# Fields Of Rice

## —Health Hazards For Women And Unborn Children

by Srilatha Batliwala

**India has one of the highest infant death rates in the world, particularly for infant girls. Good health services are essential to reduce this rate, but they are not enough. This report on a project in rural Maharashtra, set up by the Foundation for Research in Community Health, shows that while village level health services can greatly improve women's and children's health status, they must be accompanied by other basic changes in order to be truly effective. An important finding of this study is that the arduous task of rice transplanting by hand, performed exclusively by women, poses a health hazard to undernourished pregnant women and their unborn babies.**

The Foundation for Research in Community Health (FRCH) rural health research project was launched in 1973 in north Alibag *taluk* in Raigad district of coastal Maharashtra. It covered 30 villages and hamlets with a population of approximately 30,000. Twenty seven village health workers were trained, supported by six auxiliary nurse midwives and a 10 bed health centre with a doctor.

All the village health workers were local women, selected for their maturity, motivation and acceptability in the village community. The FRCH believed that since the bulk of untreated illness is among the women and children who are most in need of health care at the doorstep, the gender of the village health workers was crucial. ; We wished to see how far trained health workers providing simple but effective health service to their communities, with the backing of paramedical and medical staff, could be successful in improving the health status of the community.

Between 1973 and 1980, the project made a dramatic impact on the health of the local population, particularly women and young children. The infant mortality rate was halved from 150 per 1,000 livebirths to around 75, and immunisation rates for expectant mothers and preschool children shot up to over 75 percent of the target group (for tetanus toxoid, smallpox and triple antigen). Detection of tuberculosis and leprosy cases increased by over 100 percent and nearly 95 percent patients were taking regular treatment—which is essential for the control and eradication of these diseases.

The overall death rate came down to just nine per 1,000 popul-ation, and the birth rate to 13 per 1,000 —despite the fact that the project studiously avoided pushing family planning in any form. Most important, these great successes were almost entirely due to the village health workers who visited every home in the village under their care, detecting, treating, and preventing unnecessary illness.

But despite these early successes, the FRCH was disturbed by the fact that a plateau of sorts was reached, and from 1980 onwards, no significant changes in the health profile of the people could be achieved. Since the health information system (the process of collecting and analysing key health statistics every month, largely through the village health workers' records) had been strengthened and streamlined between 1977 and 1980, we were confident that the evident lack of progress could not be attributed to errors in our data.

### Growing Concern

Our concern was greatest over the stubborn refusal of the infant mortality rate to move below 70 to 75 per 1,000 livebirths. Infant mortality is internationally accepted as the most sensitive index of the health status of a nation or society. It is even included in the Physical Quality of Life Index which is fast replacing the Gross National Product (GNP) as the measure of overall development.

Therefore, if the infant mortality rate remained static in the project area for so many years, it was a clear indication that the impact of our initial health service package had been fully absorbed. Any further decline in the infant mortality rate

*This research was conducted by the FRCH, Bombay, in their rural health re-search project, north Alibag *taluk*, in 1982 when the author was research associate and project coordinator of the FRCH. I am indebted to the FRCH director and staff for permission to publish this data in this article. However, all flaws in analysis, methodology and interpretation are entirely my own, and should not reflect on the FRCH.

* The number of babies who die before the age of one, for every 1,000 babies born alive.

could only be achieved by a new set of interventions.

On the other hand, a static infant mortality rate could mean that we had reached the threshold beyond which mere health care services cannot go; the threshold where more fundamental changes in the socioeconomic structure can make a difference : more food, well nourished people, safe and clean drinking water, environmental hygiene, decent shelter for all and a society in which women are not oppressed, exploited and deprived from birth to death.

And so the dilemma—ours was only a health project. We were not an a position to remove all inequalities and change the social and economic organisation of even this tiny corner of the country. All we could do was explore the possibility of further curative and preventive health inputs. And this could not be done without an indepth, detailed study of the nature and characteristics of the mortality (including infant mortality) that was occurring in the area, to see if anything more could be done. Crude death rates and infant and child mortality rates alone were simply not enough.

So it was that the Death Information Study was launched in January 1982—a study which yielded : some startling findings whose relevance remains undiminished.

## Study Of Deaths

Our main goal was to understand the nature and characteristics of all the deaths occurring in the project area in one calendar year by

age, sex, subregion, and cause. This enhanced understanding would then be used to improve our services wherever possible.

The village health workers developed by the project had by now not only gained the confidence of the people they served, but had evolved a fine set of skills in recording information about local health problems. They maintained sophisticated registers and daily diaries in which they recorded pregnancies, births, immunisations given, antenatal checkups, TB and leprosy patients' treatment and

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progress, and the date and reported cause of all deaths occurring in their respective villages. Even the nonliterate health workers were trained to keep records with the help of literate neighbours, relatives or children. Thus, a unique feature of this study was that it was carried out by village women, not trained investigators from the city.

A simple form was designed to elicit the following data: name, age, and sex of the deceased person; date, time and place of death; whether or not the person was under treatment prior to death; if so, was he/she being treated by a local private doctor, the FRCH staff, or the government hospital at Alibag town; if the person was being treated by any of these, what was the cause of death (or symptoms prior to death) as reported by them or by family members?

In the case of any death of a child below the age of six, an additional set of questions were to be asked: what was the age of the mother at present and at the birth of the deceased child? what was the sex and birth order of the child (firstborn, secondborn, and so on)? In the case of an infant death, was the baby premature, fullterm or small for date (meaning fullterm in months, but well below the weight of a normal fullterm baby)?

These forms were distributed to all the village health workers; they were asked to fill them up within 24 hours of the death and submit the forms to project headquarters at their monthly meetings. In January 1983, all the forms were coded, tabulated and analysed by me.

Before we discuss the results of the study, it is essential to present some facts regarding the accuracy of the data. The first point to be noted is that while the actual numbers of deaths appear rather small, the size of the population in which they occurred—25,000 is quite large and statistically significant. Therefore, the results cannot be dismissed as being insignificant. Secondly, the data is highly accurate: the 24 village health workers serving this population visited *every* household in the project area *at least once a month,* averaging six to eight home visits per day. Moreover, since every health worker was a resident of the village, an important event like a death in a family always came to her notice. Finally, an elaborate supervisory system involving both assistant nurse midwives and the project's social workers, double checked the health workers' monthly reports, ensuring that not a single death was missed.

## Gender Difference

It should not surprise anyone that the gender differential in pre-school mortality was the first clear trend to be detected by the study, with girls contributing almost two thirds of all deaths in the 0-6 age group.

All over the country, the neglect and deprivation of female babies and children has been well documented. It is only surprising that the ratio should be so highly skewed in Maharashtra, that too in a coastal, rice growing area where many experts have suggested that gender discrimination is less severe.

Table 2 shows that the vast bulk of preschool mortality— 80 percent — occurred below the age of one year; of

**TABLE 1**
**Sex-wise Distribution of 0-6 Mortality**

| | Number of deaths | Precentage of total |
|---|---|---|
| Females | 30 | 64 |
| Males | 17 | 36 |
| Total | 47 | 100 |

* The population covered in this study is less than the overall project population bscause a ratio of one village health worker per 1,000 population was main-tained for the sake of accuracy.

this, over three fourths occurred in the neonatal period, that is, up to 30 days after birth. The large number of stillbirths, com-bined with the neonatal mortality, indicate weaknesses in the antenatal, natal,

**TABLE 2**
**Age Structure of 0-6 Mortality**

| | Number of deaths | Precentage of total |
|---|---|---|
| Still births (0 days) | 11 | 23 |
| 1-7 days (perinatal) | 11 | 23 |
| 8-30 days (neonatal) | 7 | 14 |
| 1-6 months | 4 | 9 |
| 1-3 years | 5 | 11 |
| 4-6 years | 4 | 9 |
| TOTAL | 47 | 100 |

and postnatal care system, and almost certain malnutrition of mothers. Since the bulk of child mortality occurred in the neonatal period, let us examine the causative, factors, as presented in 3;

Clearly, almost half the neonatal mortality is accounted for by premature and small for date infants. Another 34 percent was due to stillbirths and birth injuries, the latter including three cord strangulations, one antepartum haemorrhage, and one skull fracture when the infant was dropped at delivery.

However, the most startling finding of the study came to light when all infant deaths were plotted by month, to determine any seasonal variation in the mortality pattern, as shown in Table 4.

**TABLE 3**
**Causes of Neonatal Death**

| | Number of deaths | Precentage of total |
|---|---|---|
| Premature or small for date | 12 | 41 |
| Stillbirths | 5 | 17 |
| Birth injuries | 5 | 17 |
| Other causes | 3 | 11 |
| Unknown uncertain | 4 | 14 |
| TOTAL | 29 | 100 |

Firstly, we see that 40 percent of all infant deaths occurred in the four monsoon months of July to October. If we include May and June, when the fields are being prepared for sowing operations, and seedlings are grown in the nurseries, the figure rises to 61 percent. This is not surprising in itself, since public health wisdom states that the environmental onslaught of the monsoon brings in its wake a host of infections and parasitic diseases which hit the young and vulnerable the hardest. It is also a time when the village access to health care is severely reduced by floods, blocked roads, and the heavy demand for labour in the fields.

However, we disaggregated the 14 deaths which occurred in July-August, and found that 50 percent, that is, seven, were stillbirths and prematurely born infants, or both. This was intriguing, since the 10 other stillbirths and premature babies were scattered randomly through the other 10 months of the year. Why was there this cluster or bunching of this particular problem in these months? It could not even be explained, as Table 4 shows, by a larger number of births having occurred in those months—if anything, the largest number of births occurred after this period.

The only explanation that I have been able to find is that July and August are the height of the agricultural season in this area, with rice sowing operations in full swing. In a single crop area like Alibag, this means that every pair of hands—including those of women in adv-anced stages of pregnancy—is busy in the fields from dawn to dusk, either in their own fields or as labourers on others' lands. It is well-known that women alone performs the important, skilled, but back-breaking job of transplanting saplings in rice cultivation. This means that every woman—heavily pregnant or otherwise—

is squatting on her haunches for hours together. Obstetricians confirm that such physical strain and pressure on the uterus could well trigger off premature labour in the last trimester of pregnancy, not to mention increasing; the chances of a stillbirth.

Premature deliveries, that too by half starved, physically debilitated women endanger not only the infant's chances of

**TABLE 4**
**Seasonal Variation of Infant Deaths and Births**

| Month | Births | Percentage of total total births | Deaths | Percentage of total deaths |
|---|---|---|---|---|
| January | | | | |
| February | 77 | 15 | 6 | 16 |
| March/April | 64 | 13 | 4 | 10 |
| May/June | 89 | 17 | 8 | 21 |
| July/August | 87 | 17 | 14 | 37 |
| September | | | | |
| October | 100 | 20 | 1 | 3 |
| November | | | | |
| December | 91 | 18 | 5 | 13 |
| TOTAL | 508 | 100 | 38 | 100 |

survival, but the mother's as well. It is hardly surprising, if the above explanation is correct, that so many stillbirths and premature births occurred in these couple of months in the project area. This could well be the culminating expression of the social, economic, and technological neglect which the poor in general, and poor women in particular, face throughout the year, throughout their lives. The fact that no maternal death occurred in this or any other part of the year was either pure chance, or proof of the incredible biological strength of the female of the species —but a strength which, in our country, is clearly reaching the iimits of its endurance.

## Conclusions

Not all the data elicited by the Death Information Study has been included in this article, since little of the rest would interest the reader or throw any new light on old health problems. I have presented only the data which opens an entirely new avenue for further research and exploration.

The child mortality patterns which the study brought to light contain several major implications. Firstly, there is a need for all health projects in the country to study the mortality and morbidity patterns in their areas in greater depth aad detail. Although the FRCH study was carefully planned, closely supervised and comprehensive, one cannot rule out the possibility that some or all of its findings were eccentric or arbitrary fluctuations of that particular year or region. While they cannot be dismissed, neither can they be considered conclusive until further data is generated. This is particularly vital vis-a-vis the high incidence of stillbirths and premature births and deaths during the peak rice cultivating season; only more studies of a similar nature can confirm or refute the cause and effect relationship which has been postulated here.

Secondly, if the findings presented in this article and the accompanying explanation are indeed valid, then we have located an important new occupational health hazard to pregnant women and their unborn children in rice growing areas. Our theory about this is somewhat strengthened by the fact that in parts of Tamil Nadu, folklore dictates that husbands and wives are not permitted to cohabit in the period 10 to eight months prior to the next sowing season.

For those engaged in approrpriate technology research, and who follow the dictum "start with women", the tentative findings of the study indicate the need to concentrate on developing transplanting and sowing devices which will reduce the arduousness of these tasks, particularly the need to squat while performing these activities. Surely, the nation which built its own satellites can do this simple thing for women?

Above all, this information must be disseminated widely at grassroots level by all those involved with women's development. I would not be surprised if labouring women in rice growing areas were already aware of these interconnections long before such elaborate research studies were conceived of or undertaken. Nevertheless, let women know about it, discuss it and decide what can be done. After all, it is they who pay the price, and will continue to pay it for a long time to come.


**Reader Srjanraj's comment on dowry weddings**