

Watch Report

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Changes in Diarrhoeal Death in Rural Bangladesh (Findings from BRAC's Health and Demographic Surveillance System 1988-1993)

Abstract: The study is conducted on a set of community based data collected from a central and a northern rural area of Bangladesh. In both the areas, diarrhoeal mortality continued a steady decline up to 1990, thereafter revealed some reversals or stagnation. The reversal is more marked in 5 and above population. The percentage of deaths due to diarrhoea was higher in the North in most study years. Infant mortality due to diarrhoea maintained a decline till 1991 in the central area and 1990 in the North. Except for 1993, it was always lower in the central area. In children of age 1-4 years, diarrhoeal mortality was higher in the central area, and after a gradual decrease up to 1990, showed fluctuations in both the areas. Diarrhoeal death in 5 and above population sustained a decline till 1990; in later years it showed a gradual increase. Acute (watery) type is the commonest cause of diarrhoeal deaths. The use of ORT is comparatively much higher in population dying of acute diarrhoea than the persistent type. In the central area, the trend shows a very sluggish increase over the years with much fluctuations. In the North, from 1988 to 1991, it maintained a gradual increase, but in later years suffered from a major setback. The percentage of diarrhoeal deaths that received no treatment showed a gradual increase since 1989. In the central area, in most years, the number of diarrhoeal deaths per calendar month was highest in April and May and lowest in February. In the North, it was highest in April and October, and least in February.

Background of the study

Diarrhoea has long been recognized as the number one killer disease in Bangladesh. The situation has not changed much even in these closing days of twentieth century. Despite all efforts of various governments and non-government organizations, diarrhoea still persists as a crucial survival issue for millions. BRAC, the largest non-government development organizations of the country, realized the awfulness of the disease at the very early days of its community based health care activities. In the eighties, BRAC launched a door to door campaign to disseminate knowledge on Oral Rehydration Therapy (ORT) and reached about 12 million households.¹

Mortality profile of a country is not only linked with mere health issues, rather directly related with people's cultural norms, and socio-economic well-being. Hence, non-health interventions like programs for economic uplift, education, social empowerment, health and nutritional awareness are not only important, rather indispensable for

changing the awful mortality situation of the country. BRAC launched such multi-sectoral development projects since its very inception in 1972. However, to monitor the country's mortality profile, it was deemed essential to maintain a constant watch on causes of death and other demographic dynamics in rural communities. The Health and Development Watch Project of BRAC envisaged to fulfil that objective and selected six unions - three in a central (Manikgonj) and three in a northern district (Joypurhat) of Bangladesh. The data collection started in 1986 in the former and in 1987 in the later area. The present study analyzes the project data collected in six years from January 1988 to December 1993.

Materials and Methods

Population based data on all deaths in all age-group are regularly collected by BRAC's field staff by monthly household visits. A structured questionnaire was designed to obtain information on date of birth, sex, occupation, marital status, date of death, place of death and type of treatment. The chain of events that leads to death

is recorded in an open-ended format. The present study analyzes the cases that died primarily due to diarrhoeal diseases. Fatal episodes of diarrhoea are classified into three types: acute diarrhoea, persistent diarrhoea and dysentery. Their operational definitions used in the study are: *Acute diarrhoea*: non-bloody diarrhoea lasting less than 14 days, *Persistent diarrhoea*: non-bloody diarrhoea lasting more than 14 days, *Dysentery*: diarrhoea with the presence of blood in stools (more than just one or two streaks), regardless of duration.² It was deliberately sought to include all cases for whom diarrhoea was considered to be the underlying cause of death - the prime initiator of the chain of events that ultimately lead to death of the victim. As regards to characteristics of the study areas, it is noted that the socio-economic profile in the North is better than the central area (Table 1).

Table:1. Characteristics of the study areas.³

	Central	North
Population^a		
Total	57,533	38,887
Infant [*]	1,170	831
	(2.0)	(2.1)
0- 4 [*]	5,100	3,445
	(10.9)	(11.0)
IMR ^b	106	102
Crude mortality rate ^b	8.7	8.0
Literacy Rate^a		
Male	38.4	48.0
Female	25.5	32.0
Land^a(percent)		
Landless	49.9	39.7
<50 decimal	12.9	15.6
Above 50 decimal	37.2	44.7
Number of deaths studied (1988-1993)		
Total deaths	3,172	2,104
Diarrhoeal deaths	463	389
Diarrhoeal deaths in <1	128	124
Diarrhoeal deaths in <5	236	169

a: 1993 data

b: 1992 data

*: percent in parenthesis

Findings

Of all deaths, diarrhoea still claims the largest share in Bangladesh. A total of 5,276 deaths were analysed, of them 852 (16.2 percent) were diarrhoeal. In 1988, of all deaths, diarrhoeal death was 19.3 per cent in the central and 20.2 per cent in the northern study area. In 1990, it decreased to 8.6 per cent in the former and 11.3 per cent in the latter area (Figure 1). Matlab data finds it 12.7 per cent in 1987.⁴ In 1993, the percentage of diarrhoeal deaths increased in both the areas, became 16.4 per cent in the central and 13.4 per cent in the northern area. However, in 1991, there was an unusual increase of diarrhoeal deaths in the North that comprised 33.2 per cent of all deaths.

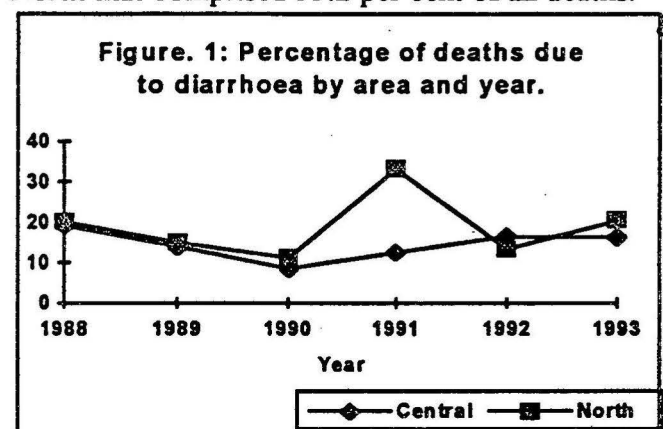
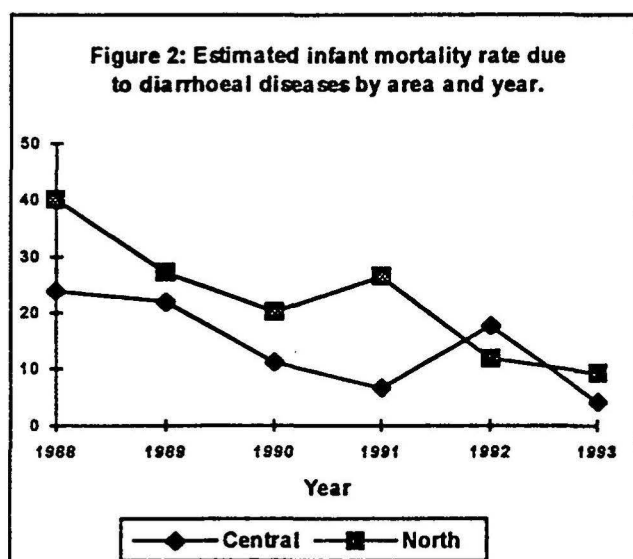


Table: 2 Number of diarrhoeal deaths by age, area and year.

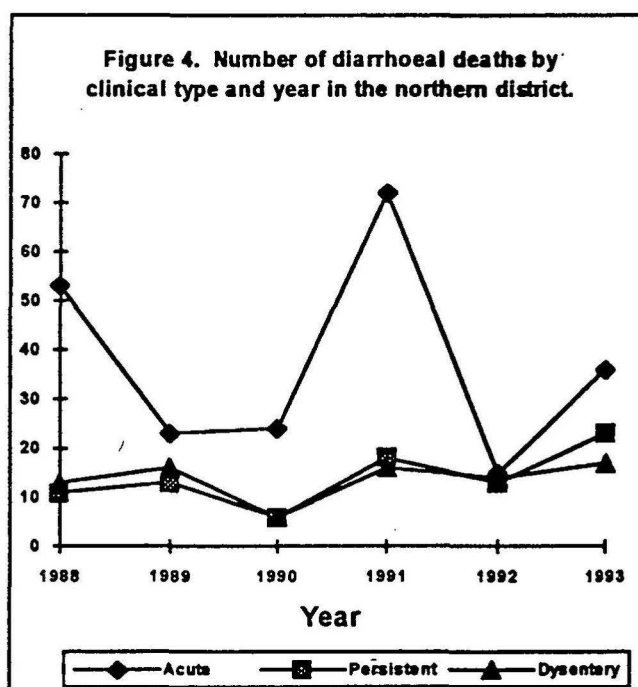
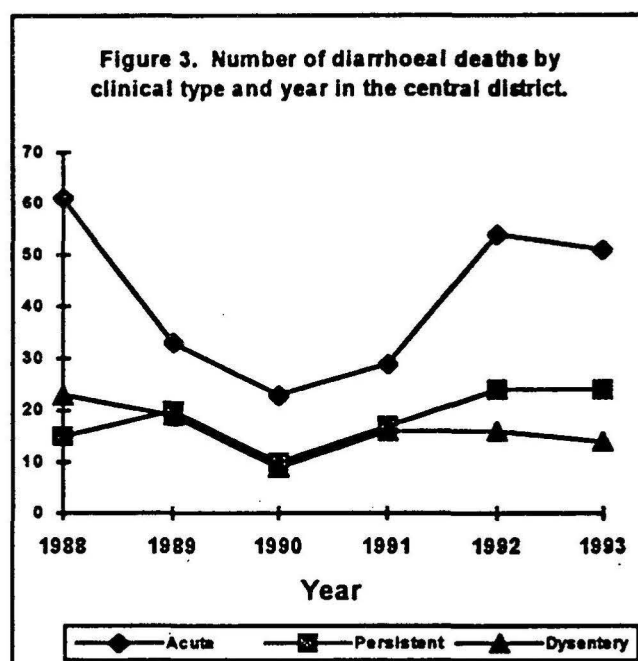
	Year					
	1988	1989	1990	1991	1992	1993
Infant						
Central	39	32	17	10	25	5
North	37	23	20	25	11	8
1 - 4 Year						
Central	31	20	13	12	32	19
North	13	11	6	10	5	9
5 and above						
Central	30	20	11	40	42	65
North	27	18	10	71	26	59
All ages						
Central	100	72	41	62	99	89
North	77	52	36	106	42	76

During the early years of the study period, infants were the major victims of diarrhoea. However, the number of diarrhoeal death in infants followed a steady decline over the years. In 5 and above age-group, it went on increasing after the year of 1990 (Table 2). In children of 1-4 years, the number of diarrhoeal deaths per year followed a gradual decline in both the areas except some fluctuations after 1990 (Table 2).

The estimated infant mortality rate (per 1000 live births) due to diarrhoea has steadily come down in both the areas except an upward spike in 1991 in the North and in 1992 in the central area (Figure 2). However, the respective spike did not exceed the figures encountered in 1988 or 1989. It is worth noting that in most years - except 1992 - the rate was comparatively higher in the North.

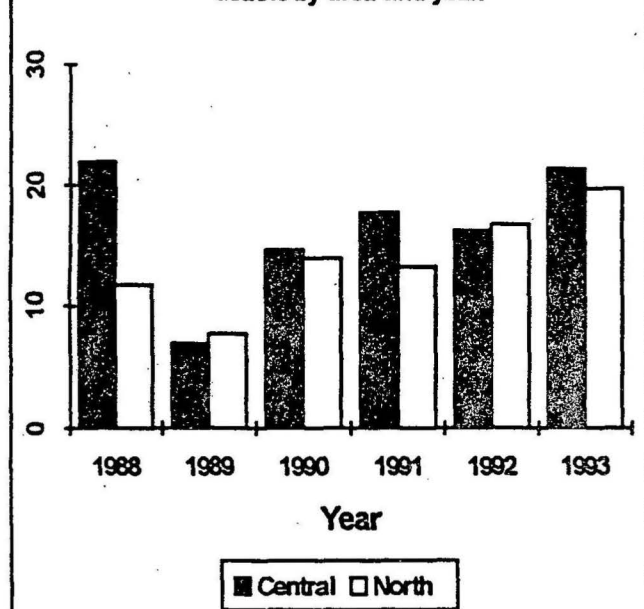


Of all types of diarrhoeal diseases, acute diarrhoea appears to be the prime killer in all age-groups in both the areas. The number of diarrhoeal deaths due to all three types decreased till 1990 in both the areas, afterwards went on increasing or remained approximately unchanged. In the central area, death due to acute type decreased more markedly than other clinical varieties during the first half of the study period (Figure 3). In the North, the acute type caused a spike in 1991. Deaths due to persistent diarrhoea and bloody dysentery sustained more or less a similar plateau in both the areas (Figure 4).



The percentage of untreated diarrhoeal death in the central area was found about two times higher than that of the North in 1988. In both the areas, the situation improved in 1989 but deteriorated afterwards (Figure 5).

Figure 5. Percentage of untreated diarrhoeal deaths by area and year.



till 1991 but in later years suffered a sudden and sharp reversal (Figure 6). In the central area, the trend of ORT-use though swung between ups and downs in most years, however, maintained some sluggish increase from 1989 till 1991 and in later years remained higher than the North (Figure 6).

Figure 6. Percentage of ORT-use in population dying of acute diarrhoea by area and year.

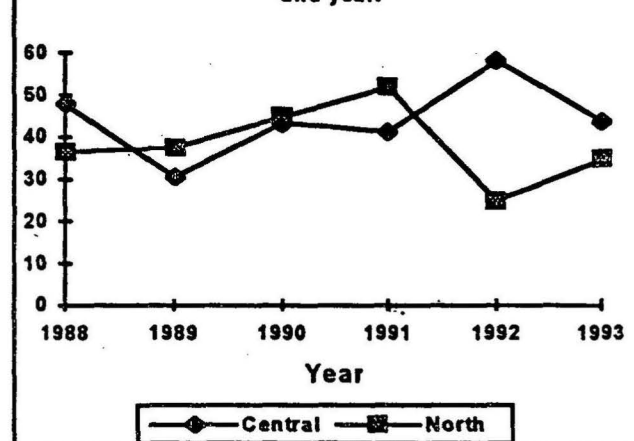


Table 3. ORT- use by type of diarrhoea and year in both areas.

	Year					
	1988	1989	1990	1991	1992	1993
Acute ¹	42.5% (n ² =134)	33.3% (n=81)	44.1% (n=59)	48.7% (n=115)	48.4% (n=95)	39.4% (n=94)
Persistent	7.7% (n ² =26)	15.2% (n=33)	43.8% (n=16)	21.2% (n=33)	25.0% (n=36)	2.4% (n=41)

1: Dysentery included

2: n=number of cases studied in each category

The practice of oral rehydration therapy (ORT) is comparatively higher in population dying of acute diarrhoea than that of the persistent type (Table 3). In acute cases, the use-rate went on increasing from 1989 to 1992, but afterwards followed a down-hill course and in 1993 reached a level even lower than that of 1988. Such reversal is also pronounced in population dying of the persistent type. In the North, the use of ORT in cases dying of acute diarrhoea sustained a continuous increase

The data revealed marked seasonal variation in diarrhoeal deaths in both the areas. In the central area, it was higher in April, May and November, and lower in February, July and August in most years (Figure 7).

Figure 7: Number of diarrhoeal deaths by calendar month and year in the central area.

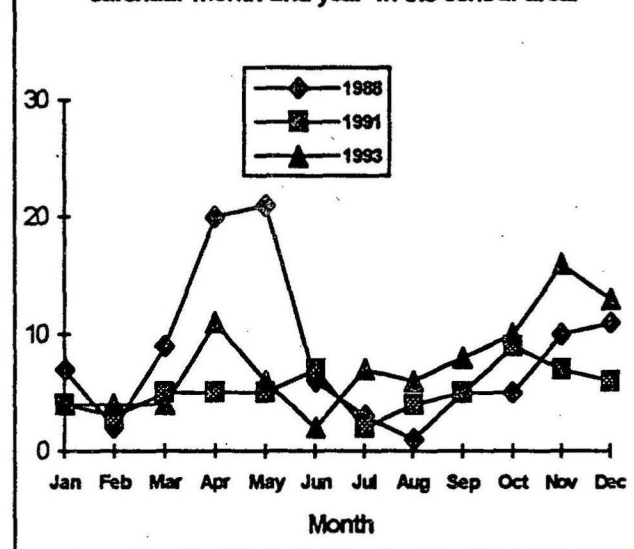
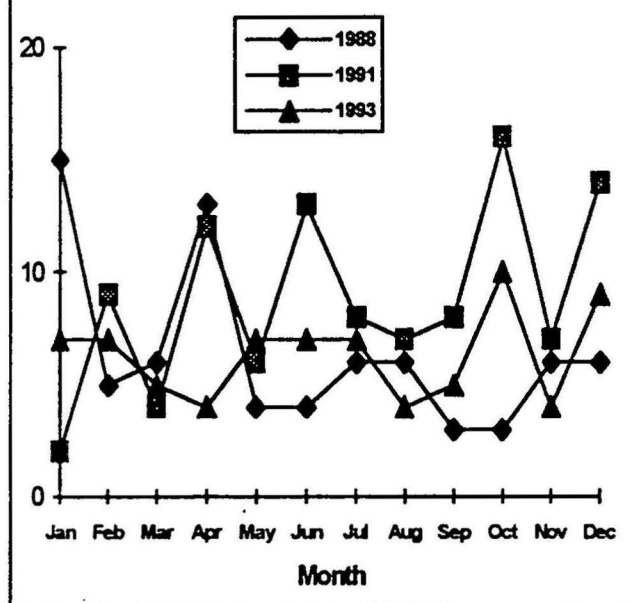


Figure 8: Number of diarrhoeal deaths by calendar month and year in the northern area.



In the North, the occurrence was more in April, June, and October and less in February, March, August and September (Figure 8). In neither area, the distribution by calendar month follows a uniform pattern in each year.

Conclusion

Diarrhoea is still the most crucial survival issue for millions in Bangladesh. Diarrhoeal mortality continued a steady decline only up to 1990, thereafter revealed some reversals or stagnation. The reversal is more marked in 5 and above population. Except an unusual setback in 1991 in the North, the trend approximately followed the same pattern in both the areas. In infants, the diarrhoeal mortality showed some improvement. Such improvement is less in children of 1-4 years. However, whatever progress achieved mostly owes to decline in death due to acute type, the other varieties showed little or no change. Many of diarrhoeal deaths met with no treatment - whatever be its quality. In both the areas, the trend continued a gradual increase. In both the areas, the use of ORT by people dying of diarrhoea also revealed some setbacks. The seasonal variation in

diarrhoeal mortality showed much fluctuations in both the areas.

Reference:

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