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Social factors of under-five mortality in rural Agra

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ABSTRACT

Background: Very limited recent data is available on the causes of child deaths in India. Most of the available studies do not accurately reflect the socio factors related to these deaths. Identifying and assessing the factors affecting the child mortality could be the first step in planning to reduce the mortality and promoting the society health and life expectancy. Therefore the present study was undertaken to find out the socio factors of deaths among children under 5 years of age.

Methods: The present cross-sectional survey was conducted among under five children and their parents residing within the selected villages in a community Development Block Sainyan, District Agra using Multistage random sampling technique. Participatory learning action technique was used. Data was analyzed and presented in form of percentages.

Results: Diarrhoea was the most common cause of under five children mortality followed by acute respiratory tract infection and pyrexia. Delay in recognition of problem followed by delay in decision making at family level, delay in seeking of health provider and delay in arranging transport were the main social causes of deaths. Most children were attended by local rural medical practitioners both at initial and terminal stages of illness.

Conclusions: Efforts to prevent diarrhoea and acute respiratory tract infection must be intensified. Awareness about the services provided by the government and their utilization should be strengthened.

Keywords: Under 5 mortality, Social causes of deaths

INTRODUCTION

Social determinants of health include the conditions in which people are born, live, work and grow, as well as measures that are put in place to curb illness. The distribution of money, social resources, economies and political power shape these conditions at the national, regional and local levels. Very limited recent data are available on the causes of child deaths in India. 3,4

In countries where mortality audits and child death reviews are carried out regularly, and steps have been taken to address the identified modifiable factors, they have been an invaluable source of information used to prevent child deaths and improve care.

Therefore the present study was undertaken to find out the socio factors of deaths among children under 5 years of age.

METHODS

Study design

This cross-sectional survey was conducted among children aged under 5 years residing in 15 randomly selected villages in Community Development Block,

Sainyan of District Agra. Multistage random sampling technique was used. Institutional Ethical committee permission was obtained.

Data collection

The study was carried out by using participatory learning action technique within the selected villages. Probable medico social causes related to each of such death was discussed and the possible means to prevent such deaths by resources available in the community were also discussed. Thorough verbal autopsy was done to find out sequence of events, treatment given, if any, the response of treatment, choice of practitioner etc. Besides this detailed study of social and medical causes associated was done and possible socio clinical diagnosis was also made. Information collected was recorded on semi structure pretested schedule.

Data analysis

The data was analysed using a suitable statistical software and presented in the form of percentages.

RESULTS

The overall average population of these villages came out to be 3, 343.3 per village. The nearest health facility (primary health center) was 0.5-5.0 km away from the villages. On an average one has to travel 2.7 kms to get the medical care (Primary Health Centre). Considering the lack of link approach road and public transport facility the villagers have to travel long distances (15-24 kms) to reach the first referral unit.

Table 1: Cause wise analysis of under-five children mortality.

	Male			% of	Femal	le		% of		
	<1	1-11	12-60	total	<1	1-11	12-60	total	Total	%
	mon	mon	mon	male	mon	mon	mon	male		
1. Diarrhoea	01	09	17	30.33	02	14	12	29.17	55	29.42
2. ARI	03	08	08	21.38	02	12	12	27.10	45	24.12
3. Pyrexia	03	04	04	17.98	04	09	10	23.95	39	21
4. Febrile convulsions	-	02	02	2.29	-	-	1	1.0	03	1.42
5. Birth trauma	03	-	-	3.37	03	-	-	3.12	06	3.14
6. Birth asphyxia	04	-	-	4.50	02	-	-	2.08	06	3.14
7. Prematurity	07	-	-	7.86	01	-	-	1.04	08	4.22
8. Neonatal tetanus	01	-	-	1.12	01	-	-	1.04	02	1.08
9. Neonatal sepsis	-	-	-	-	03	-	-	3.13	03	3.14
10. Neonatal jaundice	-	-	-	-	01	-	-	1.04	01	0.54
11. Accidental	-	01	-	1.12	-	01	-	1.04	02	1.08
12. Congenital					01			1.04	01	0.54
malformation	_	-	_	_	01	-	_	1.04	01	0.54
13. Unknown	06	02	01	10.11	03	-	02	5.21	14	7.16
Total	28	26	35	100	23	36	37	100	185	100

Table 2: Decision maker for treatment seeking among under five mortality cases.

Decision Maker	No. of deaths	% of total deaths		
Decision Maker	Male	Female	70 of total deaths	
Parents	65	78		
Father	39	65	77.29	
Mother	16	17	11.29	
Both	10	66		
Grand parents	21	15	19.46	
Neighbor	00	02	1.08	
CHG/TBA/ANM	03	01	2.12	
Total	89	96	100	

Cause of death of under-five mortality reveals that diarrhoea was the most common killer (29.42%) followed by acute respiratory tract infections (24.32%) and pyrexia (21.0%), the pattern is almost similar in both male and female children. Age wise distribution shows that in

neonates prematurity (15.68%), birth asphyxia (11.77%), birth trauma (11.77%) and pyrexia of unknown origin (13.27%) were common causes of deaths and diarrhoea is the commonest cause of death in the remaining age group 1-11 months and 12-60 months (Table 1).

Decision making about the type, place and persons for treatment of children were taken mainly by parents (77.29%). In 19.46% cases grand-parents were found to be the decision makers, while only in 2.12% cases community health guide, traditional birth attendant and neighbors were the decision makers (Table 2).

Table 3: Choice for initial treatment.

Action initiated	No. of deaths	%
Family members	24	12.08
TBA	18	9.33
ANM	5	2.71
RMP	95	51.35
Heath worker	17	9.10
Doctor	26	14.03
Total	185	100.00

In about half (51.34%) of the cases, choice for initial treatment was of locally available unqualified medical practitioner (51.35%) and other preferences were doctors (14.03%), family members (12.08%), health workers (9.1%) and ANM/TBA (12.04%) (Table 3).

Table 4: Treatment taken during last phase of illness.

	No. of deaths	% of total deaths
Treatment taken by	172	92.97
Doctor	34	19.77
RMP	95	55.23
TBA	07	4.07
Health worker	08	4.65
Magico-religious healers	28	16.28
Total	172	100.00
Treatment not taken	13	7.03

An analysis of treatment seeking behavior during the last stage of illness shows that more than half (55.23%) were under treatment of unqualified doctors during last stage of illness, only (19.77%) children were under treatment of qualified doctors 16.28% children preferred to visit magico-religious healers.

Table 5: Social delays related to under five children mortality.

Social delays	No. of deaths
Delays in recognition of problems of family level	87
Delays in seeking help of health provider	44
Delays in arranging transport	19
Delay in arranging money	21
Time taken to reach health facility	15
Delay in initiating treatment at health facilities	16
None	07

Multiple response average=1.12

Analysis of the above mentioned social delays show that the delay in recognition of problem was the commonest factor in (87 deaths) followed by delay seeking help of the health provider (44 deaths), delay in arranging transport (19 deaths), delay in arranging money (21 deaths), time taken to reach health facility (15) and delay in initiating treatment in health facility (16 deaths). The average social delays were 1.12/mortality, which indicates that there was more than one cause of social delay (Table 5).

The time interval between onset of symptoms and death was less than 3 days in half of the childhood deaths (52.81 and 53.13% respectively in male and female), however in 10.11% male and 16.67% female deaths, the interval was even less than 24 hours. In 23.60% male and 13.54% female children, the interval was 7-30 days. The male and female difference, however, is not statistically significant (x^2 =6.21, p>0.05) (Table 6).

It was observed that in case of 33 (17.9%) deaths, the child was not at all referred, of the remaining 152 deaths, 102 (67.1%) cases were not timely referred. Only 50 (32.9%) cases were timely referred (Table 7).

Above table shows that the majority of the deaths, 69.1% occurred at home followed by 20% at private hospital and 4.9% at government hospitals. It was further noticed that 6% deaths occurred during transportation of the patients to the hospital (Table 8).

Table 6: Time interval between onset of symptoms and deaths of under five children.

Duration	No. of male	% of male	No. of female	% of female	Total d	eaths
(days)	deaths	deaths	deaths	deaths	No.	%
Below 1	09	10.11	16	16.67	25	13.5
1-3	38	42.70	35	36.46	73	39.5
4-6	16	17.97	22	22.92	38	20.5
7-30	21	23.60	13	13.54	34	18.4
Above 30	05	5.62	10	10.41	15	8.1
Total	89	100.00	96	100.00	185	100.0

 $(x^2=6.21, p>0.05)$

Table 7: Referral pattern of the under-five mortality cases.

Referred by	Referred to	Timely Referred	Timely not Referred	Total No.	Percentage (%)
	MPW	4	5		
Self	RMP	8	53	77	50.60
	Doctor	3	4		
MPW	RMP	3	6	- 23	15.22
	Doctor	5	9		
RMP	Doctor	22	21	43	28.28
Doctor	Doctor	5	4	9	5.90
Total		50	102	152	100.0

Table 8: Place of death.

Place of death	Number	Percentage (%)
Home	128	69.1
Govt. Hospital	9	4.9
Private Hospital	37	20.0
Transit	11	6.0
Total	185	100.0

DISCUSSION

In the present study diarrhoea was the commonest cause of deaths (29.4%), followed by acute respiratory infection (27.1%) & pyrexia (23.59%). Two causes accounted for 50% of all deaths at ages 1-59 months: pneumonia and diarrhoeal diseases in the nationally representative mortality survey.⁵ Malnutrition and a previous episode of diarrhoea within the last year were the main risk factors for mortality in children under-5 years of age attending Princess Marie Louise Children's Hospital in Accra, Ghana.⁶ The majority of the neonatal and infant deaths are preventable with the interventions offered in primary and secondary care. In our study, the decision maker for the treatment of both male and female children was mainly (50.8%) father of the child. Mother was decision maker in 17.8% cases. Prior Studies suggest that better access to resources and more decision-making power of the child's mother may be important in combating child mortality rates in developing countries.^{8,9}

It was found that in about half of the cases, action was initiated by unqualified medical practitioner. It seems that villagers prefer and trust practitioners from their own socio-cultural environment, the preference may also be due to low cost of treatment and easy availability of these practitioners. These locally available practitioners probably lack ability to recognize the danger signs & symptoms of the disease and to refer them timely to an appropriate level.

This study shows that most of the deaths occurred at home (69.1%). It was observed that the child was not shifted to hospital due to non-recognition of the severity of problem. It is a validated fact that those whose caregivers have had less than primary education are at

high probability of not being taken to a health facility or a provider for treatment. 10,111 Arranging for transport and social support for accompanying and deciding health care needs are interlinked and were reported to be the major difficulties faced at the household level by families. 12-14 During the past decade under the National Health Mission, 108/102 ambulance services have been started to address the transport challenges, particularly for rural and remote areas. 15 Awareness about such services and their utilization especially among the villagers should be strengthened.

CONCLUSION

On the basis of above findings, it can be suggested that specific efforts focusing on the reduction of under-five mortality are required. Efforts to prevent diarrhoea and acute respiratory tract infection must be intensified. Awareness about the services provided by the government and their utilization should be strengthened.

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Institutional Ethics Committee

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