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The Prevalence and Associated Factors of Early Health Seeking Behavior for Childhood Acute Diarrheal Illnesses in Gondar Town, Northwest Ethiopia, 2016

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Abstract

Background: Early health seeking behavior is important in reducing the morbidity and mortality caused by acute diarrheal illnesses among under-five children. But children who get acute diarrhea and seek no early health care the different determinants are exposed to the leading causes of increased under-five mortality in developing countries, including Ethiopia. The purpose of this study was to assess the prevalence and associated factors of early health seeking behavior for childhood acute diarrheal illnesses in Gondar town, northwest Ethiopia.

Method: An institution-based cross-sectional study was conducted on 367 mothers/caretakers at Gondar town government health centers from March 25 to May 8, 2016. Descriptive statistics, bi-variable and multivariable regression analyses were performed. P-values less than 0.05 and 95% Confidence Interval (CI) were used to determine the association between independent and dependent variables.

Results: A total of 367 participants were enrolled, of whom only 4 (1.1%) failed to respond. The majority of the respondents, 338 (93.1%), were mothers. The prevalence of early health seeking behavior was 22.6% with (95% CI: 18.5-27.3). Perceived need factors, such as clinical conditions of symptoms, mild Adjusted Odds Ratio [AOR=2.62; 95% CI: (1.02-6.70)], health system factors of previous service use of less than one hour [AOR=2.15; 95% CI: (1.13-4.10)], and enabling factors, like giving Oral Rehydration Solution (ORS)/and breast feeding [AOR=0.38; 95% CI: (0.19-0.78)] were statistically associated with EHSB.

Conclusion: The prevalence of early health seeking behavior for childhood acute diarrheal illness in this study was low compared to the national 2011 EDHS reports. Perceived mild illness status, previous waiting time for health service, and giving ORS / breastfeeding were factors significantly associated with early health seeking behavior. Supporting mothers/caretakers who arrive early at health institutions having perceived mild conditions of children's diarrheal illness, increasing the motivation of health providers to serve efficiently and quickly are essential. We strongly recommended that mothers/caretakers who give ORS/ and breast feed at home during diarrheal illness and seek institutional care be encouraged by providing lessons on the local media.

Key words

Mothers/caretakers, early health seeking behavior, under-five children, acute diarrheal illness, Gondar town, Ethiopia

Background

Early health seeking behavior (EHSB) includes the activities of mothers/caretakers during childhood diarrheal illnesses. It is important to take immediate and accurate measures against childhood diarrheal illnesses. The roles of mothers/care takers are essential in early health seeking behavior since the majority of childhood illnesses and deaths relate to low level of mothers/care takers responses [1-3].

Diarrhea is the second major cause of childhood mortality all over the world. Globally, 760,000 and in African regions 500,000 children die every year due to diarrheal illness without ever reaching health facilities owing to mothers/care taker slack of early health seeking behavior [4-7].

Although Ethiopia has already achieved the Millennium Development Goal (MDG4), under-five mortality rates due to diarrheal illness has been 13%, however, early care seeking interventions have the potential to reduce such mortalities [2,8,9].

The perception of mothers/caretakers with regard to EHSB is important in providing

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Oral Rehydration Therapy (ORT) and nutritional support to prevent dehydration, electrolyte imbalance and hypoglycemia which causes death [10,11]. Increasing the recognition of mothers/caretakers' and using resources for health services can reduce diarrheal disease mortality. But mothers/caretakers' inability to identify the early signs of dehydration and loss of excessive volume of fluid through prolonged diarrheal illness increases the probability of child death [12,13]. Different studies showed that the determinant factors for mothers/caretakers' EHSB for childhood diarrheal illnesses were cultures, beliefs, socio-demographic distinctions, women's autonomy, economic conditions, physical and financial accessibility, disease pattern, and health service issues [14]. Reports of the World Health Organization (WHO) and others indicator that appropriate health seeking behavior and proper care reduce child death and childhood illness by 20% [15]. But the prevalence of EHSB of mothers /care takers 'in different localities of Ethiopia was not well-understood. And achieving the Sustainable Development Goals (SDG) by reducing under-five mortality by 2030 calls for evidence-based interventions [16]. Identifying the prevalence and associated factors of EHSB is very important for the implementation of child health intervention programs, general assessment of resource requirements, and intervention prioritization. Therefore, this study assessed the prevalence and associated factors of early health seeking behavior for childhood acute diarrheal illnesses in Gondar town, northwest Ethiopia.

Methods

An institution-based cross-sectional study was conducted at Gondar town health centers of the Amhara Regional State, North West Ethiopia. Gondar town is located 738 km from Addis Ababa, the capital of Ethiopia. Administratively, the town has two districts, 12 sub-cities, and 21 kibbles (smallest administrative units). The overall climatic condition of the town is favorable. According to the Central Statistical Agency(CAS) of Ethiopia, the total population of the town was 333,432, 173,206 women, 160,226 men, and 45,146 under five children [17].

Study population and inclusion criteria

All mothers /care takers with under-five children living in Gondar town were the source population of the study. Mothers/ care takers with under- five children with complaints of acute diarrhea illnesses at all health centers were included in the study. Mothers/ care takers who needed urgent referrals/and had mental problems were excluded.

Sampling size and sampling procedure

Sample size was determined by using the single population proportion formula:

$$n = \frac{z^2 \cdot p \cdot (1-p)}{D^2}$$

The following assumptions were considered: "N" was the required sample size's" was a standard score corresponding to 95% confidence level; "D" was marginal error of 5%; "P" =32 %, the proportion of mother's EHSB for acute diarrhea was taken from the Ethiopian Demographic and Health Survey of 2011 (EDHS)[8].

$n = \frac{z^2 \cdot p \cdot (1-p)}{D^2} = \frac{(1.96)^2 \cdot 0.32 \cdot 0.68}{(0.05)^2} = 334$, adding a 10% allowance for non-response was taken. $334 + 33 = n = 367$ which was the final sample size; 367 mothers/care takers with under- five children with acute diarrhea were taken as a sample in all health centers. The systematic sampling technique was employed to select mothers/caretakers from each health center. The first mother/ caretaker after the fourth interval was selected by the systematic sampling method. Interviews were made with the first mother/ caretaker and continued with every fourth mother/care taker. But when the selected mothers/caretakers didn't fulfill the inclusion criteria, the next mother/caretaker was interviewed.

Variables

Dependent variable was early health seeking behaviors of mothers/care takers

Independent variables were socio demographic characteristics of mothers/ care takers and children. Perceived need factors, the severity and symptom types perceived by mother/care takers; such as mild, moderate and severe. The others are health service characteristics and enabling factors.

Data collection tool and procedure

A pre- tested semi-structured questionnaire was used to interview the mothers/care takers. The questionnaire was constructed after an intensive review of literature from India's urban slums of Kolkata and WHO guide-lines of diarrhea [18,19] for the purpose of assessing prevalence and associated factors of EHSB of mothers/caretakers for childhood diarrheal illness. It included all relevant variables to meet the study objectives. Data were collected by eight diploma graduate nurses under the supervision of two B.Sc. degree graduate nurses. Two days' training was given to data collectors and supervisors. The collected data were checked daily for completeness and consistency by the principal investigator.

Operational definitions

Early health seeking behavior: Seeking care early/within 24 hours at health institutions [20].

Diarrhea: Passage of at least three liquid/ loose /watery stools within 24 hours as reported by mothers/caretakers

Acute diarrhea: Diarrhea lasting less than fourteen days.

Caretaker: The most responsible person providing care to a child.

Perceived severity: mothers/caretakers were asked about the current health status of children, that is, the magnitude of the child's illness in terms of severity, moderateness or mildness [21].

Licensed care providers: A practitioner with formal medical education and a degree from a recognized institution.

Modern care: care sought from qualified medical professionals in government health facilities and private hospitals/clinics.

Complimentary care: types of care such as purchasing medicines from pharmacies, using home remedies, and visiting traditional healers.

Unlicensed health care providers: included traditional healers or practitioners without any formal qualification.

Under-five Children: children from 0-59 months.

Data processing and analysis

Data were entered into Epic Info version 7 and transferred to SPSS version 20 for analysis. Descriptive statistics, such as frequencies and percentages were computed. Binary logistic regression was modeled; in the bi-variable analysis, independent variables for the multivariable analysis were selected at P-values of less than 0.2. Adjusted Odds Ratios (AOR) with 95% confidence intervals was estimated to assess the strengths of associations and P-values less than 0.05 was used to declare statistical significance in the multivariable analysis.

Results

A total of 367 participants were enrolled, of whom only 4 (1.1%) failed to respond. The majority of the respondents, 338 (93.1%), were mothers. The mean age of the mothers/ caretakers was 27.9 (SD $\pm$ 7.3) years. Less than 30%, 105 (28.9%), of the mothers/ caretakers completed secondary school; more than half, 204 (56.2%), of the mothers/ caretakers were housewives; 195 (53.7%) of the children were male; the median and inter-quartile age ranges (IQR) of the children were 19 and 21 months. The majority of the children, 313

(86.2%), lived in families with less than five members and 159 (43.8%) of the diarrheal cases occurred between 24-59 months of age (Table 1).

Nearly 45%, 162 (44.6%) of the mothers/caretakers earned monthly income of ETB601-2000. The majority of the respondents, 305(84%), were comfortable with the service fees. Of the cases, 144 (39.7%) were given fluid during their diarrheal illnesses (Table 2).

Most of the respondents, 325 (89.5%), said that the journey from home to health centers took less than an hour. Nearly 60%, 211 (58.9%), obtained services in separate under-five clinics and 100 (27%) were Rota virus vaccinated (Table 3). Of the respondents, 163 (44.9%), 165 (45.5%) and 35 (9.6%) perceived child illnesses as severe, moderate and mild, respectively; 244 (67.2%), 237 (65.3%), 171 (47.1%), and 118 (32.5%) were aware of symptoms, such as dehydration, vomiting, fever, lethargy, and inability to drink or breastfeed, respectively (Table 4). Of the participants, 80 (22.6%) reported to health facilities on the first day, while 45 (12.4%), 96 (26.4%), 42 (11.6%), 25 (6.9%) and 73 (20%) after two, three, four, five, and more than six days, respectively.

Reasons for not seeking health early (n=281)

Out of the participants who did not seek care early, 141 (50.3%) chose self-healing; 42 (14.9%) faced shortage of money; 37 (13.2%) used home treatment; 28 (9.9%) cared for no other children; 16 (5.7%) complained about long waiting time; 14 (4.9%) said clinic was far away, and 3 (1.1%) mentioned other reasons.

Previous care seeking places of mothers/care takers

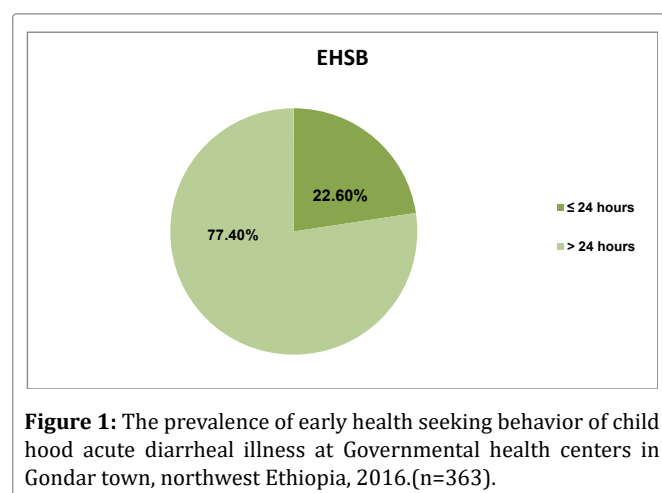
Two hundred twenty- nine (63.1%) sought no care; 134 (36.9%) went to in different places; 55 (12.5%) visited health centers; 38 (10.5%) used traditional healers; 14 (3.9%) visited pharmacies; 25 (6.9%) went to private clinics and 2 (0.6%) to hospitals.

The prevalence of early health seeking behaviors noted in this study was 22.6% (95% CI: 18.5-27.3) (Figure 1).

Associated factors of early health seeking behavior

During the bi-variable analysis, perceived current health status/illness severity, waiting time, fluid given (ORS/breast milk), and hearing about dehydration and signs of diarrhea were statistically associated with early health seeking behavior at P- values of <0.05. However, in the multivariable analysis, perceived current health status/illness severity, waiting time and fluid given (ORS/and breast milk) remained statistically associated with early health seeking behaviors.

Mothers /caretakers who perceived mild health status of children were 2.62 times more early health seekers than those who perceived severe symptoms [AOR=2.62; 95% CI: (1.02-6.70)]. Mothers / caretakers who waited for less than one hour during previous



Variables	Frequency	Percent (%)
Child sex		
Male	195	53.7
Female	168	46.3
Sex of Mother/care taker		
Female	348	95.9
Male	15	4.1
Childs age		
0-11 months	101	27.8
12-23 months	103	28.4
24-59 months	159	43.8
Age of mothers/ care taker		
≤ 19 years	24	6.6
20-29 years	216	59.5
30-39 years	101	27.8
≥ 40 years	22	6.1
Marital status of mothers/ care taker		
Married	309	85.1
Divorced	28	7.7
Live in separate place	15	4.1
Widowed	7	1.9
Single	4	1.2
Ethnicity		
Amahra	324	89.3
Tigre	36	9.9
Oromo	3	0.8
Religion		
Orthodox	291	80.1
Muslim	55	15.2
Protestant	17	4.7
Educational status of Mothers/care taker		
Unable to read & write	94	25.9
Able to read & write	22	6.1
Primary	86	23.7
Secondary	105	28.9
Diploma	48	13.2
Degree & above	8	2.2
Occupation of mother/Care taker		
House wife	204	56.2
Governmental employee	46	12.7
Self-work	57	15.7
Private employee	49	13.5
Student	4	1.1
Others	3	0.8
Husband education		
Unable to read & write	30	8.3
Able to read & write	32	8.8
Primary	70	19.3
Secondary	113	31.1
Diploma	53	14.6
Degree & above	27	7.4
Husband occupation		
Governmental employee	77	21.2
Self-work	131	36.1
Student	1	0.3
Private employee	76	20.9
Others	40	11
Relation with the child		
Mother	338	93.1
Grandmother/ Father	10	2.8
Father	14	3.9
Care taker	1	0.3
Family size		
<5	313	86.2
≥ 5	50	13.8
No of siblings u-5 child		
1	287	79.1
≥ 2	76	20.9

Table 1: Socio demographic characteristic of early health seeking behavior of childhood acute Ddarrheal illness at Governmental health centers in Gondar Town, Northwest Ethiopia, 2016 (N=363).

Variable	Frequency (n)	Percent (%)
Family income (ETB)		
<600	71	19.6
601-2000	162	44.6
>2000	130	35.8
Fairness of health services fee		
Yes	305	84
No	58	16
Fluid given		
ORS		
No	291	80.2
Yes	72	19.8
Breast milk		
No	219	60.3
Yes	144	39.7
Cow milk		
No	325	89.5
Yes	38	10.5
Fruit juice		
No	271	74.1
Yes	92	25.4
Gruel		
No	300	82.6
Yes	63	17.4
Water		
No	272	74.9
Yes	91	25.1
Food given		
Porridge		
No	314	86.5
Yes	49	13.5
Soup		
No	339	93.4
Yes	24	6.6
Rice		
No	287	79.1
Yes	76	20.9
Egg		
No	321	88.4
Yes	42	11.6

*ETB-Ethiopian birr

Table 2: Enabling factors of early health seeking behavior of child hood acute diarrheal illness at Governmental health centers in Gondar Town, Northwest Ethiopia, 2016 (N=363).

services were 2.15 times early health seekers than those who waited for greater than one hour [AOR=2.15; 95% CI: (1.13-4.10)]. Mothers/caretakers who gave ORS / breast milk were 62% less likely to be early health seekers than those who did not give ORS / breast milk [AOR=0.38; 95% CI: (0.19 - 0.78)] (Table 5).

Discussion

In this study, the prevalence of early health seeking behavior of childhood acute diarrheal illnesses was 22.6% (95% CI: 18.5-27.3), which is in line with those of studies done in Ethiopia [22], Nigeria [1], and Bangladesh [23]. The possible explanation may be that most mothers /caretakers in developing countries have no culture of using health services early due to low health awareness, and since diarrhea is related to the manipulation of teeth eruption and thought to be not a killer. This finding is comparatively high compared to those of studies done in Ethiopia [24], and Dhaka and Bangladesh [13]. This might be because mothers/caretakers have different health seeking practices, like going to traditional healers and going shopping for drugs. This finding is lower than those of studies conducted in the urban slums of Kolkata, India [18], Pakistan [25] and Niger [26]. This might be due to the development of health infrastructure, socio-demographic variations, cultural differences, and the extent of access to health information of mothers/caretakers who seek early health care. Our finding is also lower than those of studies conducted in Ethiopia [8,22,27]. These national studies used pooled data, large sample size, and included both urban and rural areas, while ours focused on urban settlements only. That is why the finding of the national study was higher than the result of this one.

Increased perceptions of mothers/caretakers about EHSB and decrease morbidities and mortalities of under- five children by promoting family health and national growth. In this study, mothers/ care takers of under-five children with acute diarrheal illnesses and waited for less than one hour for previous services, sought health 2.15 times earlier than those who waited for previous services for longer than one hour. This is supported by studies conducted in Nigeria [1] and South Africa [27]. Long waiting time for services can affect the perceptions of early health seeking behavior of mothers / caretakers and leads to delays and child health deteriorates to the extent of being unable to respond to any medical management.

In this study, the occurrence of early health seeking 2.62 times higher among mothers /caretakers who perceived children as having mild health status compared to mothers /care takers who perceived severe health status. This is supported by studies done in Kenya [28], Africa, Asia [29] and Dhaka, Bangladesh [13]. Mothers/caretakers who perceived diarrheal illness as mild clinical conditions of children on the first day were earlier health seekers than mothers/caretakers who took longer than 24 hours to notice problems. Such delays lead to the deterioration of conditions because diarrhea is frequent loose or watery bowel movement that alters the child's normal pattern to severe condition as the duration extends.

Variables	Frequency (n)	Percent (%)
Waiting time		
<30 minutes	158	43.5
30-60 minutes	148	40.8
>60 minutes	57	15.7
Time taken to health center		
<60 minutes	325	89.5
≥60 minutes	38	10.5
Availability of separated u-5 clinic		
Yes	211	58.1
No	152	41.9
Rota virus vaccination		
No	263	72.5
Yes	100	27.5

Illness at Governmental Health Centers in Gondar Town, northwest Ethiopia, 2016(N=363).

Table 3: Health system factors of early health seeking behavior of child hood acute diarrheal

Variables	Frequency (n)	Percent (%)
perception, child illness severity		
Moderate	165	45.5
Sever	163	44.9
Mild	35	9.6
Identification for the severity		
By combined symptoms of the DHS	200	55.1
Un able eat/ breast feed	83	22.7
The diarrhea continue for long time	80	22
Signs and Symptoms of Dehydration Vomiting		
Yes	244	67.2
No	119	32.8
Fever		
Yes	237	65.3
No	126	34.7
Un able to drink/Breast feed		
No	245	67.5
Yes	118	32.5
Leathery		
No	192	52.9
Yes	171	47.1
Irritability		
No	315	86.8
Yes	48	13.9
Dry mouth		
No	328	90.4
Yes	35	9.6
Sunken eye		
No	297	81.8
Yes	66	18.2
Decrease urine out put		
No	339	93.4
Yes	24	6.6
Thirsty		
No	309	85.1
Yes	54	14.9
Blood in the stool		
No	315	86.8
Yes	48	13.2

Table 4: The severity and symptom type perceive by mother/care takers of early health seeking behavior of child hood acute diarrheal illness at governmental health centers in Gondar town, northwest Ethiopia, 2016 (n=363).

In this study, mothers/caretakers who gave ORS/and breastfed at home were 62% less likely to be early health seekers than those who did not give. This is in line with the result of studies done in Kenya [28] and Pakistan [25]. The possible explanation is that providing home antibiotics and fluids decreases mothers/caretakers early health care seeking outside the home. This is because mothers/caretakers think that breastfed children are well and can recover at home by taking only ORS without further assessments by health providers.

Limitation

This study was not triangulated, and the paucity of similar literature on early care seeking behaviors of mothers/care takers relating to childhood diarrheal illness has limited the discussion.

Conclusion and Recommendations

Overall, early health seeking behaviors of mothers/caregivers of under-five children with acute diarrhea was low (22.6%) compared to the national EDHS 2011 report. Perceived mild illness status, previous waiting time and giving ORS/and breastfeeding were factors significantly associated with EHSB. Encouraging mothers/caretakers to go to health institution on the first day of illness or when conditions of children are mild and increasing the motivation of health providers to give health services efficiently and quickly to alleviate the problem are suggested. Encouraging mothers/caretakers who give ORS/ and breastfeed at home during diarrheal illness to seek institutional health care and providing information on the media to enhance early health seeking behavior are strongly recommended.

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