

ORIGINAL ARTICLE

Perception of caregivers regarding danger signs of childhood diarrhea and attitude towards its management in rural Lucknow, UP, India

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Abstract

Background: Diarrhoea is a major cause of morbidity and mortality in children. Most deaths are caused by dehydration and are easily preventable by using oral rehydration therapy. Early management and recognition of danger signs are key strategies in treating diarrhoeal diseases at home. **Aims & Objectives:** 1. To assess the knowledge of caregivers regarding childhood diarrhoea and signs of dehydration and danger signs, 2. To assesses the mothers' approach towards its home based management and health seeking behaviour. **Material & Methods:** A community based cross sectional study was conducted in different rural blocks of Lucknow selected by multistage sampling. Total of 240 households were interviewed to achieve targeted sample size of 410 children of less than five years age group. Perception of diarrhoea, signs of dehydration and danger signs were asked to caregivers and associations were established maternal knowledge and presence or absence of diarrhoea in children of less than five age group. **Results:** The study showed that 74.2 per cent of caregivers recognized diarrhoea correctly i.e. increased frequency of watery stool or blood and mucus in stool or both. Decreased urination or dis-coloured urine (89.6%), thirsty or eagerly drinking (55.7%), dry mouth and tongue (37.7%) etc. were recognized by caregivers as major signs of dehydration*. Caregivers recognized child getting seiker/unconscious (94.9%), not able to drink or breast feed (66.7%), blood in stool (59%) etc. as danger signs* developing during diarrhoea episodes of child. **Conclusions:** Caregiver's knowledge regarding recognition of childhood diarrhoea in proper and early detection of signs of dehydration and development of danger signs at community level are keys to prevention of diarrhoea related death in less than five years age group.

Keywords

Childhood diarrhea, knowledge, danger signs, caregiver, mothers, Lucknow

Introduction

Diarrhea constitutes one of the major causes of infant mortality and morbidity especially in developing countries. 23% of all deaths among children under five in the South East Asian Region are caused by diarrhea. India is one of the top 15 countries ranked according to the number of deaths in under-fives due to diarrhea. India alone is

responsible for more than half a million diarrhea related deaths. Among all child deaths each year, seven in ten of these deaths are due to diarrhea, acute respiratory infections, malnutrition or combination of these conditions. In India, common illness in children less than 3 years of age are fever (27%) acute respiratory infection (17%), diarrhea

(13%) and malnutrition and these are often in combination. About 2 million episodes of diarrhea occur each year in India. (1,2)

Integrated Management of Childhood Illness Program (IMCI) launched in 2005. The strategy for the IMCI aims to reduce childhood mortality and morbidity by improving the case management skills of health-care workers, improving the health-care system, and improving family and community. (3)

The signs of dehydration due to diarrhea remain unnoticed by the majority of the mothers. Dehydration is the single most important cause of death in diarrheal diseases which is preventable. Correction of dehydration is the corner stone of life saving measures during diarrhea episodes. Development of danger signs surely a concern in rural setting Studies show that though most of the mothers were familiar with the term oral rehydration therapies (ORT), there were knowledge gaps as regards its correct preparation and administration. Early recognition of danger signs at community level and seeking health care at earliest is the key in management of diarrhea with severe dehydration.

Aims & Objectives

1. To assess the knowledge of caregivers about causes, risk factors, recognition of signs of dehydration and development of danger signs in childhood diarrhoea.

Material & Methods

Study Population, Study Area, Study Duration:

It was community based cross sectional study conducted in rural areas of Lucknow district from September 2014 to August 2015. According to Census 2011, Lucknow had a total population of 4589,838. Urban area of Lucknow has six Nagar Nigam zones and the rural area of Lucknow district is divided into 8 CHCs. (4)

Sample Size:

A multi stage sampling technique was used in our study. Taking the prevalence(p) of childhood diarrhoea in India among under 5 children of 20%(PHFI,2014) and the absolute permissible error(d) of 4% with 5% level of significance and a 95% confidence limit, a sample size of 410 children between the age of 2 months to 59 months were selected. (5) Total of 240 households were interviewed to get the desired sample size. The rural areas of Lucknow district is divided into 8 community blocks. From this, two blocks were randomly

selected. One PHC from each selected block was selected by using random sampling method. One Sub centre was selected from each selected PHC randomly. Two villages were randomly selected from each selected Sub Centers. Thus a total of 4 villages, 2 from each selected blocks were included in this study. From each village 102 children of particular age group were included in the study.

Strategy:

The points for household survey that were taken into account included two weeks' diarrhoea prevalence, as well as the caretaker's knowledge about the following: increasing fluids; recognition of diarrhoea; dehydration and danger signs; care-seeking for diarrhoea; care-seeking for diarrhoea from a specific type of provider; oral rehydration salt use; recommended home available fluid use; oral rehydration salt use among those who sought care outside the home; source of advice to use the ORS and correct ORS preparation; and knowledge of the value of zinc supplementation. The correct method of the ORS solution was verified by means of a check list prepared by the procedure specified in the Integrated Management of Neonatal and Childhood Illness training module. (3)

Definition:

A case of acute diarrhoea was defined as a child up to the age of 60 months, having passed three or more loose stools in a day, with or without blood or mucous in stools at least once over a period of two weeks preceding the date of interview.

Exclusion Criteria:

Our study didn't include diarrhoea of chronic type i.e. diarrhoea for more than 14 days.

Data entry and analysis: Data was analyzed using appropriate statistical software. Descriptive summary using frequencies, proportions and cross tabs were used to present study results. P values were calculated to test for statistical significance at the 5% level.

Consent:

Verbal consent was taken from each selected participant to confirm willingness. Honest explanation of the survey purpose, description of the benefits and an offer to answer all inquire was made to the respondents. Also affirmation that they are free to withdraw consent and to discontinue participation without any form of prejudice was made.

Ethical Approval: The study was approved by Ethical Committee of the Institution.

Results

In rural Lucknow, mean family size of household was found to be 6.71±3.18 persons. Out of total 240 households, 97.1 per cent Hindus and only 2.9% of households were Muslim. Most of households belonged to OBC cast i.e. 42.9 per cent, general and SC are being 23.8 and 33.3 per cent respectively. Out of total households 50.8 per cent were nuclear and rest are joint families. Around 44.2 per cent of households had only one child below 5 years of age, 45.4 per cent of households with 2 children below 5 years of age and only 10.4 per cent with 3 or more children. Out of total households, 29.6 per cent of family had income below 2000 rupees per month, in 32.5 per cent had income in range of 2000 to 3000 rupees and rest of the households had income of 3000 rupees or more per month. Most of the households were under the socioeconomic group of grade V and only few in grade IV. (Table 1) (3,6)

Diarrhoea, danger signs and signs of dehydration:

Regarding the knowledge of diarrhoea, 47.9 per cent of caregivers recognized it correctly as increase frequency of watery stool, 21.7 per cent as blood or mucus in stool and only 4.6 per cent recognized both as diarrhoea and rest of caregivers couldn't recognize it correctly. Regarding the knowledge of development of signs of dehydration during diarrhoea episodes of child, knowledge about at least one sign of dehydration was present in 112 households (out of 240). Out of them only 17.9 per cent of caregivers considered shrunken eyes, 37.7 per cent considered dry mouth and tongue, 55.7 per cent considered thirsty or eagerly drinking child and 89.6 per cent considered dark coloured urine or decreased urination as signs of dehydration. Regarding the knowledge of danger signs of diarrhoea among caregivers (76 out of 240) whose child developed diarrhoea during the last 2 week, 48.7 per cent were able to explain "become sicker or unconscious", 34.2 per cent were able to explain "not able to drink or breast feed", 30.2 per cent as "blood in stool", 22.3 per cent as "fever" and 20.0 per cent as "poorly drinking" as danger signs of diarrhoea for which they should promptness in seeking health care services. (Table 2) (3)

Regarding the knowledge of feeding practices: during episodes of diarrhoea in children, only 21% of care givers had the proper knowledge of increase

frequency of feeding or continue feeding as usual. Same percentage of caregivers had the knowledge of proper breast feeding practices during episodes of diarrhoea. (Table 3).

152 caregivers out of 240 had the knowledge of giving extra fluid during illness. Out of which 16.4% Caregivers told that it is to be given after every episode of diarrhoea. 86.4 % caregivers of the opinion that it is to be given whenever child wants. Regarding the knowledge of Home Available Fluid (HAF), plain water (62.5%), dal water (28.3%), rice water (8.5%) and vegetable soup (1.7%) were considered as in decreasing order. 55.4% and 46.25% of caregivers has the knowledge of Salt Sugar Solution (SSS) and Oral Rehydration Salt (ORS) solution as rehydration therapy to be given during illness of child respectively; but only 5.23% and 60% of caregivers had the knowledge of right composition as per IMNCI guidelines respectively. (Table 4)

Discussion

In the study groups, most of the households were overcrowded and around half of the families were joint type. Out of total 240 households, 97.1 per cent Hindus and only 2.9% of households were Muslim. Though population distribution in Uttar Pradesh showed 22 per cent Muslim population, lower proportion of Muslim population in our study setting was probably due to the villages selected in our study was dominated with Hindu community. (4)

In our study regarding the knowledge of diarrhoea, half of caregivers recognized it as increase frequency of watery stool, one fifth as blood or mucus in stool and around 5 per cent recognized both as diarrhoea properly as per IMNCI guidelines. A study conducted in California by William *et al* demonstrated similar findings that only 55% of care givers are able to recognize diarrhoea properly. (7)

Out of 240 care givers, only 0.8 per cent caregivers recognized all the 4 signs of dehydration, 10.8 per cent recognized only 3 dehydration signs, 20.4 per cent recognized only 2 and 12 per cent recognized only 1 dehydration signs of diarrhoea. More than half of the care givers were not able to recognize any of the dehydration signs. Dehydration is the major cause of mortality in children with diarrhoea and its signs are first to develop during the episodes. So community health workers should teach caregivers about all the signs of dehydration for prompt seeking of primary health care services which will be lifesaving.

76 out of 240 care givers had only knowledge of at least one danger sign develop during diarrhoea episodes of child. Around 95 per cent of them considered child becoming sicker or unconscious during diarrhoea episode as a danger sign for which they should show promptness in seeking health care service; which may be a late manifestation of diarrhoea. Not able to drink of breast feed (around 67%), blood in stool (59%), develop fever (44%) and drinking poorly (41%) were considered as danger signs of diarrhoea in community in decreasing order of frequency. Perception of progression of dehydration to danger sign of diarrhoea in children i.e. eagerly to poorly drinking was poor among care givers in rural setting of Lucknow.

A study conducted by Ansari M *et al* in Morang community of Nepal found that 19.2% of mothers were able to recognize 2 of danger signs, 71.5% recognize 3 danger signs and only 8.5% only recognize 4 of all danger signs and 0.08% of mothers were able to recognize all the danger signs of diarrhoea. (8) A study conducted in a district of North India by Venkatachallam *et al* showed better result that 13.2% of mothers were not able to recognize any danger signs as they were not explained by village level health service providers like ASHA and ANM of the village. Among rest of the mothers who were explained about danger signs, only 55.4% are able to recognize all the danger signs (3-5 danger signs). This difference may be due to our study includes only rural community in Lucknow. (9)

In our study, knowledge of salt sugar solution though present among caregivers, only 5 per cent of have the proper knowledge of preparing it. Hyper or hypotonic solution could lead to further dehydration. Administration of SSS should be discouraged at the time of diarrhoea and knowledge of ORS among caregivers, its proper preparation technique should be encouraged among caregivers. Community health workers should educate and encourage use of ORS and Home Available Fluids (HAF) and should teach caregivers about the time of administration of fluid i.e. after every episode

Conclusion

Prompt recognition and referral is the key to life saving measures in childhood diarrhoea.

Recommendation

Grass-root health workers viz. ASHA, AWW and ANM need to be more accessible to community and proper knowledge regarding diarrhoea and its danger signs and dehydration signs need to be imparted to mothers for better implementation of IMNCI at community level. Emphasis should be given to home available fluids and ORS for dehydration prevention.

Authors Contribution

All the authors had made substantial contributions to conception, design, data collection, analysis and interpretation of data; drafting the article, revising it critically for important intellectual content; and final approval of the version to be published.

References

1. Physician Manual (2010) Treat the Child. Integrated Management of Neonatal and Childhood Illness. National Rural Health Mission. Directorate of Health and Family Welfare, Government of Uttar Pradesh, India.18-19.
2. [Internet]. 2016 [cited 28 July 2016]. Available from: http://www.unicef.org/eapro/Pneumonia_and_Diarrhoea_Report_2012.pdf
3. IMNCI CHART BOOKLET [Internet]. www.mohfw.nic.in. 2016 [cited 29 March 2016]. Available from: <https://pplibrary-publichealth.wikispaces.com/file/view/IMNCI.pdf>
4. [Internet]. 2016 [cited 28 July 2016]. Available from: http://www.censusindia.gov.in/2011census/dchb/0926_P_ART_B_DCHB_LUCKNOW.pdf
5. Shah D, Choudhury P, Gupta P, Mathew JL, Gera T, Gogia S, et al. Promoting appropriate management of diarrhea: A systematic review of literature for advocacy and action: UNICEF-PHFI series on Newborn and child health, India. *Indian Pediatr.* 2012;49(8):627–49.
6. Mangal A, Kumar V, Panesar S, Talwar R, Raut D, Singh S. Updated BG Prasad socioeconomic classification, 2014: A commentary. *Indian J Public Health [serial online]* 2015 [cited 2016 Apr 18];59:42-4. Available from: <http://www.ijph.in/text.asp?2015/59/1/42/152859>
7. William C, Epstein LD, Gilman RH, et al. Effect of acute diarrhoea on linear growth in Peruvian children. *Am. J. Epidemiol.* 2003, 157(2):166-175.
8. Ansari M, Ibrahim MIM, Shankar PR. A survey of mothers' knowledge about childhood diarrhoea and its management among a marginalize community of Morang, Nepal. *Australas Med J.* 2011;4(9):474–9
9. Venkatachalam J, Aggarwal AK, Gupta M, Sathya GR. Evaluation of IMNCI Practices among Health Care Providers in a District of North India. 2012;1(6):46–50

Tables**TABLE 1 SHOWING BIOSOCIAL CHARACTERISTICS OF HOUSEHOLD (N= 240 HOUSEHOLDS):**

Characteristics		Numbers	Percentage (%)
Number of family members	Up to 4	59	24.6
	5 to 6	84	35.0
	More than 6	97	40.4
Religion	Hindu	233	97.1
	Muslim	7	2.9
Caste	General	57	23.8
	OBC	103	42.9
	SC/ST	80	33.3
Family type	Nuclear	122	50.8
	Joint	118	49.2
Under 5 children in household	1	106	44.2
	2	109	45.4
	3 or more	5	10.4
Family income per month	Less than 2000	71	29.6
	2000- 3000	78	32.5
	More than 3000	91	37.9

TABLE 2 PERCEPTION OF CAREGIVERS REGARDING SYMPTOMS AND SIGNS OF CHILDHOOD DIARRHEA (N=240):

Characteristic	Signs	Number(N=240)	Percentage
Frequency and consistency of stool in diarrhoea	Increase frequency of stool	51	21.3%
	Increase Frequency of watery stool	115	47.9%
	Blood or mucus in stool	52	21.7%
	Curdy/ lumpy/ greenish stool	11	4.6%
	Both bloody stool and watery stool	11	4.6%
Dehydration signs^ Number(n=112)*	Urination decreased/ discoloured urine	95	89.6%
	Thirsty or eagerly drinking	59	55.7%
	Dry mouth/ tongue	40	37.7%
	Shrunken eye	19	17.9%
Danger signs of diarrhoea^ Number (n= 76)#	Becomes sicker/ unconscious	37	48.7%
	Not able to drink/ breast feed	26	34.2%
	Blood in stool	23	30.2%
	Develop fever	17	22.3%
	Drink poorly	16	21.0%

*-112 out 240 caregivers had the knowledge of at least one sign of dehydration

#- 76 out 240 caregivers had the knowledge of at least one of danger signs

^- multiple response percentage

TABLE 3 FEEDING PRACTICES BY CAREGIVERS DURING DIARRHOEA IN CHILD (N=240)

Feeding Practices		Numbers	Percentage
Frequency of breast feeding during diarrhoea	Increase	21	8.75%
	Continue as usual	32	13.3%
	Decrease	171	71.25%
	Stop	16	6.7%
Frequency of feeding during diarrhoea	Increase	19	7.9%
	Continue as usual	31	12.9%
	Decrease	170	70.8%
	Stop	20	8.8%

TABLE 4 FLUID MANAGEMENT PRACTICES IN CHILD WITH DIARRHOEA

Fluid Management Practices		Numbers	Percentage
Oral Rehydration Salt (ORS) Solution to be given(n=240)	Yes	111	46.25%
	no	129	57.0%
Knowledge of proper preparation of ORS (n=111)	Whole packet in 1 litre of water (Govt. supply)	22	20%
	Small sachet in a 200ml glass supplied with (commercial preparation)	44	40%
	Improper preparation	45	40%
Salt Sugar Solution (SSS) to be given (n=240)	Yes	133	55.4%
	No	107	44.6%
Knowledge of proper preparation of SSS (n=133)	Proper method (as per IMNCI)	7	5.23%
	Improper method	126	94.7%
Extra fluid to be given during diarrhoea (n=240)	Yes	152	63%
	No	88	37%
When to give extra fluid (n=152)	After every diarrhoea episode	25	16.4%
	Only when child wants to drink	127	83.6%
Knowledge of Home Available Fluid (HAF) mother can give (n=152)	Plain Water	95	62.5%
	Rice Water	13	8.5%
	Dal water	43	28.3%
	Soup	01	1.7%