



Mother's perception and treatment seeking behaviour for childhood diarrhea in Dendi district, west Shoa, Ethiopia

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ABSTRACT

Background: Diarrhea is a major cause of childhood morbidity and mortality in Ethiopia. Thus, current level of perception and treatment seeking behaviour need to be considered to design the corresponding best possible interventions.

Objective: To assess mothers' perception and treatment seeking behaviors for childhood diarrhea.

Methods: A cross-sectional study was carried out on 845 mothers who had under-five children drawn by multi-stage sampling in Dendi district to collect information on their treatment seeking behaviours. Focus group discussions were held to explore mothers' perception.

Result: Mothers perceived childhood diarrhea could result from traditional and biomedical causes. Treatments varied according to their perceived causes. The two week period prevalence of diarrhea among children was 22.1%. Home treatment was sought by 73.2% of the respondents while 55.3% and 69.3% sought help from traditional and health facilities respectively. Only 4.3% of them didn't seek treatment. Educational status and child's age had significant association with seeking traditional and health facilities treatment respectively (p value <0.05).

Conclusion: Seeking treatment from health facilities was common after home and traditional treatments failed and the disease got severe. Therefore, interventions need to focus on the importance of prompt treatment, proper home treatment and discourage reliance on harmful traditional treatments.

Key words: Mothers/caregivers, childhood diarrhea, perception, treatment seeking behaviour

INTRODUCTION

Diarrhoea is responsible for about 1.5 million under-five children deaths per year globally.¹ In Ethiopia, 14% of under-five mortality is due to diarrhea.² In 2009, it contributed to 73,700 total number of annual child deaths.¹

Diarrheal disease in children are caused by microbial agents which are usually transmitted through food and water contaminated with human feces.³ However, in many developing countries the perceived cause of diarrhea by mothers is associated with cultural and spiritual reasons. For instance, childhood diarrhea is associated with teething and evil eyes in South Western part of Ethiopia.⁴

Appropriate treatment seeking has a great potential to reduce the occurrence of severe and life-threatening child illnesses.⁵ Home-based practices, traditional treatments, and Western-style medicine are used by mothers to manage diarrheal episodes.⁶ Through effective case management by mothers/caretakers at home and by health workers in facilities, the toll of diarrhea mortality can be substantially reduced.⁷ However, socio-demographic, economic and disease-related factors have been identified to influence treatment seeking for childhood diarrhea by mothers/caregivers.⁵

Many intervention programs that attempt to reduce childhood diarrhea fail because they are



culturally unsuitable and often developed without understanding the problem in the target community. For their successful achievement, understanding mothers'/caregivers' current perception and treatment seeking behaviours is pivotal. No previous studies concerning the title have been reported from Dendi district. Therefore, the study was conducted to fill this gap.

MATERIALS AND METHODS

Study design, population and area

A community based cross-sectional quantitative study triangulated with qualitative study was conducted on mothers/caretakers who had under-five child/children in Dendi district. Eligible numbers of under-five children were estimated around 34,429. Dendi district has a total of 53 kebeles (small administrative units): 49 rural and 4 urban kebeles. There are two health centres and 17 clinics owned by the government. Besides, six private clinics, four private pharmacies, and one NGO clinic are found. Electricity and piped water supply are available in 15 kebeles.

Sample size and sampling procedure

Prevalence for traditional treatment sought in Mana district 49.6%⁴, 95% confidence interval, margin error of 0.05, design effect of 2 and 10% non response rate were considered during calculation of sample size using a single population proportion formula.

Multi stage sampling technique was used. Eleven kebeles were included in the study by using lottery method. The four urban kebeles were excluded with the assumption that there could be difference between urban and rural mothers/caregivers regarding the title of the study. A total sample size of 845 of mothers/caregivers who have under five child/children were distributed to the kebeles based on proportionally to their population size. Sampling frame for each kebele was prepared. Households having the study population were selected randomly using table of random numbers.

A total of eleven focus group discussions (FGDs) were under taken, which were guided by the point of saturation. Purposive sampling method was used to choose on average 10 key informants for the FGDs.

Data collection

Qualitative data collection:- FGDs were conducted to explore mothers' perception regarding childhood diarrhea.

Quantitative data collection:- pre-tested, structured, interviewer administered questionnaire was used to collect information on respondents' socioeconomic and demographic data, treatment seeking behavior, and reasons for seeking the different treatment options.

Data analysis

The recorded discussions and notes from FGDs were transcribed and analyzed manually by content analysis.

Data from questionnaires were entered, cleaned and analyzed using SPSS 18. Simple and multiple logistic regressions were used to get the odds ratio, 95% confidence interval and p-value to detect statistical association. Only variables with p-value of less than 0.5 in the bivariate analysis were included in the multivariate analysis.

Ethical considerations

Clearance was obtained from Dendi district health bureau. Mothers were asked for written consent. Children who were found to be very sick during the visits were advised to consult health institutions.

RESULTS

Qualitative part

Mothers' perception about type and cause of childhood diarrhea

Gera kasa was used to denote diarrhea. Based on the perceived causes, signs in the stool and symptoms in the children, different types of diarrhea were mentioned by the mothers.

Berfeta: The type of diarrhea due to poor environmental sanitation and personal hygiene, bacteria, flies, contaminated water and food by stool of a sick child, eating raw food which a child's intestine doesn't digest unboiled milk was identified as *berfeta* by the mothers/caregivers.

Sere: *Sere* was a local term for incisor and premolar teeth which were believed to sprout between the age of 6 and 36 months. The mothers considered *sere* as a "natural tooth". Mothers perceived eruption of incisor and premolar teeth would lead



to stomach upset and eventually to diarrhea. Moreover, it was believed to result in children's discomfort leading to stomach cramp, vomiting, loss of appetite, persistent cry, listlessness and diarrhea which consequently followed by weight loss.

Amarsa: *Amarsa* was a term used to denote a canine tooth which was believed to sprout between 3 and 6 months resulting in diarrhea. It was considered as "unnatural and dirty tooth which disappears later". Weakness, loss of weight, persistent cry, vomiting, high fever, sunken fontanelle and gasping were the symptoms observed in the child. It was believed to be the most severe type of diarrhea. Eating raw onion during pregnancy was perceived to cause *amarsa* in the child.

Bu'a. *Bu'a* was a type of diarrhea believed to happen when a child falls down. This condition was believed to cause upset around stomach and small intestine which eventually leads to diarrhea. Failure to stand up, persistent cry, fever, difficulty of opening the eye lid, stomach cramp, vomiting, loss of appetite, thirst, sunken fontanelle, loss of weight were some of the symptoms observed in the child.

Mothers' perception about transmission of childhood diarrhea

Depending on the cause, the perceived mode of transmission was assumed to vary. Some mothers mentioned *berfeta* could pass from one child to another through contaminated food or water by flies. Unclean water and food, unclean utensils, polluted environment, lack of personal hygiene were also identified as possible means of transmission for *berfeta*. In addition, one mother stated:

"Diarrhea is transmitted from one child to another through sweat, breath, smell since children in the same family sleep in one place."

Diarrhea due to *bu'a*, *amarsa* and *sere* were believed to be not transmittable. *Amarsa* was believed to be inherited. One mother elaborated this by saying:

"For instance, if amarsa appears in my elder child, it will also appear on the younger child."

Mothers' perception about treatments of childhood diarrhea

Both traditional and modern medicines were used

as a means of treatment though they varied according to the type of diarrhea. Local herbal medicines such as "*harma gusa*", "*sira-bizu*", "*arita ferengi*" were mentioned as the most important in treating childhood diarrhea. The herbals would be squeezed, and the extract would be given for the sick child to drink. Moreover, one mother said:

"Local herb called sira-bizu is tied on the navel of a child, then the diarrhea stops. We make sure the tied herb doesn't get wet by water."

Another common home treatments identified by the mothers were provision of mixture of grinded coffee with honey; milk boiled together with herbs such as *tenadam*, *arita ferengi*, and garlic; gruel made of cereals especially barley, abish. Gruel made of abish and butter was also given for a sick child to drink as a treatment. In this case, the child would not be given any extra food or fluid except the gruel for that day.

There were different opinions regarding treatments for diarrhea due to *sere*. Some mothers stated *sere* was treated by rubbing heated garlic and local herb called *koseret* around a gum. By doing this, it was believed the pain and diarrhea would stop. On the other hand, according to a few mothers, *sere* needed no treatment. It was believed to resolve by its own after the tooth sprouts. In support of this idea, a mother stated her experience by saying:

"When my child got sere, I didn't give her any treatment. The diarrhea stopped by itself when the tooth came out of the gum."

Extraction of unerupted canine tooth by traditional healer was a common treatment for diarrhea due to *amarsa*. However, some discussants underlined that this kind of treatment had not been practiced anymore. Traditional healers were the ones who treated diarrhea due to *bu'a* by massaging the belly part of the sick child.

According to most of the discussants, they sought help from health facilities or health extension workers if home and traditional treatments failed. In most of the cases, traditional healers would refer to the health facilities if the condition was considered to be severe. A mother who was a traditional healer explained the idea by saying:

"If the diarrhea is due to bu'a, I give the baby a massage and heal. Besides if it is simple, I provide



local herbal treatments. However, if the condition is not due to bu'a or if it is severe, I tell them to take their baby to a health facility."

On the contrary, a few discussants mentioned they directly took their sick children to health facilities without considering traditional or home treatments. One of the discussants noted that:

"When my child gets diarrhea, I assume it is typhoid and typhus so I directly take him to a health facility."

Mothers' perception about prevention of childhood diarrhea

Keeping cleanliness of utensils, food hygiene, sanitation of the environment, personal hygiene, avoiding consumption of raw food and boiling milk

were among the main means of prevention mentioned. Preventing a child from falling down, giving food stuff that match with the age of a child and avoiding raw food provision were also the recommended methods of prevention according to the FGDs.

Quantitative part

Socioeconomic and demographic characteristics of respondents

Out of 845 caregivers interviewed, 805(95.3%) were mothers. The rest were grandmothers 29(3.4%), relatives 9(1.1%) and fathers 2(0.2%). The mean age of the mothers/caregivers was 30.5 (± 7.5) year and the mean age of children was 26.2 (± 14.5) months (Table 1).

Table 1. Socioeconomic and demographic characteristics of respondents (n=845)

| Characteristics | Frequency | % | |
|--------------------------------------|---------------------|-----|------|
| Educational status | Illiterate | 556 | 65.8 |
| | Formal education | 289 | 34.2 |
| Marital status | Married | 732 | 86.6 |
| | Single | 63 | 7.5 |
| | Divorced | 24 | 2.8 |
| | Widowed | 26 | 3.1 |
| Occupation | Farmer | 688 | 81.4 |
| | Merchant | 46 | 5.4 |
| | Government employee | 18 | 2.1 |
| | Daily labourer | 15 | 1.8 |
| | Housewife | 74 | 8.8 |
| | Student | 4 | 0.5 |
| Average monthly family income (birr) | ≤ 600 | 662 | 81.3 |
| | 601-900 | 142 | 16.8 |
| | > 900 | 41 | 4.9 |
| Access to massmedia | Radio | 650 | 76.9 |
| | Tv | 23 | 2.7 |
| | Newspaper | 38 | 4.5 |
| | Nothing | 195 | 23.1 |

Treatment seeking behavior

Out of 845 households surveyed, presence of diarrhea was reported in 187(22.1%) of the children during two weeks preceding the interview. Of these, 179(95.7%) of the mothers/caregivers sought treatment for their children. Only 8(4.3%) reported

they did nothing.

Treatments at home, traditional and modern health facilities were used interchangeably and in some cases simultaneously. Home was the most common place where first treatment was sought by 68(38%) of the caregivers while 44(24.8%), 42(23.5%) and 25 (14%) of them sought their first treatment from



traditional, health facility and health extension workers respectively.

Traditional treatment was the most preferred second treatment chosen by 49 (27.4%) mothers when treatment at first place failed. On the other hand, health facility and health extension workers were the second preferred place of treatment by 41(22.9%) and 13(7.9%) of the mothers respectively. Twenty nine (16.2%) of first treatment at home was followed by traditional treatment while 45(25.1%) traditional treatment was followed by visit at health facilities. Similarly, 29(16.2%) of first treatment at home was directly followed by

visit at health facility. On the other way, 14 (7.8%) of first visits at health facility were followed by traditional treatment. In most of the cases, home treatment was practiced side by side with traditional and health facility treatments. Moreover, 45 (25.1%) of the mothers sought help from all sites.

Majority 149(83.2%) of the first action of seeking treatment were taken within the first 2 to 3 days while 29(16.2%) took measures within the first 4 and 6 days. Only one mother sought help within the first 24 hours of symptom onset.

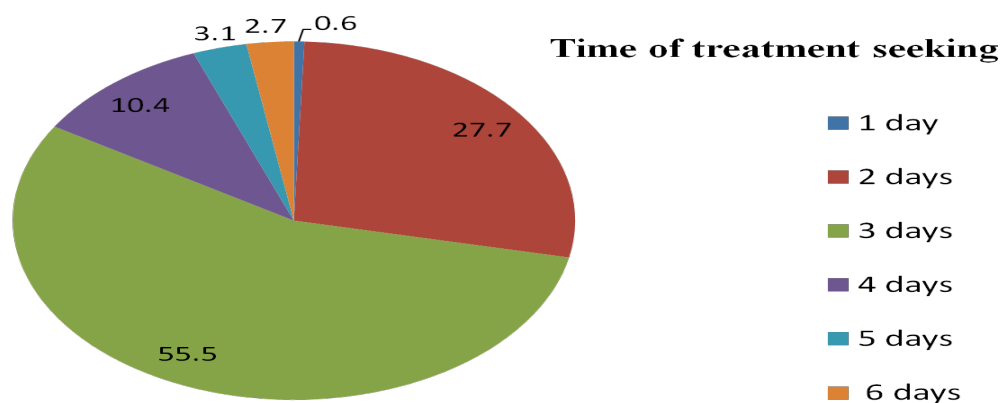


Figure 1. Duration after onset of illness for seeking help for childhood diarrhea by mothers/caregivers (n=179).

Relatively early treatment-seeking pattern was reported among those who sought traditional treatment and practiced home treatment. More delays were reported in seeking treatment from health facilities.

Home treatment

Out of 35 under 6 month infants included in the survey, only 9 infants were reported to have

diarrhea. Of those infants, only 3 of them were exclusively breast fed while 6 of them were not exclusively breast fed. Both fluid and solid food were given to them as supplementary food in addition to breast milk. However, all the mothers of the 9 infants did continue breast feeding their babies during the episode of diarrhea and also the frequency was increased.

**Table 2. Home treatment of childhood diarrhea by mothers/caregivers (n=176)**

| Home management | | Frequency | % |
|---|-------------------------------|-----------|------|
| Volume of fluid given during the episodes of diarrhea | Very less fluid | 17 | 9.7 |
| | Somewhat less fluid | 48 | 27.3 |
| | The same amount of fluid | 36 | 20.5 |
| | More fluid | 71 | 40.3 |
| | Don't know | 4 | 2.3 |
| Solid food given during the episodes of diarrhea | Very less | 12 | 6.8 |
| | Somewhat less | 64 | 36.4 |
| | No change in solid food given | 63 | 35.8 |
| | More solid food given | 34 | 19.3 |
| | No solid food given | 2 | 1.2 |
| | Don't know | 1 | 0.6 |

Out of 134 lactating mothers, 130 (97%) of them continued while only 4(3%) of them stopped breast feeding during the episodes of diarrhea. Of those who continued breast feeding, decreased frequency was reported by 70(52.2%) of the mothers. The remaining 46(34.3%) and 14(10.5%) of them reported increased and no change in frequency of breast feeding respectively.

Out of 100 mothers who used bottle feeding, 57(57%) of them stopped while 43(43%) of them continued bottle feeding during the episodes of diarrhea in their children.

Traditional treatment

Extracts of herbals were the most frequent traditional treatments used by 70(76.8%) of the mothers. The children were made drink the extracts. Besides, application of the extract on the body of the sick child was another method of dispensing traditional treatment. Tea made of local herbs such as "tenadam", "arita ferengi", "koseret" and garlic, and boiled milk with the local herbs and garlic were given for 59(59.6%) of the cases. Belly massage for causes believed to be due to accidental fall of the baby was given for 38(38.4%) of the cases. Only 2(2.1%) tooth extraction case was identified. Holy water provision was reported by only 1(1.05%) respondent.

Treatment at health facility

Among 142(79.3%) mothers/caregivers who sought modern treatment, 59(41.6%) of them visited health extension workers. Clinics, health posts and health center were preferred places of visit by 55(38.7%), 43(30.3%) and 23(16.2%) of the mothers respectively. Only one mother took her child to a hospital.

Of those who sought treatment at different levels, 129(72.1%) of them pointed out treatment from health facility as best remedy. On the other hand, 43(24.1%) and 7(3.9%) of them identified treatment at traditional and home level as best healer for their sick children respectively.

Factors associated in the selection of different treatment options

Both bivariate and multivariate analysis revealed the absence of significant associations between home treatment and socio-demographic, predisposing and enabling variables.

On the other hand, maternal education and perceived severity showed significant association with seeking traditional treatment. On multivariate analysis, for instance, illiterate mothers were about two and half times more likely to seek traditional treatments than those mothers with formal education (OR: 2.403, 95% CI: (1.209-4.778)), $p=0.012$ (Table 3).

**Table 3. Associations with seeking traditional treatments for childhood diarrhea**

| | Traditional treatment | | Crude OR (95% CI) | Adjusted OR (95% CI) |
|------------------------------------|-----------------------|----------|-----------------------|----------------------|
| | Yes | No | | |
| Maternal educational Status | | | | |
| Illiterate | 75(61.5) | 47(38.5) | 2.539(1.331-4.844)* | 2.403(1.209-4.778)** |
| Formal education | 22(38.6) | 35(61.4) | 1 | |
| Age of child (months) | | | | |
| 0-24 | 33(60) | 22(40) | 1 | |
| 25-59 | 64(51.6) | 60(48.4) | 0.711(0.373-1.354) | 0.611(0.325-1.148) |
| Perceived severity | | | | |
| Positive | 88(58.7) | 62(41.3) | 3.154(1.347-7.388)*** | 2.276(0.895-5.791) |
| Negative | 9(31) | 20(69) | 1 | |

*p=0.004, **p= 0.012 , ***p=0.006

In the bivariate analysis, maternal education, monthly family income and radio ownership showed significant association with seeking treatment from health facilities. In multivariate analysis, only age of a child showed association

with seeking treatment from health facility. Mothers were about four times more likely to seek treatment from health facility for children aged 0-24 months than those aged 25-59 months (OR: 3.985, 95% CI: (1.004-14.796)), p=0.049 (Table 4).

Table 4. Associations with seeking treatment from health facilities for childhood diarrhea

| | Treatment seeking at health facility | | Crude OR (95% CI) | Adjusted OR (95% CI) |
|-------------------------------------|--------------------------------------|----------|------------------------|------------------------|
| | Yes | No | | |
| Maternal educational status | | | | |
| Illiterate | 76(62.3) | 46(37.7) | 1 | |
| Formal education | 48(84.2) | 9(15.8) | 3.228(1.450-7.188)* | 1.409(0.311-6.377) |
| Monthly family income (birr) | | | | |
| ≤600 | 99(66) | 51(34) | 1 | |
| >600 | 25(86.2) | 4(13.8) | 3.220(1.063-9.752)** | 1.354(0.139-13.231) |
| Age of a child (months) | | | | |
| 0-24 | 41(74.5) | 14(25.5) | 1.447(0.709-2.951) | 3.985(1.004-14.796)*** |
| 25-59 | 83(70) | 41(30) | 1 | |
| Radio ownership | | | | |
| Own | 104(74.3) | 36(25.7) | 2.744(1.318-5.714)**** | 1.276(0.212-7.699) |
| Did not own | 20(51.3) | 19(48.7) | 1 | |

*P=0.004, **P=0.039, ***p=0.049, ****P=0.006

DISCUSSION

Similar to this study's findings, classification of childhood diarrhea based on perceived causes and signs and symptoms had been reported in studies carried out in Nicaragua⁸ Nigeria⁹ and Ethiopia⁴. Even if teething was the commonest perceived

cause, there were differences on types and causes with other studies. For instance, in Mana district, Southwest Ethiopia⁴ evil eye, breast-feeding child after he/she was hungry were among the perceived causes which hadn't been reported in this study. These may probably be due to differences in the



study population and also culture (living style).

A low percentage of mothers (4.3%) didn't seek help for their children when compared with the findings reported in Southwest Ethiopia where it was 9.6%.⁴ This may be due to the present improvement in awareness about the causes and treatments as well as the positive perceived severity that exist about childhood diarrhea. However, it is difficult to conclude that there is little awareness in other places of Ethiopia based on the previous studies since they don't reflect the recent status. Therefore, it is necessary to conduct further studies in other parts of the country as well.

Around 69.8% of the treatments were sought within the first 3 to 6 days. Delay in seeking treatment may be due to the belief that the illness may subside by itself through time. Besides it is perceived as serious problem in the later stage when the child fails to recover and this may be the time when treatment is sought. Generally delay in seeking help from health facilities had been observed. In addition to the above explanations, this may be due to mothers going through the different treatment options before going to the health facilities. They seek treatment at home level when the illness starts. If it doesn't stop, they seek traditional treatments. At last if the diarrhea continues, they go to health facilities. This could result in severe dehydration and malnutrition which may lead to increased infection and mortality.

Though most mothers highlighted that they used home treatment during the interview, the truth is that majority of them had wrong use. The local concepts concerning home treatment were linked with provision of less fluid and solid food.

Traditional treatments such as herbal extracts and belly massage are still being used. This may be attributed to the positive values that the community have for them. Therefore, it is necessary to carry out scientific investigation on these different traditional treatments that have been practiced for long time and determine their effectiveness in treating childhood diarrhea. They may add of important values for the modern medical sciences in terms of successful management of childhood diarrhea.

Mothers' belief about cause of childhood diarrhea and availability of traditional healers and herbal medicines close by were the dominant reasons for encouraging the use of traditional treatments in the community. If illness was believed to be due to accidental fall or teething, traditional treatments would become the most preferred options. The results showed that some mothers sought help at traditional level even after visiting health facilities. This could be due to impatience. There is an expectation that antibiotics or drugs given to solve the problem within short period of time. If no improvement is observed in that period, they tend to seek traditional treatment.

The main reason for visiting health facilities by mothers was due to the belief that the diarrhea got severe which was consistent with study in Guatemala.¹⁰ Enabling factors such as proximity of health care facility, transportation and income and predisposing factor such as the perception that it is not serious were among the bases not to seek treatment from health institutions, which corresponded with findings in Kenya¹¹ and Guatemala.¹⁰

Even though the number of mothers who didn't seek treatment was few, reasons such as availability of health facility, transportation and distance for not seeking treatment indicate the low level of health service coverage and basic infrastructure in the area. Therefore, upgrading those drawbacks could contribute for alleviating the problems of diarrhea management.

Educational status of the mothers/caregivers was found to be significant predictor for seeking treatment at traditional and health facility levels in contrast to the study in Southwest Ethiopia.⁴ Illiterate mothers were more likely to use traditional treatments compared to those with formal education which was similar with the finding in Sudan.¹² The result shows that education is the base for shaping a community's health.

CONCLUSION

Wrong perceptions about causes, transmission modes and treatments of childhood diarrhea were widespread. Seeking treatment from health facilities was common after home and traditional treatments failed and the disease got severe.



Therefore, interventions programs should discourage wrong perceptions at the same time promoting the importance of prompt treatment, proper home treatment and on time seeking help from available health facilities.

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