. Gubhaju[32] estimated the expectancy at 42.9 for males and 38.9 for females. The estimates of the Central Bureau of Statistics[33] for the same decade were considerably lower for males (37.0) and somewhat higher for females (39.9). For 1971, the estimates reported by WHO[34] indicates a life expectancy of 46.0 for males and 42.5 for females. The estimates for the

same year prepared by the united States Bureau of the Census[35] are significantly lower: 41.9 for males and 39.1 for females.

The age-specific death rates derived from the results of the demographic sample survey of 1974/75[36] provided the basis for the construction of abridged life tables. The male and female expectancy of life at birth were estimated at 46.0 and 42.5 years respectively. The 1976 survey[37] indicated somewhat lower expectancies of 43.4 for males and 41.1 for females. The estimates prepar4ed by the United States Bureau of the Census of the period 1974-1976[38] suggested an expectancy at birth of 45.0 for males and 42.0 for females. It was not considered useful to construct the life table from the data of the 1977-1978 survey because of the fluctuations in the level and trend of age-specific death rates.[39]

The various estimates of life expectancy at birth for Nepal are summarized in table 30. the values indicate that there has been an increase in the life expectation over the years. life expectation at birth is considerably influenced by infant and child mortality. The observed decline in the infant mortality rate discussed in the preceding section thus reinforces the credibility of the trend in the prolongation of the life expectation during the past 25 years or so. This trend is also consistent with the health situation in Nepal: slight advances in life expectancies in the 1950s followed by substantial advances in the 1960s when many health programmes got under way.

Further, all of the estimates for the 1950s indicate a higher expectancy for females than males. During the 1960s, however, the male expectancies were higher than those for females. For the 1970s, mose estimates confirm the trend observed for the 1960s except those prepared by the United States Bureau of the Census. The finding "where life expectancy for females is lower than for males is certainly contrary to the findings in developed countries and most less developed countries. However, it does correspond to results reported in Bangladesh, and most likely reflects the impact of complications during child birth which results in a high incidence of maternal mortality."[40] In addition to maternal mortality, the possibility of higher female than male mortality in childhood, in particular at the ages 1 to 4 years, cannot be excluded.

C. Mortality Differentials

1. *Age-sex Differentials*

The incidence of death is not uniform throughout all ages. Elderly persons are subject to greater risk of death than young ones. Also,

Table 30. Estimated expectation of life at birth (e^o_o)

Period/ Year	Source	Expecation of life at birth (e^o_o)	
		Males	Females
1952/54	Central bureo of stastics [a]	25.6	25.7
1954	Vaidiyanathan and Gaige [b]	27.1	28.5
1953-1961	Central Bureo of stastics [c]	35.2	37.4
1961	Rama Rao And Kulkarni [d]	34.2	33.6
	Krotki and Thakur [e]	30.2	33.0
	United states Bureau of the census [f]	34.7	32.5
1961-1971	Gubhaju [g]	42.9	38.9
	Central bureau of statistics [c]	37.0	39.9
1971	SEARO(WHO) [h]	46.0	42.5
	United states Bureau of the census [f]	41.9	39.1
1974-1975	Demographic sample survey [i]	46.0	42.5
1976	Demographic sample survey [j]	43.4	41.1
1974-1976	United states Bureau of the census [f]	45.0	42.0

Sources: a Central Bureau of Statistics, report on the 1952/54 census of population.

b K.E. Vaidiyanathan and Frederick H. Gaige, "Estimates of abridged life tables, corrected sex-age distribution and birth and death rates for Nepall, 1954", *Demography* (India), vol. I, No. 2, December 1973, p. 288.

c Government of Nepal, *The Analysis of the Population Statistics of Nepal* (Kathmandu, Central Bureau of Statistics, 1977), pp. 97-100.

d G. Rana Rao and V.S. Kulkarni, "Derivation of life tables for Nepal by the application of the Coale-Demeny stable population model," paper submitted to the

Demographic Training and Research Centre, Bombay, 1969.

e K.J. Krotki and H.N. Thakur, "Estimates of population size and growth from the 1952-54 and 1961 census of the Kingdom of Nepal", *Population Studies*, vol. 25, No. 1, March 1971, pp. 89-104.

f United States Bureau of the Census, Country Demographic Profiles, "Nepal", November 1979.

g B.B. Gubhaju, " An abridged life table construction for Nepal for the period 1961-1971", Research, Planning and Evaluation Division, Nepal FP/MCH Project, 1974.

h SEARO, Country health information profiles 1975, quoted in L.T. Ruzicka, "Mortality in Asia", a background paper prepared for the World health Organization (mimeo).

i Central Bureau of Statistics, *The Demographic Sample Survey of Nepal 1974-1975, Survey Methods and Findings*, report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, May 1976.

j Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Second year Survey 1976*, report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, February 1977.

infants under one year of age are subject to a greater risk of death than children of older ages. The risk of death at each age or age group is measured by the age-specific death rate which is the number of deaths of the age or age group per thousand persons in that age or age group. Unfortunately, the analysis of changes in the age-specific death rates for both sexes in Nepal over time is handicapped by the absence of relevant data. The only sources of data on age-specific death rates are the three rounds of demographic sample surveys conducted since 1974-1975. the age-specific death rates for both males and females obtained from these surveys are shown in table 31 and figures 2, 3 and 4.

It will be observed from the table and the figures that the pattern of age-specific death rates in Nepal is typical of the U-shaped curve observed in most countries. The death rate starts at a high peak immediately after birth and falls to a minimum around the early teens (5-14 years in 1974-1975 and 1976, 15-24 years in 1977-1978) and then rises slowly at first, and with increasing rapidity as age advances. It will also be noted that in keeping with the decline in the over-all death rate between 1974-1975 and 1977-1978, there were declines in the death rates at certain ages for both males and females. For males, the rtes for ages 0-24 and 55-64 recorded declines during this period, while rates for other age groups showed an increase. In the case of females, there was a decline in the rates for all age groups excepting the 55-64 age group.

It has, however, to be noted that not all fluctuations and differences observed in various age groups are real. Some of them are random fluctuations due to the small size of the population "at risk" in the given age group. Some may be due to differential coverage in reporting of deaths, for instance, omissions of deaths of female children may be more frequent than those of male children.

In 1974-1975, the age-specific death rates for females were higher than the corresponding rates for males at all ages except at age below

Table 31. Adjusted age-specific death rates by sex, 1974-1975, 1976 and 1977-78

Age Group	Males			Females			Both sexes		
	1974-1975 [a]	1976 [b]	1977-1978 [c]	1974-1975 [a]	1976 [b]	1977-1978 [c]	1974-1975 [a]	1976 [b]	1977-1978 [c]
0 [a]	141.2	128.4	109.9	123.0	137.9	97.9	132.5	133.6	104.0
1-4	33.2	52.6	23.4	35.9	37.2	22.1	34.6	34.9	22.8
5-14	4.8	5.2	4.7	5.6	6.1	5.2	5.2	5.6	4.9
15-24	5.0	6.0	4.4	7.9	6.0	4.3	6.4	6.0	4.3
25-34	4.7	7.3	6.0	7.7	10.7	6.5	6.2	9.1	6.2
35-44	6.7	8.0	11.9	12.6	14.8	10.2	9.6	12.4	11.0
45-54	11.4	20.9	20.3	17.6	16.8	16.6	14.4	18.9	18.4
55-64	36.2	45.1	33.0	38.2	48.1	39.2	37.1	46.6	36.0
65-74	67.6	76.3	87.8	71.8	76.5	71.5	69.6	76.4	79.6
75+	129.0	192.8	145.7	169.9	139.7	129.0	150.0	165.9	136.8
All ages	18.6	21.5	17.9	20.4	22.8	16.2	19.5	22.2	17.1

Sources: a Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, 1974-1975, Survey Methods and Findings*, report prepared for the Government of Nepal by A.K. Bourini, Kathmandu, May 1976, table 2.

b Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Second Year Survey 1976,* report prepared for the Government of Nepal, Kathmandu, February 1977, tables 6-8.

c Central Bureau of Statistics, *The Demographic Sample Survey of Nepal, Third year Survey, 1977-78,* Kathmandu July 1978, tables 6-8.

Note: Rates per 1,000 live births.

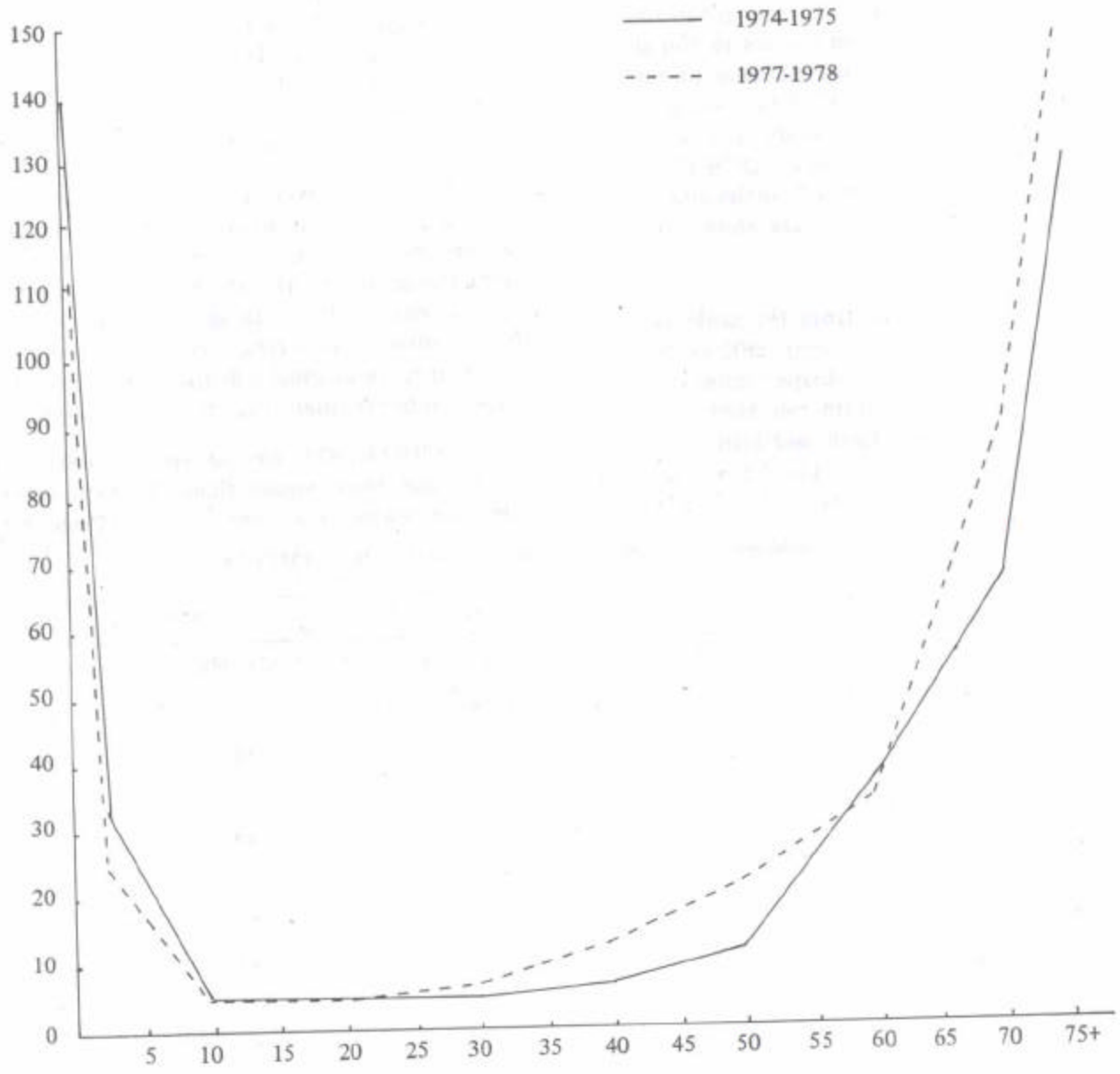

Figure 2. Adjusted male age-specific death rates, 1974-1975 and 1977-1978

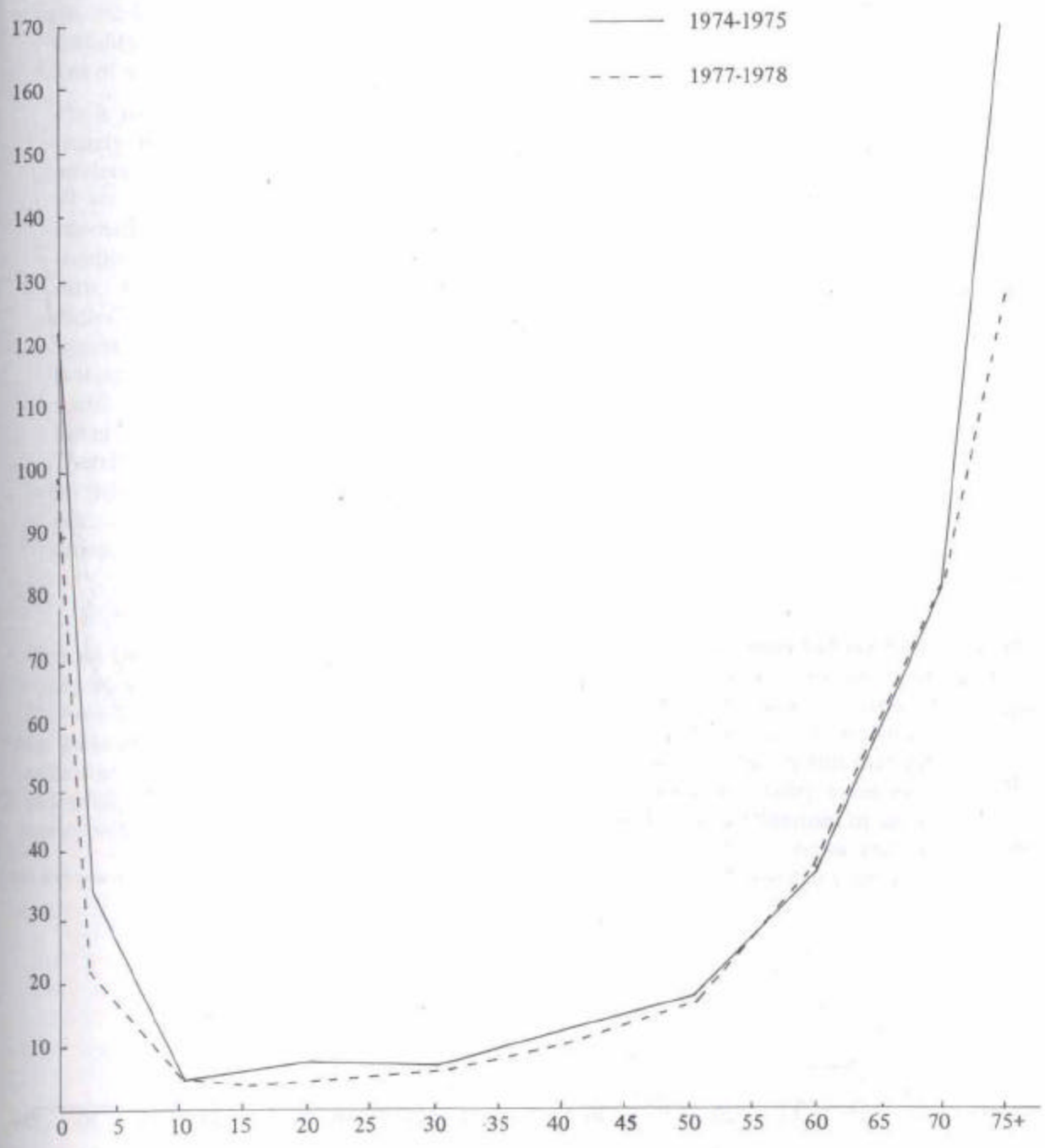

Figure 3. Adjusted female age-specific death rates, 1974-1975 and 1977-1978

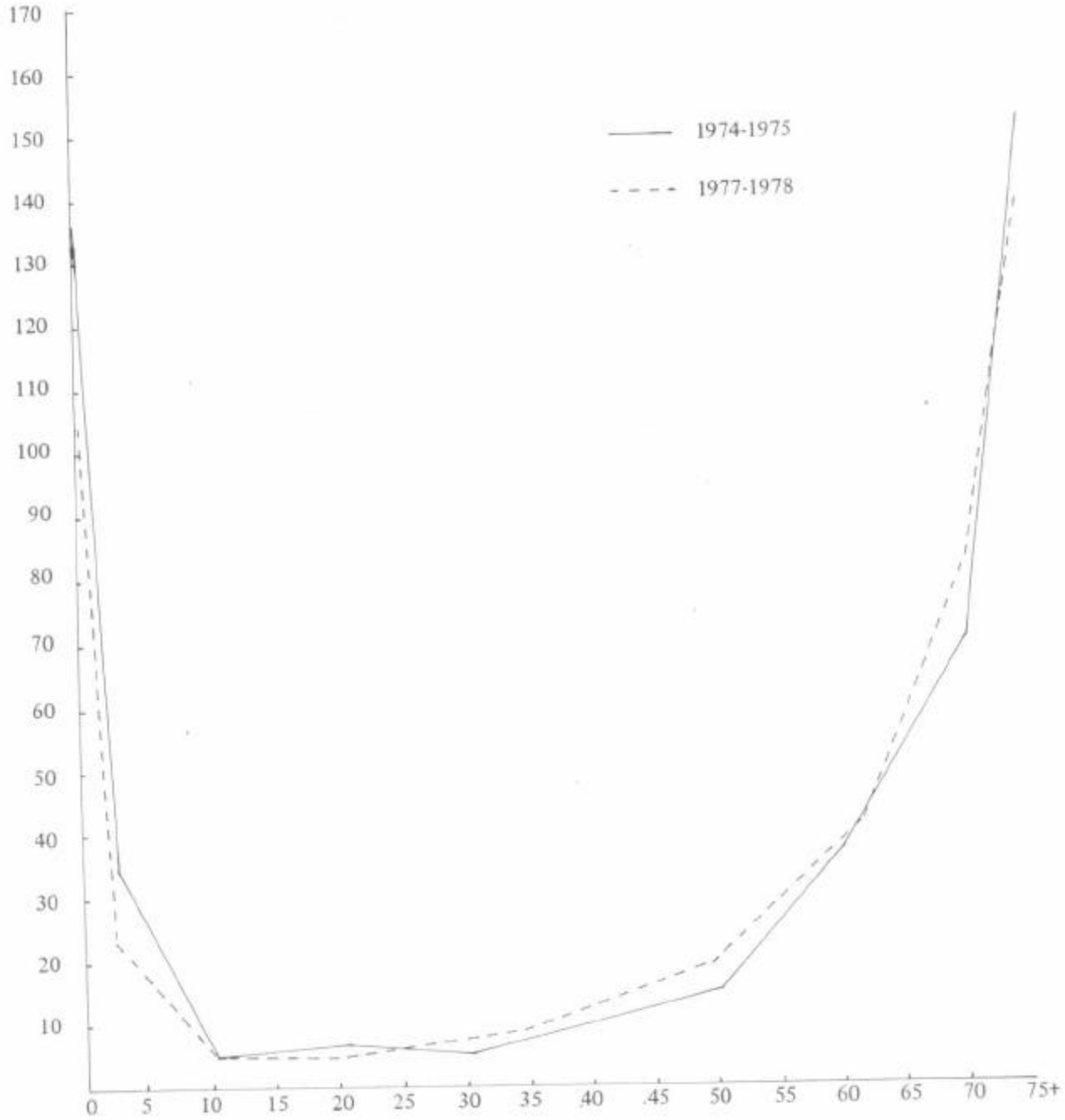

Figure 4. Adjusted age-specific death rates, 1974-1975 and 1977-1978

one. In 1976, the female rates were higher than the male rates at all ages except 45-54 and 75 and over. In 1977-1978, the females are seen to have lower death rates than the males, though there are many age groups (5-34 and 55-64) where the rates for females are higher than the males. The higher female mortality is to a large extent a reflection of the status of women in Nepalese society.

> "It is most likely that in a fully agrarian society where maternal and child health services in the rural area do not exist, or are only very rudimentary, women are exposed to unusually high mortality conditions during conception and delivery. Furthermore, the women's daily duties, in addition to their home work consist of assiduous field work in agriculture side by side with men. Their social status is inferior and their educational attainment lags far behind males. Therefore, it is not unusual that women in these societies have higher mortality risk, and subsequently less survival ratios."[41]

2. *Urban-rural Differential*

General and infant mortality rates for males and females by urban rural residence are shown in table 32. As is to be expected, the mortality levels in urban areas are considerably lower than in the rural areas for both males and females. In 1974-1975 and 1976, the urban rates were less than half the corresponding rural rtes. In 1977-1978,

Table 32. Crude death rate (CDR) and infant mortality rate (IMR) by urban-rural residence and sex, 1974-1975, 1976 and 1977-1978

Residence and sex	1974-1975		1976		1977-1978	
	CDR	IMR	CDR	IMR	CDR	IMR
Urban						
Males	8.7	55.2	8.2	55.3	13.2	72.8
Females	9.4	59.2	9.7	50.2	10.9	60.8
Both sexes	9.0	57.1	8.9	52.8	12.0	67.2
Rural						
Males	18.9	143.9	21.9	130.7	19.3	111.1
Females	20.7	124.9	23.2	140.6	17.7	99.1
Both sexes	19.8	134.8	22.6	136.1	18.6	105.1
Nepal						
Males	18.6	141.2	21.5	128.4	17.9	109.9
Females	20.6	123.0	22.8	137.9	165.2	97.9
Both sexes	19.5	132.5	22.2	133.6	17.1	104.0

Source: Same as table 31.

however, there appears to have been a considerable narrowing in the gap between urban and rural mortality rates because of simultaneous increase in urban and substantial decline in rural rates. This appears to be an unusual phenomenon. The increase in the mortality rates in the urban areas may be due to differences in recording deaths in urban areas in the surveys and not to any real increase in deaths over the years.