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Seeking Explanations for High Levels of Infant Mortality in Pakistan

ZEBA A. SATHAR*

Here we seek explanations for the relatively high levels of infant mortality in Pakistan compared with those in other countries having middle-level per capita incomes. Data are mainly drawn from the birth histories of 9810 ever-married women interviewed in the Population Labour Force and Migration Survey of 1979. The empirical evidence points to childbearing and childrearing practices, such as spacing, to be more important determinants of mortality than economic factors. Availability of health care is also an important determinant of mortality but parents' propensity to avail themselves of it may be more critical to child survival.

INTRODUCTION

Survival of children is a matter of great interest in any society but it is especially important in pronatalist societies such as Pakistan where infant mortality claims a substantial portion of total deaths each year. One reason for this concern is the human waste and the emotional loss which accompanies each child death. Another reason is the persistently high level of fertility which is, at least partly, attributed to high levels of infant-child mortality. Hence the urgency of studying the determinants of infant mortality and the need to derive knowledge of factors which are connected with better chances of child survival.

The study of infant mortality (for that matter, mortality as a whole) in Pakistan has been extremely limited mainly because of the dearth of data for such an analysis. Vital registration and census data have been almost of negligible use in this respect and reliance has been primarily on sample surveys for estimates of mortality. In particular the Pakistan Fertility Survey has yielded several good papers in this almost virgin field. The three major studies based on those data were able to establish that infant mortality had declined sharply from 1905, when it was about 200 per 1000, until the 1960s, when it stabilized at fairly high levels of about 125–140 per 1000 [2]. Also urban residence and mother's education were found to be more notably associated with lower levels of mortality than other background variables [2; 6]. Amongst the demographic variables, spacing between children was found to be of critical importance; especially the length of the preceding interval was found to be

*The author is Senior Research Demographer at the Pakistan Institute of Development Economics, Islamabad. She acknowledges the useful suggestions made by Lado Ruzicka and Nigel Crook. The Comments made by anonymous referees are also gratefully acknowledged.

positively associated with survival of children in the presence of rigorous controls for other possible intervening factors, such as mother's age, education and residence [3]. Other studies on infant mortality have been based on smaller data sets and are not nationally representative [1].

There is, therefore, a need for a more in-depth study of determinants of infant mortality in Pakistan. In particular, it needs to be established whether the roots of poor chances of survival of children in Pakistan lie in (1) poverty, (2) in childbearing and childrearing practices, (3) in the sparse distribution of health care or (4) in the lack of individual attention and care given to children by parents as a result of widespread ignorance and illiteracy. A holistic approach is utilized here in the investigation of the critical elements sustaining high levels of infant mortality in Pakistan. The alternative possibilities will be discussed in detail separately and, in the final section, an attempt will be made to weigh those factors which may provide more effective interventions in terms of reducing infant mortality.

DATA

The data used to estimate infant and child mortality are drawn from the Fertility Module of the Population, Labour Force and Migration (PLM) Survey carried out in 1979. This module was identical to the one administered for the Pakistan Fertility Survey of 1975 and contains detailed reproductive histories for 9810 ever-married females selected from the 11,000 households sampled in the PLM Survey. It is worth noting that the PLM Survey sample is almost twice the size of the PFS sample and is therefore subject to somewhat smaller sampling errors. However, non-sampling errors of both the surveys are harder to gauge. For each child that a woman has borne, she is required to report a date of birth, a date of death and the sex of child. If exact dates were not given, they were imputed, keeping in consideration all other pieces of information provided by the women, such as their ages at marriage and ages of all other children.

A major advantage of using data from reproductive histories to analyse infant mortality is that each child can be treated as a unit of analysis and data on roughly 54,000 children are included in the PLM survey. It also enables us to look at events which occurred as far back as thirty-five years before the survey and trends can be ascertained. Another paper, however, has already focused on the analysis of trends [10]. This paper uses the characteristics of each child such as its sex, birth order, mother's age at the time of the birth, and other household characteristics to analyse infant mortality differentials based only on births which occurred within the ten years preceding the survey. This isolates to some extent the effect of any trends in infant mortality and it is also more adequate to relate information of residence, income, land ownership, etc., which pertains to the time of the survey to more recent infant mortality experience. Another major advantage of the data from reproductive

histories (such as those available in the PFS and the PLM data sets) is that the ri dying can be broken down by exact period of exposure (such as the neonatal neonatal periods) as information is available on exact age-at-death of each child

However, data from reproductive histories also suffer from their own inl problems. Along with some of the unmeasurable errors which arise out combination of imputation of dates and age-reporting errors, there also seems a systematic bias in both data sets which shows an *increasing* trend in infant m ty for the last five years before the survey. An analogous artefact of the data to be a fall in fertility in the five-year period which is replicated in both the s (PLM and PFS). The main proof that these two trends are erroneous and lin data problems is that they occur in both the surveys despite the five-ye between them [12; 13].

IS POVERTY THE VILLAIN OF THE PIECE?

For the first time, data are available at the national level to enable explore whether low levels of income are responsible for high levels of infant lity. As Table 1 shows, although Pakistan now ranks quite high amongst low-in level countries, and poverty levels in terms of per capita income have fallen infant-mortality levels remain high, estimated at 140 per 1000 in 1975 and per 1000 in 1979 [10]. This fact goes against the hypothesis that eliminat poverty would also reduce infant mortality in Pakistan. The evidence is stro such a hypothesis, based mainly on cross-national studies [15]. However, sectional measures of household income and mortality need not yield simila country differences as there are likely to be many country-specific problem measurement of income and also because the association between incom expenditure on food, health, and other items related to improvement of may not be direct.

Table 1

Infant Mortality Rates for Neighbouring Countries in the Region with Low per capita Income

Countries	Infant Mortality	per capita Income (US $
Bangladesh	133	140
Nepal	145	170
Burma	96	190
India	94	260
China	67	310
Sri Lanka	32	320
Pakistan	121	380

Source: [18, Table 23].

Up to now studies done on Pakistani mortality, except one [5], have seldom focused on economic differentials in mortality mainly because data were not available for such an analysis. The authors of the above study also used a subjective measure of adequacy of income and found this variable to be non-significant in mortality estimation. Here we look at the relationship between infant mortality and total household income. Since there are distinct differences between the economic and social circumstances of families residing in urban and rural areas, we subdivide the sample before presenting the results (Table 2). Infant mortality portrays the expected negative association with income in urban areas and a U-shaped association in rural areas. Also urban-rural differences across the lower-income groups (Rs 0–1500) are ambiguous whereas for higher-income groups, urban mortality is much lower. One possible explanation for the discrepancy in the patterns across urban and rural areas may be an inadequate reporting of income in rural areas, particularly the omission of products in terms of goods consumed and produced in the household or transferred (non-cash transfers) etc.

Table 2

Infant Mortality Rates by Total Household Income in Urban and Rural Areas

Total Income (Rupees)	Infant Mortality Rate	
	Urban Areas	Rural Areas
< 500	146 (536)	141 (2048)
500–999	110 (2760)	123 (5993)
1000–1499	103 (1822)	108 (1959)
1500–1999	79 (822)	124 (655)
2000+	93 (1037)	136 (572)

Note: Figures in parentheses give the numbers of children on which the rate is based.

In an attempt to further test the hypothesis that measures of wealth are expected to be associated with enhanced probabilities of survival amongst children, we present differentials by some factors which may be more relevant in the rural areas where income could be vastly under-reported (Table 3).

Table 3

Infant Mortality Rates by Selected Economic Characteristics of the Rural Farm Population

Size of Farm (Acres)

0	<10	10–20	20+
117	127	119	116
(293)	(2542)	(1956)	(1029)

Tenure Status

Owner Operator	Share-cropper	Contract Lessor
119	133	151
(3287)	(1537)	(93)

Occupation

Landlord	Farmer	Shopkeeper	Landless labourer	*Kammis*
89	123	137	132	166
(224)	(4882)	(58)	(785)	(30)

Tractor Ownership

Yes	No
106	127
(462)	(4564)

Notes: (a) Figures in parentheses give the numbers of children on which infant mortality rates are based.

(b) *Kammi* is a local term applied to a (usually landless) person who is engaged in the lowly profession of a blacksmith, cobbler, sweeper, or a barber and provides his services to villagers in return for grain or other commodities.

The relationship between size of land holdings and infant mortality is extremely jagged – only a very mildly curvilinear association can be perceived with the highest mortality going with small holdings and medium sized holdings and somewhat low mortality associated with large land holdings (20 acres and above) and no holdings at all. Some reason for this irregular association may be that Pakistan has experienced some land reforms, or at least come close to the enforcements of land-size ceilings, and since such a possibility has always been imminent many families have subdivided landholdings among various members. Also, people are reluctant to

report actual size of land for fear of possible reform and for tax reasons. Furthermore, land size is unfortunately not a good indicator of real wealth in Pakistan as it refers here to operational holdings and not necessarily to land ownership and the land may be rented. Also, in the data we have no index of the relative fertility of land or of water availability. However, average income tabulated across size of farm did indicate a positive association.

Ownership of a tractor is a somewhat more substantial evidence of material prosperity and since only a fairly medium or large sized farm can use a tractor, it may be a more reliable measure of wealth. We do find about 20 percent lower infant mortality amongst households which own tractors.

Also, when those belonging to farm populations are classified as ordinary farmers or landlords, the differential in infant mortality is quite striking, approximately 40 percent higher infant mortality is experienced by farmers as compared with landlords. *Kammis* (lowly artisans) experience the highest mortality with shopkeepers and landless labourers experiencing similar levels of mortality. Lastly, when those working on a farm are classified by their tenure status, owner operators are found to have experienced lower mortality as compared with share-croppers and contract lessors; the last-mentioned had the highest mortality levels. Whereas owner operators, no matter how small their land holdings, are bound to have a higher status than those in either of the other two categories, there was no *a priori* reason to expect much higher mortality amongst contract lessors than amongst share-croppers. The last-mentioned status, however, may be more permanent as share-croppers are likely to have a stronger claim to the land and therefore may possess more economic security. Contract lessors may be less secure in their employment in that respect and therefore assigned lesser status.

A similar investigation was made about factors which may be closely associated with socio-economic status with respect to infant mortality differentials in the urban areas. Income differentials were also more marked in the urban areas as it is believed that income may be better reported there and cash incomes were more prevalent. Occupational status and employment status in the urban areas are also likely to be of importance in investigating differentials in mortality by economic status. Table 4 portrays infant mortality rates by the employment status of the household head and the occupational group of the father.

Household heads who are employers are expected to have higher economic status and infants in their households have markedly lower mortality in urban areas. Heads who are self-employed and employees have roughly similar levels of mortality. Amongst occupational groups, professional and clerical workers have lower levels of infant mortality than those in sales work or those who are skilled or unskilled labourers. Thus higher economic status, as measured by household head's being an employer or father's being in professional or clerical jobs, is most certainly associated with lower levels of infant mortality.

Table 4

Infant Mortality Rates by Selected Economic Characteristics of the Urban Population

Household Head's Employment Status		
Employer	Self-employed	Employee
53	115	104
(171)	(2907)	(3082)

Father's Occupation				
Professional/ Clerical	Sales-man	Agricultural-ist	Skilled Worker	Unskilled Worker
90	100	130	104	109
(1177)	(2312)	(347)	(1865)	(1869)

Note: Parentheses give number of children on which infant mortality rates are based.

The answer to the question whether widespread poverty is responsible for high levels of infant mortality in Pakistan is more negative than positive. Although some significant differentials are associated with measures of wealth and relatively high economic status, the direct relationship with household income is weak, particularly in rural areas. Thus though increased wealth and economic status would undoubtedly be associated with enhancement in the chances of survival of infants in the family concerned, poverty, according to the empirical findings presented here, is not the entire explanation of high levels of mortality in Pakistan.

ARE CHILD-BEARING AND CHILD-REARING PRACTICES RESPONSIBLE FOR HIGH INFANT MORTALITY?

The data available present the possibility of investigating some aspects of child-bearing and child-rearing that directly influence mortality. Many of these have been discussed in earlier papers which used PFS and PLM Survey data [2; 3; 10]. In brief, first-order children and higher than fifth-order children experience higher death rates as do the children of youngest and oldest mothers (< 20 and 40+).

Thus the facts that child-bearing in Pakistan is dispersed across a long period (starting very early and continuing until quite late) and women have more than 6 births on average mean that child-bearing patterns have mortality-raising impacts. Also, the strong negative association between child-spacing and mortality is one of the strongest demographic relationships found and has been well studied in the above-cited papers. Short preceding and succeeding interval lengths, which are

Table 5

Infant-Mortality Rates by Survival Status and Length of Breast-feeding of Previous Child and Preceding Interval Length

(For Parity Three Children)

Length of Preceding Interval (in years)	Infant-mortality Rates			
A. When previous child did not survive to Second Birthday				
< 2	325	319	324	181
	(110)	(32)	(30)	(18)
2-3	306	161	0	189
	(57)	(12)	(16)	(30)
3-4	256	82	–	115
	(14)	(8)	–	(10)
4+	0	127	–	–
	(16)	(3)	–	–
B. When previous child survived till Second Birthday				
< 2	136	140	204	99
	(26)	(60)	(170)	(694)
2-3	37	58	81	63
	(19)	(14)	(87)	(753)
3-4	0	0	91	42
	(1)	(5)	(14)	(344)
4+	0	0	–	41
	(6)	(1)	–	(278)

Note: Figures in parentheses are the numbers of children on which infant mortality rates are based.

associated with higher fertility levels, were found to be positively related to infant and child mortality in Pakistan [3].

Another critical factor which was not fully taken into account in the earlier studies is that of the length of breast-feeding. If women with short preceding and average intervals are those who also breastfed their children for shorter durations, this behaviour may be the real mechanism behind the spacing-mortality link. Almost all women in Pakistan breastfeed their babies and do so for fairly long durations. It was pointed out in an earlier study that it was difficult to control the length of breast-feeding with the exact age of death as the latter was in group coding [3]. However, since this constraint in that study has been strongly criticised by Trussell and Pebley [14], we try to tackle the problem, even through in a limited way.

We concentrate on a single parity in order to disentangle in further detail the association between breast-feeding and spacing. In cases where the previous child did not survive till the second birthday, there is little impact of the length of breast-feeding on the mortality of the index child (Table 5). However, in the cases where the previous child survived till the age of two or above, mortality of the index child was much lower when the child was breastfed for longer durations. Though this is hard to detect confidently because of the small numbers in many of the cells, it does seem to be true that in cases where the previous child survived and it was breastfed for more than 12 months, the chances of survival of the index child were much improved. However, even when the effect of the length of breast-feeding was isolated, the length of the preceding interval continued to have a negative impact on infant-child mortality.

The same tables repeated for neonatal and post-neonatal mortality rates show that there is no perceptible association between neonatal mortality and length of breast-feeding of previous child, but breast-feeding does make a contribution to the association between spacing and post-neonatal mortality. The evidence presented seems to imply that several mechanisms are at work behind the spacing – mortality link. In the case of neonatal mortality, the mechanism is likely to be linked with recuperation of mother's health and nutrition and the smaller chances of low birth-weight babies or of childbirth complications when spacing is longer. However, in the case of post-neonatal mortality, the length of breast-feeding of the previous child (related to the quality/quantity of breast milk being administered to index child) seems to be of greater relevance.

Since the preference of sons to daughters is a part of Pakistan's culture and there is strong evidence that sons are given more attention, more food, etc., it is important to incorporate a discussion of gender differences in mortality. Whereas previous studies undertook the use of the sex of the index child and found some marginal differences [2; 3], the present study finds fairly interesting results when the gender of the previous child is also controlled (Table 6).

Table 6

Infant and Child Mortality of Index Child by Gender of the Previous and Index Child

Sex of Previous Child	Sex of Index Child	Neonatal	Post-neonatal	$_1q_1$	$_5q_0$	Number of Cases
Boy	Boy	75	39	32	160	4197
Boy	Girl	63	44	23	161	3922
Girl	Boy	76	37	20	156	3812
Girl	Girl	69	50	24	161	3732

The post-neonatal mortality rate is higher in general for girl babies but is further exacerbated if the previous sibling was also a girl. This must reflect the disappointment felt by parents of two successive female children and is manifested in the neglect of health and poor nutrition in the first to eleventh months of the baby's life. The differences in neonatal mortality are quite the reverse as these rates are generally higher for boy babies owing to biological factors. The mortality rate between ages one and two $_1q_1$ portrays highest mortality for one boy following another boy and differentials in other categories are very slight. Thus, though there is some evidence of gender-based discrimination which leads to relatively lower mortality of male children, the differentials based on spacing and order of children (regardless of sex) are much greater.

IS HEALTH-CARE AVAILABILITY A SERIOUS CONSTRAINT?

All Five-Year Plans in Pakistan refer to the desirability of improving health conditions and reducing mortality levels. Previous health policy, although largely undefined and mostly a legacy of British India, was effective in reducing mortality until the '60s. However, the perceptible slowing down of improvements in mortality since then and the fact that causes of death remain largely unchanged, as infectious and parasitic diseases, malaria and TB continue to claim a large proportion of lives, indicates that qualitatively different approach and effort are needed to further reduce the mortality levels.

Earlier in the century, the causes of declines in the death rate were the effective curtailment of famines (by increased agricultural production and better transport and communication facilities) and the control of epidemics such as plague, cholera and smallpox, which were until then the major claimants of life. After the Second World War, still sharper declines were brought about by the introduction of simple

vaccines against smallpox, cholera, etc., and the growing use of antibiotics as a cure for most infections [7]. Thus very broad public health measures on the part of the Government were adopted with considerable success until the '60s.

Active policy for improving health facilities and care has been largely based on the "trickle down" philosophy whereby it is expected that the benefits of health trickle down to the whole community as the country undergoes the development process. Under this strategy, the bulk of expenditure on health is allocated to the development of hospitals, the training of doctors, etc. The very limited resources allocated by the Government (about 1% of the GDP) have been expended disproportionately to building and staffing of hospitals and medical schools which are concentrated mainly in the urban areas of Pakistan. Therefore, there is a great contrast in the sophisticated health care available in urban areas and the very primitive medical facilities provided in rural areas. It is thus not surprising to find that infant mortality in urban areas is about twenty-five percent lower than in rural areas (102 per 1000 in urban and 125 per 1000 in rural areas). This difference is largely due to the higher neonatal rate in rural areas (59 in urban and 81 in rural areas), presumably an outcome of poorer pre-natal care and childbirth conditions there [10].

Since the attempt here is not so much at describing the health facilities in Pakistan but only at seeking some measure of the impact of availability of health care on infant mortality, the urban – rural differential is of critical importance. Most infants die in the first month of life as a result of neonatal tetanus which is largely attributable to poor conditions of delivery and the lack of availability of anti-tetanus injections in the rural areas. Deaths later in infancy are attributable mainly to illnesses related to the digestive system – a result of the combination of poor access to potable water and poor weaning habits. Thus, risks of deaths in both the neonatal and post-neonatal periods are likely to be less in urban areas where delivery conditions, potable water availability and sanitation conditions are better [16]. It should also be pointed out that accessibility may vary even within the rural areas and urban areas, depending on how keen the populace is to avail itself of such facilities. A large proportion of Pakistanis still rely on conventional medical practitioners such as hakims and pirs (spiritual leaders) for most medical ailments and do not avail themselves of the facility in discussion here.

CAN STRONGER MOTIVATION AND GREATER CARE ON THE PART OF PARENTS OVERCOME THE LACK OF HEALTH CARE?

The major problem in the case of infants relates to the reluctance on the part of women to seek help, when their children or they themselves are unwell, largely because of their restricted mobility. The most direct influence on infant mortality can be attributable to simple practices such as suitable feeding and cleaning, i.e. practices which can prevent many diseases among young children. In most countries,

including Pakistan, maternal education has been found to be related to significantly lower levels of infant mortality [4; 10]. Maternal education ought to be a good indicator of mother's greater awareness of seeking help at the right time from the right place and handling health problems of children more efficiently. In this context, it is interesting to note the results obtained when the impact of education is studied in urban and rural areas separately (Table 7). Women with some education in rural areas experienced about the same infant mortality as women with no education in urban areas, reflecting differences in health care are important in determining mortality. Both urban and rural educated women had lower mortality levels than their uneducated counterparts, indicating that there is direct impact of maternal education on mortality, independently of health-service availability.

Table 7

Infant Mortality Rates by Education of Mother and Urban-Rural Residence

Maternal Education	Infant Mortality Rate	
	Urban	Rural
No Education	109	125
Some Education	81	108

Source: [10].

Looking at the relevant strength of husband's education versus wife's education in its impact on mortality, we note that in cases where the husband had some education but the woman did not have any education, mortality was almost twice as high as when the converse was the case. In fact, husband's education seemed to lead to slight mortality increase. Thus, not surprisingly, it is wife's education, rather than husband's education, which has the stronger negative impact on infant mortality.

In addition, we find that certain aspects of the organization of households, which must reflect differential capacity to administer personal attention and to take advantage of the health services adequately, present some interesting differentials in mortality. The two distinctions made for this purpose are comparisons in infant-mortality levels across nuclear and extended households and households with female headship versus male headship.

Table 8

Infant Mortality Rates by Household Headship and Type in Urban and Rural Areas

Household Headship and Type	Infant Mortality Rates	
	Urban	Rural
Household Headship		
Male	106 (6,708)	126 (10,562)
Female	67 (269)	99 (564)
Household Type		
Nuclear	100 (4,132)	120 (6,651)
Extended	112 (2,845)	132 (4,472)

Note: Figures in parentheses represent the number of children on which Infant Mortality Rate is based.

Sex of household-head has marked bearings on the infant mortality rate of the household (Table 8). However, female headship is unusual in Pakistan and is usually associated with factors such as widowhood, migration of the usual head of households, etc. But even when total household income was controlled, female-headed households had lower infant mortality. This can only reflect that a woman in total control of household financial resources is more likely to give her children's health and education greater personal attention and give it a higher priority than is given by a male in the same position. Studies in other countries show that female contribution to family income is most often used for expenditure on health, food and education.

The distinction between nuclear and extended households, though yielding similar differentials, with the former portraying lower mortality than the latter, is not as pertinent. Once again, though many economic and demographic characteristics may be correlated with nuclear households, it might be possible that in a nuclear household there are greater chances of children receiving more direct and personal attention in terms of their health and nutrition needs than in extended and joint families where decisions are shared by many household members.

In weighing these alternative explanations with a view to deciding which is more important, it has to be pointed out that there are interrelationships between them that may confound our judgement when it is based on bivariate associations. An attempt was made to do some multivariate analysis in order to see the effects of these independent measures on infant mortality when they are simultaneously included in the model (Table 9). The measure for health care is urban-rural residence

Table 9

Multiple-Classification Analysis of Infant Mortality Rates by Urban-Rural Residence, Education of Mother, Age of Mother at Birth, Total Household Income and Previous Birth-interval

Grand Mean: 111.83 $R^2 = 0.03$

	N	Unadjusted Deviation	Eta	Adjusted Deviation	Beta	F-statistic
Residence						
Urban	5755	−8.96		−5.13		
Rural	9098	5.67	0.02	3.25	0.01	.130
Education of Mother						
None	1333	3.15		2.39		
Some	1520	−27.62	0.03	−20.99	0.02	.009
Household Income (Rupees)						
0–499	2009	19.08		18.06		
500–999	7296	3.58		2.42		
1000–1499	3140	−11.19		−10.46		
1500–1999	1188	−15.03		−13.58		
2000+	1220	−9.37	0.03	−4.05	0.03	.016
Age of Mother at Birth						
< 20 years	889	38.90		22.11		
20–24 years	3869	−7.15		−13.10		
25–34 years	7472	−7.04		−4.80		
35+ years	2623	17.41	0.04	25.51	0.04	.001
Length of Previous Interval						
< 2 years	6104	38.89		40.41		
2-3 years	5154	−16.95		−16.16		
3-4 years	2006	−42.54		−44.70		
4+ years	1589	−40.72	0.11	−46.38	0.11	.001

and its effective utilization is measured by mother's education; economic status is measured by household income; and spacing in terms of the length of the previous interval and age of mother are taken to measure child-bearing and child-rearing practices along with individual variation in vulnerability of women to child losses. The results which emerge show that the last two factors two have the strongest explanatory powers.

CONCLUSIONS

In the preceding discussion, some conclusive evidence does emerge to support the importance of child-bearing and child-rearing and the ability of parents to take better care of children by availing themselves of more of the health services as explanations of high infant mortality in Pakistan. Though important, the economic differentials in infant mortality were not large enough to suggest that the elimination of widespread poverty would in itself reduce infant mortality. The availability of health care differs tremendously across urban-rural areas and does manifest itself in infant-mortality differentials but it is important to remember that a majority of the populace may not have much faith in modern medicine and may prefer to continue using age-long remedies provided by indigenous health workers.

Though the total variance explained in the multivariate exercise was extremely small, the point that emerged was that even after residence, education of mother and income had been controlled, spacing and age of mother at birth of child retained their explanatory power. That evidence, therefore, strongly suggests that a strong maternal-child health approach to increase spacing by improving means of breast-feeding and other post-natal care, and restricting child birth to ages 20–35 years would be effective in reducing infant mortality even in a setting such as Pakistan's where poverty is widely prevalent. Undoubtedly, improvements in educational facilities, nutrition and health-care facilities will need to occur side by side, but, in the absence of any radical socio-economic changes in Pakistan, changes in child-bearing and child-rearing can also provide policy-makers with effective means of reducing, to a large extent, the disconcertingly high levels of infant mortality.

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