International Journal of Community Medicine and Public Health
Asif M et al. Int J Community Med Public Health. 2019 Aug;6(8):3477-3482
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20193475

Original Research Article

Prevalence of diarrhoea and child care practices among under-five children in tea gardens of Jorhat district, Assam

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Received: 22 May 2019
Accepted: 09 July 2019

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ABSTRACT

Background: Globally diarrhoea remains the second leading cause of mortality among children of below five years age. Objective was to find out the prevalence of diarrhoea and child care practices associated with diarrhoea in under five children of tea garden workers of Jorhat district, Assam.
Methods: A community based cross sectional study was conducted among the under five children of selected tea gardens of Jorhat district of Assam, India from July 2017 to June 2018.
Results: Prevalence of diarrhoea among the study participants in last 2 weeks was found to be 26.4%. Out of 315 study participants, 24.1% belonged to the age group of 12-24 months, 55.2% were males. Exclusive breast feeding was recorded in 95.9% of the children. Prevalence of diarrhoea was less among exclusively breast fed children 25.5% as compared to not exclusively breastfed 46.1%. Health advice during diarrhea was sought by 97.8% of the respondents. Available records showed almost all of the children 99.3% got vaccinated with measles vaccine and contrary to this majority 64.4% study participants had not received Rota virus vaccination.
Conclusions: Diarrhoea is still a significant public health problem among fewer than five children of tea garden workers with low Rota virus vaccine coverage. Our study findings recommends for the awareness building among the tea garden dwellers in regard to hand hygiene, timely initiation of complementary feeding, importance of vaccinating children with Rota virus vaccine as a part of containment programme.

Keywords: Under five children, Diarrhoea, Tea gardens workers, Child care practices

INTRODUCTION

Diarrhoea is a leading cause of morbidity and mortality in children under the age of five in developing countries. Nearly 1.5 million children died each year due to diarrhea globally. Among the leading causes of death of children of under five age worldwide diarrhoea remains the second. It kills more young children than AIDS, malaria and measles combined.[1] Children in the Sub Saharan Africa and Southeast Asia suffer from diarrhea approximately 2.9 episodes per child per year. Around 1.2 lakhs children die due to diarrhoea annually in India.[2] Diarrhoea is defined as having 3 or more loose or liquid stools per day or more frequent passage than is normal for the individual.[2] The period below five years among the children is the most crucial period and if any infection occurs during this period, would affect adversely the growth and development of child. Children can be protected against infections, prevented from getting diarrhea and treated for diarrhea with exclusive breast feeding, appropriate complementary feeding, Vitamin A supplementation, ORS, zinc, continued feeding during episodes of diarrhoea, use of safe drinking water, hand-washing, and proper sanitation.[3]

Much attention has been given over the last couple of decades to acute diarrhoea and its management by home available fluids (HAF) and oral rehydration salt (ORS) solution which has made a significant contribution in averting deaths among children under five years of age.[4]

The tea garden population is a special entity of Assam and the tea tribes children are more vulnerable to diarrhoeal episodes due to poor hygiene in low socioeconomic set up, lack of awareness about healthy feeding practices, poor access to safe drinking water as well as lack of standard health care services etc. A study of their child care practices with reference to diarrhoea to identify the gaps in the practices would be crucial. Therefore the present study was undertaken with an objective to find out the prevalence of diarrhoea and the child care practices associated with diarrhoea in under five children in tea gardens of Jorhat district, Assam.

METHODS

The present study is a community based cross sectional study conducted among the under five children of selected tea gardens of Jorhat district from July 2017 to June 2018. According to a study in tea garden of Darjeeling, West Bengal, the prevalence of diarrhoea among under 5 children was found to be 26%.[5] So taking prevalence 26% and with 5% allowable error the sample size calculated to be 296 rounding of 300. Assuming 5% non-response sample size was calculated to be equal to (300+15) 315.

A multi-stage random sampling was used in the study to select the required number of samples from the study universe. In the first stage out of the seven Block PHC of Jorhat district, three Block PHCs was selected by Simple Random Sampling (SRS). The Block PHCs selected were Titabor, Kakojan and Baghchung.

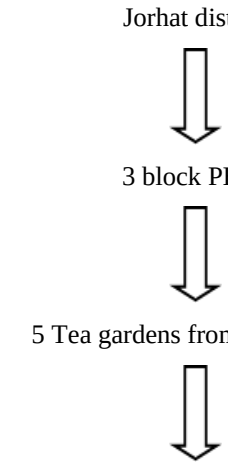

Figure 1: Multistage random sampling.

In the second stage, in each of the selected block PHCs, the lists of tea gardens were obtained and five tea gardens were selected by Simple Random Sampling. In the third stage, in each of the selected tea gardens, the list of the households was obtained from the records of the ASHA. Then twenty one households were selected by systematic random sampling technique. The first household was selected randomly. Subsequently every 5th household was visited till the twenty one household were completed. In the selected household it was inquired if there was any under-five child. If no under five-child was found in that household then the adjacent household was visited. A total of 315 under-five children were thus obtained from the fifteen selected tea gardens.

The under-five child in the selected household was visited and the pre-designed pre-tested semi-structured interview schedule administered after taking understood written consent. Interview was conducted with the mother. In the absence of the mother, the father or any other caregiver who takes care of the child was interviewed. If any selected study participant or his/her caregiver was found absent on the day of data collection, the household was revisited up to a total of three visits. If the study participant was found absent even after three visits, he was counted as non-response.

The data obtained from the study was tabulated in MS excel 2007 and result obtained was presented in the form of tables and figures. The data was calculated as proportions. Statistical analysis was done using SPSS 20. Standard statistical test Chi square test was used to measure the association between variables. Statistical significance was done at 95% confidence interval i.e., $p<0.05$.

RESULTS

Socio demographic characteristics

Out of all study participants 24.1% belonged to 12-24 months age group, 55.2% of the study subjects were males while 44.8% were females, 96.8% were Hindu by religion, 58.7% were of 1st birth order, 54.6% mothers of study subjects were illiterate, 64.4% mothers were unemployed, 62.2% belonged to nuclear families and 51.7% were from lower middle class (class IV) (Table 1).

Prevalence of diarrhoea

In the present study the prevalence of Diarrhoea among the study participants in last 2 weeks was 26.4% (Figure 2).

Child care practices

Of the total 315 study participants, 95.9% were exclusively breastfed. In 82% of the study subjects, complementary feeding was started between 6-8 months. Among the caregivers 94.3% used ORS provided by ASHA for management of diarrhoea at home and were given extra home available fluid during their diarrhoeal episode (98.1%).

It was found that 97.8% of the respondents took health advice. As per the records available most of the children (99.3%) got vaccinated with measles vaccine. However, 64.4% study subjects had not received Rota virus

vaccination. In our observation majority (99.1%) of the study subjects were either fully immunized or immunized till date (Table 2).

Table 1: Socio-demographic characteristics (n=315).

Variables		Frequency	%
Age of child in months	0-6	16	5.08
	6-12	43	13.65
	12-24	76	24.13
	24-36	59	18.73
	36-48	52	16.51
	48-60	69	21.90
Sex of child	Male	174	55.24
	Female	141	44.76
Religion	Hindu	305	96.83
	Muslim	9	2.86
	Christian	1	0.32
	Others	0	0.00
Birth order	1st	185	58.73
	2nd	103	32.70
	3rd	25	7.94
	4th and above	2	0.64
Literacy status	Illiterate	172	54.60
	Primary	47	14.92
	Secondary	81	25.71
	College and above	15	4.76
Occupation	Permanent Worker	38	12.06
	Temporary Worker	74	23.49
	Unemployed	203	64.44
Type of Family	Nuclear	196	62.22
	Joint	119	37.78
Social class	I	1	0.32
	II	6	1.90
	III	43	13.65
	IV	163	51.75
	V	102	32.38

Association between child care practices and diarrhoea

Diarrhoea was found to be much less amongst those children who were exclusively breastfed (25.5%) in comparison to those who were not exclusively breastfed (46.1%) (Chi square=1.779, p=0.1822). Conversely diarrhoea was found to be more prevalent (41.7%) in subjects who were started on complementary feeding at less than 6 months of age (Chi square=3.284, p=0.1936). There was significant association between health advice taken and diarrhoea of under five children (p<0.05). It was demonstrated that 77.43% who took health advice from doctor had no diarrhoea, while who took advice from pharmacist (56.25%) and 31.7% who took advice from ASHA or ANM had diarrhoea (p<0.05).

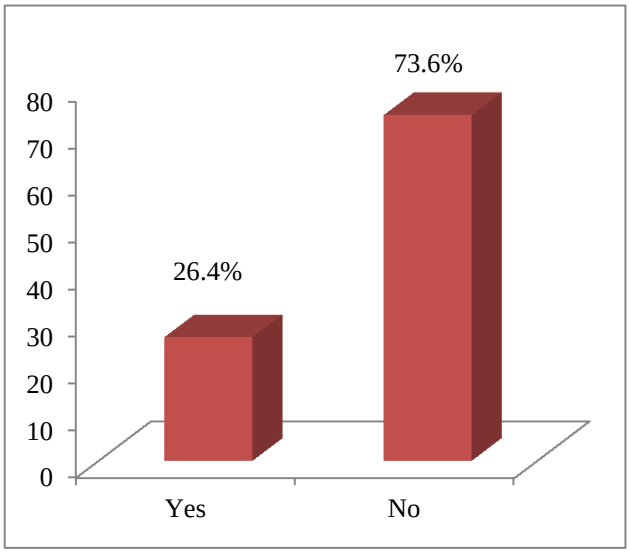

Figure 2: Prevalence of diarrhoea in last 2 weeks among the study participants.

It was observed that all the study participants (100%) of those who were not vaccinated for measles and 31.8% and of those not vaccinated for Rotavirus were found to have diarrhea (Chi square=2.610, p=0.1062 and Chi square=3.731, p=0.0534). Diarrhoea was more prevalent in the study subjects who were not fully immunized (66.7%), as compared to those fully immunized or immunized till date (26%) (Chi square=0.8730, p=0.3501) (Table 3).

Table 2: Child care practices.

Variables		Frequency	Percentage (%)
Exclusive Breastfeeding	Yes / Yes till date	302	95.87
	No	13	4.13
Age of initiation of complementary feeding in months	<6	12	4.04
	6-8	243	81.82
	>8	42	14.14
Treatment at home	ORS	297	94.28
	Breastfeeding	8	2.54
	HAF	8	2.54
	None	2	0.63
Liquid given	Yes	309	98.09
	No	6	1.90

Continued.

Variables		Frequency	Percentage (%)
Type of liquid	ORS	297	96.11
	HAF	3	0.97
	Breastfeeding	4	1.29
	Salt and sugar sol	5	1.62
Feeding during diarrhoea	Breastfeeding only	63	20
	Both	193	61.27
	Food only	59	18.73
Health advice taken	Yes	308	97.78
	No	7	2.22
Measles vaccination(Children below nine month were excluded)	Yes	293	99.3
	No	2	0.7
Rota virus Vaccination(Children upto one year taken)	Yes	47	45.6
	No	88	64.4
Status of Immunization	Fully immunized/immunized till date	312	99.05
	Not fully Immunized	3	0.95

Table 3: Association between child care practices and diarrhoea.

Variables		Had Diarrhoea		No Diarrhoea		Total	P-value
		Frequency	Percentage	Frequency	Percentage		
Exclusive Breastfeeding	Yes / Yes till date	77	25.50	225	74.50	302	0.1822
	No	6	46.15	7	53.85	13	
Age of initiation of complementary feeding	<6 month	5	41.67	7	58.33	12	0.1936
	6-8 month	58	23.87	185	76.13	243	
	>8 month	14	33.33	28	66.67	42	
Feeding during Diarrhoea	Breastfeeding only	13	20.63	50	79.37	63	0.4619
	Both	55	28.50	138	71.50	193	
	Food only	15	25.42	44	74.58	59	
Health advice taken	Yes	78	25.32	230	74.68	308	<0.05
	No	5	71.43	2	28.57	7	
Health advice taken from whom	Doctor	51	22.57	175	77.43	226	<0.05
	Pharmacist	9	56.25	7	43.75	16	
	Both	5	19.23	21	80.77	26	
	ASHA/ANM	13	31.71	28	68.29	41	
	None	5	83.33	1	16.67	6	
Measles vaccination	Yes	73	24.91	220	75.09	293	0.1062
	No	2	100.00	0	0.00	2	
Rota virus Vaccination	Yes	7	14.9	40	85.1	55	0.0534
	No	28	31.8	60	68.2	260	
Status of Immunization	Fully immunized / Immunized till date	81	25.96	231	74.04	312	0.3501
	Not fully immunized	2	66.67	1	33.33	3	

DISCUSSION

The prevalence of Diarrhoea in the last 2 weeks was found 26.4% in our study. Almost similar findings were observed by Borah et al (26.2%) in slums of Dibrugarh, Assam.[6] Our finding is also comparable with earlier findings that have been reported by Ahmed in Kashmir (25.2%), Tambe in Tiko city, Africa (23.8%), Mengistie

(22.5%), Gedefaw at northwest Ethiopia (21.6%), Siziya et al in Iraq (21.3%).[7-11]

Conversely, a study carried out by Kalakheti in the slums of Tansen, Nepal found diarrhoea prevalence to be as high as 40%.[12] Higher rates of prevalence have also been observed by Berhe (35.6%), Shikur et al at Northern Ethiopia (30.5%). A lower prevalence has been reported in studies by Tamiso Alemo at Southern Ethiopia (19.6%), Dessalegn et al (18.0%), a cross-sectional study in Pakistan (16%), Basa at urban slums of Delhi (14.8%), Ishore, (11%) and Samya et al at Tiruvallur district, Tamil Nadu (7.6%).[13-19] Such variations may be explained by the varied living micro and macro environment, educational status, accessibility of cost effective health care services to the study subjects and the design of study adopted including sample size, etc.

The high prevalence of diarrhoea (26.4%) in our study may be due to factors like low socioeconomic status, poor literacy rate, insanitary excreta disposal of children and unhygienic latrines, poor garbage disposal, poor hand washing practices and mostly lack of health awareness among tea garden people. It further makes worse the load of diarrhoea due to lack of adequate and standard hygiene and sanitation practices among the tea plantation community.

Most of the study subjects (24.1%) belonged to the age group of 12-24 months while 21.9% were of 48-60 months age group. Majority of the study subjects 55.2% were males. Similar results have also been reported by Ahmed et al in Kashmir.[7] Most of the study subjects were of 1st birth order (58.7%). In most case the mother was illiterate (54.6%) and unemployed (64.4%). 62.2% of the study subjects belonged to nuclear families, lower middle socioeconomic class (51.7%). Similar findings have been reported by Basa S in his study at urban slums of Delhi, with 44.8% subjects belonged to socio-economic class IV followed by class V.[17] According to Gupta et al, 74.75% children belonged to either middle or higher middle class (Modified B. G. Prasad socio-economic scale).[20]

In our study 95.9% of the children were exclusively breastfed and diarrhoea was lesser amongst them (25.5%), as compared to those who were not exclusively breastfed (46.1%). Most of the study subjects were started on complementary feeding between 6-8 months age (81%); however, diarrhoea was more prevalent in those who were started on complementary feeding in less than 6 months of age (41.7%). Early initiation of complementary feeding exposes the immature gut of the child to various stresses such as introduction of contaminated food materials, inadequate nutrition, and thus predisposes the child to diarrhoeal diseases.

In our study majority (94.3%) of the caregivers were found to have used ORS for treatment of diarrhoea at home. Conversely Basa S in his study at urban slums of Delhi found that breastfeeding was stopped in 43.6% cases and (60.2%) cases were given Oral Rehydration Solution (ORS) during diarrhoea followed by lemon sherbet(14.6%), sugar salt solution(10.7%), fruit juice (6.8%), lassi (3.9%) and plain water (2.9%).[17] The practice of use of ORS amongst the study subjects of our study may be explained due to the distribution of ORS under the Intensified Diarrhoea Control Fortnight drive by the ASHAs and ANMs, and most of them gave home available fluid when diarrhoea occurred.

The study demonstrated that majority 97.8% of respondents took health advice when diarrhoea occurred to their children and 73.4% took health advice from doctors. Borah et al observed among slum dwellers that 46.8% sought health advice whenever their children had diarrhoea.[6] In contrast to our findings Tambe et al, found that more than half of the cases had not sought healthcare treatment.[8] Upadhyay et al reported that the most preferred first point for care seeking was the private health care practitioners/facility (46.7%) followed by government health facility (23.3%).[21]

Measles vaccine was given to 99.3% subjects in whom diarrhoea was lesser (24.9%) as compared to diarrhoea being present in all those who had not taken measles vaccination. It may be because of post measles diarrhoea not occurring among vaccinated children.

Out of the total study subjects 99.1% were fully immunized or immunized till date. It was revealed that diarrhoea was more prevalent in those who were not fully immunized (66.7%), as compared to those fully immunized or immunized till date 26%. This may be because they were not aware about the immunization services or it indirectly reflects that immunization programme hasn't reached to the tea tribe community, which in turn deprived their children in boosting immunity

CONCLUSION

The first few years of life are the most critical period of growth and development, and any adverse influence during this period may result in serious consequences in growth and development. According to the present study the prevalence of diarrhoea amongst the tea garden community was 26.4%, which is much higher than the state average of 2.9% as found in NFHS-4. With high morbidity and mortality prevailing among children of the tea garden community, the government needs to focus on comprehensive diarrhoeal disease control strategy, improved case management and research in the field of cost effective interventions. The study highlighted that the occurrence of diarrhoea was found to be higher among children who had not been exclusive breast-fed, had parents with poor educational status, lived in overcrowded joint families and belonged to lower socio economic class. To minimize the prevalence of childhood diarrhoea, there is a need to improve the awareness

among the tea garden dwellers regarding breastfeeding, complementary feeding, personal hygiene, sanitary disposal of excreta, immunization against measles and Rota virus vaccination. A collaborative approach from Ministry of Health and Family Welfare with Ministry of Women and Child development and Tea Board of India for better availability and accessibility of health care services will certainly bring some silver line to this socially marginalized tea garden community.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee of Jorhat Medical College, Jorhat

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Cite this article as: Asif M, Das BR, Baruah A. Prevalence of diarrhoea and child care practices among under-five children in tea gardens of Jorhat district, Assam Int J Community Med Public Health 2019;6:3477-82.