

Changes in Mortality in Pakistan 1960–88

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The relatively high levels of mortality in Pakistan compared to the rest of the Asian region, particularly countries like Sri Lanka and China, have kept population growth rates in check. However, on the other hand, persistently high levels of infant-child mortality are more than often argued to be a strong factor working against a fertility decline in Pakistan. It is without doubt that bringing about further mortality declines is most definitely desirable and government policy has addressed this issue. However, the major thrust of official effort in the past few decades has been towards the curtailment of high fertility levels.

General Trends in Mortality

Given the paucity of data on mortality and that direct estimates are ridden by problems of data quality, statements about general trends are accordingly limited. Nevertheless, some trends are certainly discernible through aggregate figures such as the crude death rate and the average life expectancy. Compared to the rates prevalent in India four decades before Independence, Pakistan four decades hence has certainly experienced marked declines in the crude death rate: a crude death rate of about 40–45 per 1000 after the turn of the century is matched by a crude death rate of about 10–12 per 1000 in the late 70s and early 80s.

However, it appears that mortality declines since the mid-60s have not been notable, a crude death rate of 11.0 was reported by the Population Growth Estimate (PGE) as far back as 1962–65 and the average crude death rate reported by the Pakistan Demographic Survey (PDS) (1984–88) is also 10.8 per 1000.

The trend in the index of expectation of life does however, reflect a gradual

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improvement in life expectancy. In fact the expectation of life has increased by about nine years (50 to 59 years) over the period 1960–65 until 1984–86. However, these estimates of life expectancy are based on life tables and are sensitive to the reporting of deaths by age and by sex which is known to be extremely erroneous in Pakistan. The rise in average life expectancy seen between 1960–65 and 1968–71 and 1976–79 is largely attributable to substantially lower (though highly questionable) infant-child mortality in the two PGS series. The increase in the expectation of life recorded for the PDS 1984–88 does however contain both declines in the infant mortality rate and in adult mortality rates as compared to the 1960–65 series.

Infant-child Mortality

Infant-child deaths continue to comprise a major portion of total deaths in Pakistan but the recent efforts at improving child survival may have made significant dents in mortality at younger ages. Efforts such as the Expanded Programme of Immunization which have been specifically designed to reduce infant-child mortality and morbidity and the programme to control diarrhoeal diseases, are bound to have reductive effects on infant deaths. Improved maternal care particularly at the time of delivery is also an objective being pursued through the training of about 50,000 traditional birth attendants (TBAs) with the eventual aim of having at least one such *dai* for each village in Pakistan.

The achievement in this respect seem quite impressive as about 19 million children were recorded as being immunized, 30,000 TBAs⁴ trained and about 20 million packets of oral rehydration salts were distributed until 1986. Because the majority of deaths occur in the first month of life due to problems occurring during child delivery of which tetanus is one whereas in later months deaths are mainly caused by diarrhoeal diseases, there are strong reasons to expect that these measures *must* have had a reductive impact on mortality.

Estimates from the Pakistan Fertility Survey (PFS) and Population Labour Force and Migration Survey (PLM) for the 60s and 70s imply much higher levels of mortality, compared to levels based on other sources of direct estimates of infant deaths such as those reported in the Population Growth Survey (PGS) II. The PLM estimates are consistently lower than those of the PFS but the two surveys both indicated a sharp decline until 1965–69 and a stabilization of that trend since then.

Nevertheless, the two data sets are of better quality than the PGS II and indicate that infant mortality seems to have declined, albeit slightly from 145 to

about 125 deaths per 1000 births, and $q(5)$ (more notably) from 228 to 160 between the 60s and 70s. The PDS figures show a further decline from the 1984 figure of 127, to the 1987 figure of 104. By 1988 the rate had gone up very slightly to 108.

Of the fairly high infant mortality rate prevalent in Pakistan, the larger portion of deaths occurs in the neonatal period. It is interesting to note that in the most recent declines in the infant mortality rate it is neonatal mortality which used to be around 70–85 deaths per 1000 which has now fallen between 56 and 62. The post neonatal mortality rate seems to have changed relatively less but has declined nevertheless to 48 per 1000 in 1988 from 57 per 1000 in 1984.

It is very important to note that the sex differential in infant mortality has always been in disfavour of males with lower female mortality particularly in the neonatal period. This trend continues into the 1980s also.

Trends in Adult Mortality

The most recent sources of data on adult mortality are primarily the Population Growth Surveys (PGS) of 1976–79 and the Pakistan Demographic Survey (PDS) of 1984–88. These surveys which are conducted annually collect data on deaths by age and sex for the survey populations. In the absence of any vital registration data, this presents the best source of information on age-sex-specific death rates. The other main source which enables us to derive indirect estimates of adult mortality are the intercensal survivorship ratios (1972–81) and have even greater limitations.

In comparisons of age-specific mortality rates for the periods 1976–79 PGS and PDS 1984–86 the trend is clearly of much lower mortality at infancy and childhood (as discussed in the previous section) but also much lower mortality at adulthood in the 1980s. The age-specific death rate curves for males and females for the periods PGE 1962–65 and the PGS 1976–79 show that although the curves essentially have the same shape, mortality has declined particularly for females between ages 15–65 while gains in terms of mortality declines seem to be most negligible for both sexes at ages under 10.

The most notable change noted over time is the reversing of the sex differential in mortality. Pakistan used to share the unusual characteristic of excess female mortality found mainly in the South Asian region. This differential was visible mainly in the deficit of females aged under 45 and resulting high sex ratios in the country. This trend was identified as early as the 1921 Census and persisted until the most recent 1981 Census [Rukunuddin (1967)]. However, the 1981

Census sex ratio is still on the high side indicating that higher female mortality may have persisted in 1981. The general improvement in sex ratios could be partially attributed to the faster rate of improvement in the mortality of females but also partially to lesser underenumeration of females.

However, the PDS-based life-tables and estimates of expectation of life for Pakistan definitely support the notion, suggested by the declining sex ratios, that gender differentials in mortality have diminished. Sex differentials in mortality over the 60s, 70s and 80s show clearly that women seem to have acquired an advantage over men in terms of mortality over the two decades. The gains made by females in life expectancy are due to general improvements in life chances, but also as compared to males, their growing advantage is during infancy and at middle and later ages. Their disadvantage during the ages 15–40 does not exist any more. Thus specific interventions which have been undertaken by the Government of Pakistan may present an explanation for reduced sex differentials in mortality: they are programmes of training of traditional births attendants in safer and more hygienic ways of delivery and child care and tetanus toxoid injections administered to mothers before delivery.

Differentials in Mortality

It has been argued extensively that despite declines in mortality, differentials in mortality persist in most societies. Unfortunately as an outcome of the dearth of direct data the study of differentials has been largely restricted to variations in infant and child mortality. Nevertheless, mortality differentials in Pakistan have been very clearly defined.

In particular, residential differentials in mortality have been well established whereby the population of the urban areas experience much lower mortality than rural areas. This is not surprising given the concentration of health-care facilities in the urban centres and the much poorer services available in the rural areas. Thus, historically urban mortality has been much lower than rural mortality but the percentage of the population living in urban areas has also increased tremendously from 16 percent in 1947 to 28 percent in 1981. It is interesting to investigate whether there has been any narrowing in the differential in the more recent past given the Government's efforts, at least on paper, to extend health care to the rural areas and also the rise in general living standards in rural areas particularly due to expansion in agricultural production. Once more we are limited in our study by the lack of a consistent time series of data and can only come up with a patchwork of various estimates of infant mortality. Though only a broadly

perceptible trend emerges, the estimates seem to indicate a further broadening rather than lessening of the urban-rural differentials over time. Thus it would seem to be the case that recent improvements in infant mortality have not mitigated the vast inequalities in mortality between urban-rural areas.

Another important source of differentials in infant mortality are those based on education of parents. The association as found universally has been well documented elsewhere [Cochrane (1980)] and in the case of Pakistan a strong negative association has been found between mother's education and infant mortality whereas father's education has no strong inverse impact [Alam and Cleland (1984)]. Even a minimal level of schooling amongst mothers seems to influence infant mortality downwards and, unfortunately, the small numbers in the sample comprising women with more than a few years of schooling have not permitted a fuller study of how additional levels of educational attainment may be influencing infant-child mortality. These are bound to be even more marked than the 26 percent lower infant mortality found amongst children with mothers who had 'some' education as compared to mothers with no schooling. It is interesting to note that the relative advantage experienced by babies with mothers who have some education is about as much as that of babies born in urban as compared to rural areas. Of course, the level of differentials increases even more when we see the combined effect on mortality of education and residence.

It has been argued that education of mother is presumed to exert its effect through greater autonomy on the part of women, who have some education, to more effectively take care of their children's health [Caldwell and Caldwell (1988)]. Unfortunately, data on a national scale are unavailable to test for the effects of female autonomy on lowering infant mortality rates. Apart from education of females only labour force participation is available in the PFS and PLM as indicators of female status and this measure is known to be ineffective in the case of Pakistan [Sathar (1986)]. At least in the Karachi context poorer women in the sample were found to be those working due to 'force of their circumstances' who derived no additional status from entering the labour force as compared to better-off women who were more likely to be working out of pursuit of a career or to enhance the economic status of the household and not merely to ensure survival. Subsequently, the latter group's children had better survival chances than the former group indicating that women's employment and economic class have an interaction effect on mortality.

Finally, the topic of economic class differentials in mortality in itself is of critical interest as undoubtedly the vast inequalities of living conditions in Pakistan

cannot be undermined. The findings in this area are not unequivocal, though the mortality of high income and occupation groups, especially in urban areas, is lower than that of their lower income counterparts, the association between income and mortality was found to be neither consistently monotonically inverse nor particularly strong based on cross-sectional data from the PLM 1979 [Sathar (1987)]. Other, smaller sample studies done in urban centres, have found more of a negative association [Afzal *et al.* (1976); Sathar and Kazi (1988)].

Prospects for Further Declines in Mortality

Any improvements in the educational attainment levels, particularly of women, are bound to have a reductive effect on infant mortality. Also changes in fertility patterns, mainly through birthspacing can influence infant and maternal mortality. Birthspacing patterns are undergoing changes in Pakistan as a result of changes in breastfeeding behaviour. If unaccompanied by rises in contraceptive use, particularly for purposes of spacing of children, the average interval length would decline in Pakistan leading to higher levels of infant mortality as birthspacing and chances of infant survival are strongly positively associated. Also the trend towards a shorter length of breastfeeding has negative implications for the immunity that children on breast milk have against infectious diseases.

Much remains to be seen: if contraceptive use figures do rise in the near future then infant-child mortality may not suffer as much as if they remain stable and mean length of breastfeeding continues to fall. Undoubtedly, rises in per capita income will eventually lead to much lower infant mortality unless child-bearing and childbearing practices change. If the Population Programme is able to achieve targets of reducing family size norms and if greater spacing between children can be encouraged, then infant-child mortality could be reduced substantially.

When it comes to mortality at ages beyond 5 it becomes harder to predict the likely course of transition. One source of hope lies in the fact that gender differentials at older ages seem to have diminished. This trend undoubtedly reflects improvements in the relative status of women as compared to men in terms of health care and nutrition which must be integral to declines in death rates.

Since the major causes of death in Pakistan in 1984 are still communicable diseases (i.e. infective and parasitic diseases and malaria) much can be done to curtail their incidence. In particular, better sanitation facilities which are especially lacking in urban slums and the availability of potable water leave much to be desired. Both these objectives are a part of the Government's development

efforts but progress in this area is not outstanding.

Last, but not least, is the critical component of health care. The lack of availability of health facilities and neglect of the health sector have been widely criticized [Zaidi (1987); World Bank (1986)]. More specifically, the shortages of adequate health facilities in the rural areas have been repeatedly pointed out. Urban-rural differentials in mortality are attributed largely to this factor. But even in urban areas in the "*Katchi abadis*", which contain a very substantial portion of urban dwellers, the availability of health care is quite abysmal. The problem is multidimensional ranging from the lack of facilities, the shortage of doctors in certain areas, the dearth of funds and finally and perhaps most critically, the lack of avilment of government facilities even when they are to be located close by in the urban areas. Data from the National Health Survey 1982-83 highlight the lack of facilities in the rural areas and the underutilization of government health facilities with preference for private clinics in both urban and rural areas (FBS 1983).

It can be argued, quite strongly, that improvements in accessibility and quality of health care could quite easily reduce morbidity and mortality in Pakistan. As infectious diseases are still the major cause of death their elimination or at least reduction is not as difficult as that of diseases such as heart ailments, cancer etc.

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Comments on
"Changes in Mortality in Pakistan 1960-88"

The study of mortality has remained a relatively neglected research area of Pakistan's demography. The post-independence era witnessed an unprecedented increase in the country's population due to a continuing decline in mortality and an almost stable but high fertility. Planners and researchers were, therefore, more concerned with this high fertility.

However, the study of mortality; its levels, trends, patterns and its reduction is desirable not only in its own right but also its reduction, particularly that of infant and child mortality, can contribute in the reduction of fertility. Dr Zeba's well-written and comprehensive paper is a commendable attempt to draw the attention of policy-makers and researchers to this area of great national importance.

Her paper covered the period of the last thirty years, from 1960 to 1988. Perhaps one reason for her choice of this time period is the availability of data generated through three population censuses and a number of demographic surveys conducted during this period. However, these data sets are not free from problems, particularly if these are used to establish mortality trends. In order to arrive at conclusive mortality trends, it is essential to first undertake a systematic and thorough evaluation of these data to evaluate their quality and usability, so that they represent the true trends and are not reflective of the statistical artifact. Unfortunately, this has not been done.

Another problem relates to the use of the PGE 1962-65 results. This survey yielded three different sets of fertility and mortality rates which vary quite considerably among themselves. The use of one data set in preference to others should have been justified by the author. For instance, mortality rates obtained through the cross-sectional component of the PGE project have been used in this paper to establish trends. However, these rates are not strictly comparable to those obtained through the PGS 1976-79 and the PDS 1984-88 due to different

data collection methodology adopted in these surveys. Furthermore, concern regarding the paucity of data has been repeatedly expressed, yet data generated through the National Impact Survey (NIS) 1968, the Housing, Economic and Demographic (HED) survey 1973, on infant and child mortality and data on widowhood and orphanhood gathered in the PDS 1984 and 1988 have not been utilized.

Dealing with the mortality differentials, Dr Zeba has clearly shown that Pakistan has lost the dubious distinction of having higher female mortality than male mortality. Mortality in Pakistan appears to have reached the stage where it also conforms to the universally observed patterns of sex differentials in mortality. However, further research is needed to investigate whether this is also true in case of poor segments of populations living both in the rural and urban areas. Infant mortality differentials by rural and urban areas are highly disturbing. Data presented in this paper support the thesis that improvements in infant mortality have not narrowed the gap between rural and urban differentials. Infant mortality is also considerably higher in smaller towns than in a few major urban centres. The fact is that health facilities are concentrated in a few large cities, although more than 80 percent of the country's population live in small towns and rural areas.

Policy measures suggested in the paper are quite timely, relevant and realistic. I will comment on two of these suggestions.

A positive association between the mother's level of educational attainment and decline in infant and child mortality has been established in the paper. However, increasing levels of female education through the formal system of educations will be an extremely slow process, particularly in the rural areas. In the short run awareness of health problems will have to be created among the illiterate masses through imaginative health education campaigns by using all available communication systems particularly the electronic media. In case of the Expanded Programme of Immunization such campaigns were highly successful.

The other suggestion relates to the establishment of additional health-care facilities and provision of doctors in the rural areas. The mere provision and enhancement of these facilities will not solve the problem. An appropriate system will have to be evolved to ensure that doctors are not only attracted to rural areas but they also remain present all the time in these centres and dispensaries. At present, the general impression is that most of them go there only once a week and in some cases only once or twice a month to distribute and receive their salaries. Adequate medicines may also be provided in the health centres

run by the government to treat at least simple ailments which can save many lives.

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