

Health Seeking Behaviors To Common Childhood Illness Among Mothers/ Caregivers Having Under Five Children And Associated Factors On Model And Non-Model Kebeles Comparative Crossectional Study North East Ethiopia.

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ABSTRACT

Introduction: Although care-seeking interventions have the potential to considerably, reduce child mortality in developing countries, large number of children die due to delays in seeking care. Inability to recognize potentially life-threatening conditions and diverse care-seeking practices were factors of caregivers to delays in seeking care. Therefore, the purpose of this study is to assess mother's/ caregivers health seeking behaviors for common childhood illness and identifying associated factors in order to improve child health.

Objective: The aim of this study is to determine the magnitude of health seeking behaviors to common childhood illness among mothers/care-givers having under five children and associated factors on model and non-model kebeles Habru district, North Wollo, Amhara, Ethiopia, 2020.

Methods: A community based comparative cross-sectional study were employed. The sample size was determined by using double population proportion formula and design effect of 1.5 considered. A multi-stage stratified sampling technique used to select the kebeles and households. Three hundred forty three caregivers selected from each model and no-model kebele proportionally. All variables found significantly associated with health care seeking behavior at p-value <0.2 in the bivariate analysis entered into the multivariate model, and adjusted odds ratios with the 95% confidence intervals corresponding to variables included in a model .

Result: 343 caregivers for each model and non-model kebeles were included in the study. The overall HSB of mothers/caregivers were 73.6%: 95%CI (68.5, 77.8) and 58.6%: 95%CI (53.4, 63.8) model and non-model kebele respectively. Type of kebele (Model) [2.1, 95%CI (1.3-3.4)], child age ≤11 months [3.5, 95%CI (1.9-7.6)], perception of severity of illness (Severe) [2.7, 95%CI (1.6-3.9)], and lack of time [2.01, 95%CI (1.1-5.6)] were independent predictors of seeking behavior in the district.

Conclusion and recommendation: type of kebele has an effect on the mothers/caregivers health care seeking behaviors for common childhood illness. It is better to give enfacies for non-model kebele mothers to seek health care regardless of the severity of illness and types of illnesses.

Keywords: common childhood illness; health seeking behavior; northeast Ethiopia

INTRODUCTION

Background

Behavior is the interior synchronized responses of individuals and groups to external and internal stimulus that it is

changeable [1] . Health or care seeking behavior defined as any action instigated by individuals who supposed themselves to have a health problem or to be ill for finding an appropriate remedy [2]. Health seeking behavior is preceded by a decision making process that is further ruled by individual and/or

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household behavior, community norms and expectations as well as provider related characteristics and behavior. For this reason, the nature of care seeking is not identical depending on cognitive and non-cognitive causes that call for a contextual analysis of care seeking behavior.

Care seeking behavior is the process of care seeking by individuals for improving the perceived disease and it is a reflection of the usual conditions, which interact synergistically to produce a pattern of care seeking but which remains fluid and therefore amenable to change. Health seeking behavior (HSB) is complex and no one-single method may use to explain or establish any pattern. The decision making for the treatment of seeking is a dynamic and continual process, which can be affected with various factors. Prompt health-seeking is critical for appropriate management and for this reason, understanding the contributing factor of health seeking behavior becomes critical in the effort to provide client oriented services.

Treatment seeking behavior is a multidimensional issue in health care that various models offered about effective magnitudes and factors on it. Some of these models can remark Rosen stock's health belief model, Andersen's health behavior model, and Young's choice-making model. All of these models have tried to hypothesize the treatment seeking behavior general extents and its affective factors. In spite of it is difficult to identify which causes are most influential in the decision to utilize health care. Factors influencing both the choice to seek health care are culture, economics, access, perceptions, knowledge, belief in efficacy, age, gender roles, and social roles and the assessment of which health care option to utilize for prevention and treatment of illness.

Statement of the problem

Worldwide, an estimated 5.4 million children aged under 5 years died in 2017, of these deaths, 2.5 million happened during the first 28 days of life. More than half of under five deaths are due to diseases that are avoidable and curable through simple, affordable interventions. Such preventable causes of child death include pneumonia, diarrhea, birth defects and malaria (in malaria endemic countries). Tolls of death from all conditions are higher in low-income countries, but children in low-income countries are more than 100 times more likely to die from infectious diseases than those in high-income countries. Children in sub-Saharan Africa are 15 times more likely to die before the age of five than in developed regions. About half of under-five deaths occurs only in China, Democratic Republic of the Congo, India, Nigeria and Pakistan. More than a third of all under-five deaths accounted by India (21%) and Nigeria (13%) .

In Ethiopia, under-5 mortality rates for the 5 years preceding the survey declined from 123 deaths per 1,000 live births in the 2005 to 55 deaths per 1,000 live births in the 2019. Similarly, infant mortality decreased from 77 deaths per 1,000 live births in the 2005 EDHS to 43 deaths per 1,000 live births in the 2019 EMDHS. Neonatal mortality decreased from 39 to 29 between the 2005 and 2016 EDHS, but has remained stable since the 2016 EDHS [3].

Although care-seeking interventions have the potential to considerably, reduce child mortality in developing countries, large number of children die without ever reaching a health facility and due to delays in seeking care. Inability to recognize potentially life-threatening conditions and diverse care-seeking practices were factors of caregivers to delays in seeking care. This delay could affect child health and can lead to complications that make the medical care less effective and may be useless(10). Treatments for common childhood illness like diarrhea, malaria and pneumonia are usually very effective if care sought in time [4]. However, the challenge is to implement on-going programs which educate caregivers to recognize when to seek care and which facilitate appropriate care seeking behavior.

Therefore, morbidity and mortality from these diseases can be reduced when care sought early. Ability of caregivers to identify and seek appropriate care for these common childhood illnesses is contributory in reducing child deaths in low-and middle-income countries (LMICs) and in reaching Sustainable Development Goals (SDG). Appropriate medical care seeking can prevent a significant number of child deaths and complications due to ill health. The importance of caregivers' ability to recognize and seek appropriate care for their children is also one of the recommended key activities in the WHO's and UNICEF's Global Action Plan for the Control of Pneumonia and Diarrhea [5]. Generally, there is a growing amount of literature on health seeking behavior (HSB) and the determinants of health services utilization, especially in resource-limited countries but there is no study conducted to identify associated factors that affect mothers/ care givers health seeking behavior in this study area. Therefore, the purpose of this study is to assess mother's/ caregivers health seeking behaviors for common childhood illness and identifying associated factors in order to improve child survival.

Literature review

Common childhood illness

A study in India indicates prevalence of diarrhea, fever and cough were 9.1%, 14.8% and 17.67% respectively. Nearly two-thirds of children with diarrhea and fever/cough received treatment from private health care providers (HCPs) whereas one-third of the children did not receive any treatment. Children aged 1-2 years and those born at health facility (public/private) were more likely to be taken to any type of HCP during illness whereas wealthier households were 2.5 times more likely to choose private HCPs for any illness compared to poorer household.

A study in Pakistan shows that 24% of mothers were aware of the dangers of a child getting sicker while 27% and 12.8% of them were aware having fever and fast breathing or is not able to breast feed respectively. Only 5% waited at home for the illness to subside on its own. Although 90.1% of them sought appropriate care for childhood illness, 69.4% of them were sought care from private doctors instead of government medical practitioners where as another study in Guatemala stated that mothers consulted treatment advice and sought help from older woman in the family were mainly for diarrhea (82%) and fever(64%) than cough(46%).

In Zambia, the most common childhood illness and the leading cause of morbidity and mortality in children less than five years of age were diarrhea, pneumonia and malaria. Diarrhea (37.7%), fever (31.1 %) and cough (48.1 %) were the commonest symptoms reported in this study area but when come in to Ethiopia acute respiratory infection (ARI), fever, and dehydration from diarrhea are important contributing causes of childhood morbidity and mortality. According to EDHS 2016 children under age five showed symptoms of during the 2 weeks before the survey, ARI symptoms, fever, and diarrhea were found in 7%, 14%, and 12% of children under age 5, respectively. Advice from a health facility or treatment was sought for 31% of children with ARI, 35% of children with fever, and 44% of children with diarrhea.

Millennium Development Goal 4 (MDG 4) calls for reducing the under-five mortality rate by two-thirds between 1990 and 2015. Worldwide the most common cause of under five children deaths are pneumonia (18%), diarrhea (11%), preterm birth complications (14%) and malaria (7%). Among these causes, nearly 90 % of child deaths due to pneumonia and diarrhea occur in sub-Saharan Africa and South Asia whereas in Ethiopia, the leading causes of mortality in children under 5 years old are diarrhea (66%); pneumonia (15%) and ear infection (12%) were the most common illnesses [5].

Health seeking behavior

Understanding health-seeking behavior, health promotion programs worldwide have premised on the idea that providing knowledge about causes of ill health and choices available will go a long way towards promoting a change in individual behavior, towards more beneficial health seeking behavior. However, there is growing recognition, in both the developed and developing countries, that providing education and knowledge at the individual level is not sufficient in itself to promote a change in behavior.

In India, all the mothers were practiced preventive healthcare-seeking behavior whereas regarding to curative aspect of healthcare-seeking behavior, among 142 male children 68.3% of cases were received treatment at the public sector, 15.5% of cases were received treatment at private sector and 16.2% of the cases were not received treatment. However, among the studied 114 female children, 44.7% of cases were received treatment at public sector, 42.1% of cases were not received treatment and treatment at private sector was 7.5%. Generally, treatment received is highly influenced by gender.

A study done in Yemen shows that among 212 sick children, 51.42% of them were sought medical care, but 9.91% of mothers/caretakers did nothing in response to illnesses when their children had faced a common childhood illness. Although seeking medical care was the most frequent HSB pattern in this study, it usually not done as the first choice. The most frequent first response was purchasing over-the-counter drugs (37.74%). The mean length of time before seeking medical care was 3 days and both parents (35.38%) made mostly decision. Whereas in western Nepal out of 292 children who had one or more symptoms, 88.4% received some kind of care outside the home, 8.9% Of children received traditional/ home remedies and no

care was sought for sick children was 2.7% . Among 69.8% of who sought care during childhood illness reported that the reason for seeking care was 'thought child's illness was serious.

A systematic review on recognition of and care seeking behavior for childhood illness in developing countries stated as a median of 73.0% (range: 5.3%–100.0%) of caregivers were sought care from a healthcare provider when their child was suffering from diarrhea, malaria or pneumonia and a median of 44.9% (range: 6.1%–100.0%) sought care from appropriate providers. The more severe caregivers perceived the child's illness to be, the more likely they were to seek care. In this review, with a median of 20.8% of caregivers seek care for pneumonia were consulted most frequently traditional healers in Africa. Cost, ease of access, and perceived severity or mildness of disease were reasons of consulting traditional healers. Majority of care givers were care seeking from pharmacies and drug vendors for malaria in Africa (median: 30.8%).

A study in Nigeria shows out of 390 mothers/caregivers, 86.1% of children had symptoms suggestive of malaria, acute respiratory infections, diarrhea and measles. 65.7% of them were sought Care outside the home at the onset of symptoms, 34.3% were treated at home. Even though majority of them not treated at home, 68.6 % of them were attempt self-treatment. Similarly, a study done in Nairobi slums 60.5% of the sick children sought health care outside their home [6]. Private clinics, drug shops/chemists, clinics run by faith - based institutions were the most popular destinations for child health care seeking in slum respectively whereas public clinics and hospitals are not primary sites for health care seeking. Health care seeking was highest for the youngest age group (62.9%) and slowly declined thereafter for older groups, where it reached 42.5% for children older than 4 years.

Another study done in rural community of Kenya around 32.4 % of care givers were seek care by Purchased drugs, 30.4% seek medical care and 12.1 % did nothing when their children faced a health problems. In this study, most mothers did nothing as their first response to the symptom of illness experienced by their children regardless of perceived severity. Generally, in this study families are more likely to seek treatment when a child experiences fever, diarrhea and vomiting as compared coughs.

In Ethiopia, a study done on a community based comparative cross - sectional study shows that the health care seeking behavior of mothers for common childhood illness in urban was 84.8%. Majority of respondents recognize the severity of the symptoms and prefer modern over traditional care and self-treatment. The least frequent action of mothers/ caregivers is self-treatment at home, which accounts 4%. Another community based cross sectional study done in Oromia region on health seeking behavior for childhood illness, 87% of mothers sought medical care when their children were sick and mostly care seeking was started on the second and subsequent days. Worsening of illness initiated almost all mothers to visit health facility. Trying of home care including traditional treatment, lack of money and access to health facilities were the possible reason of delaying to seek care where as a study in BahirDar, 73% of them were sought medical care when their children is sick.

In slums, among 439 mothers / caregivers, 90% of them sought health care services during their children’s illness, 50% of them consulted drug sellers of medicine shops during their children’s illness, and 9.1% of the respondents did not seek any health care. Main reason for not seeking medical care were waited for self-recovery 65.7%, had lack of money 52.5%, did not receive any advice to receive treatment 12.55 and 7.5% respondents did not feel that treatment was necessary. [Educated mothers/caregivers were highly significant with health seeking behavior compared to non-educated ones.

Factors affecting health-seeking behavior

Socio-demographic and economic characteristics of caregivers

Regarding accessibility of health services, mothers who resided less than half an hour to reach nearest health facility were more likely to seek formal health care than those who resided more than half an hour distance from the nearest health facility. Similar findings also reported by other studies in Ethiopia and Rural Tanzania. The findings showed that mothers/caregivers who had a child younger than 12 months were more likely to seek healthcare for their child on the first day of onset of illness as compared to a child above 12 months Mothers/caregivers. Who had children aged < 24 months were more likely to seek appropriate health care compared to those with older children. This is similar to studies in Bangladesh, rural Nigeria, rural Tanzania Sub-Saharan Africa, and Ethiopia. This might have been due to mothers’ understanding that children illnesses were more severe in younger compared to older children (> 2 years).

The main factors influencing mothers’ health care seeking behavior of the district identified in this study were perception of severity of illness, graduation of health extension package, type of reported illnesses, sex of the child, and educational status of husband and wealth quintile. Mothers who had male children were more likely to seek health care than who had female. Maternal education, gender of the child, residence, distance to health facility, and wealth index, were significantly related to prompt health care. Current study demonstrated that literate mothers were more likely to seek formal health care than illiterate mothers were. Among literate mothers, whose education level was secondary and above were more likely to seek formal health care than those whose education was below primary level. And these findings is similar with other studies in Yemen, Ethiopia, Rural Tanzania and India. The major reasons why treatment was not sought from health facility 13 (65%) were due to were long distance of the health institution. Other research done Derra showed that mothers’ main reasons for not seeking care from health facilities were far distance from health facility were 27.7%. Similarly, high educational level is a maker of social economic status enabling them to read, access information and expert opinion. Caregivers who have attained secondary education are more knowledgeable on, common health conditions/problems and how to deal with the challenges, thus increasing the chance to seek appropriate health behavior. Similarly, highly educated caregivers are better in understanding the shared health information thus making them seek care for their children without delay.

Environmental characteristics of mothers/care givers

Household access to care was also high with more than half of households located within one kilometer of health facility and most remaining households located less than three kilometers from a health facility. Research done at Derra showed that mothers’ main reasons for not seeking care from health facilities were far distance from health facility were 27.7%. Importantly, caregivers residing in urban settings as well as those with secondary and/or tertiary level education sought immediate help for the sick child compared to those from rural areas. Research done at Bahir Dar the main reasons for not seeking care from health facilities by mothers/caregivers’ were long distance of the health institution.

Socio cultural characteristics of mothers/care givers

Research done at Bahir Dar the main reasons for not seeking care from health facilities by mothers/caregivers’ were long distance of the health institution. The difference might be most of this study respondents were illiterate, low income and had believed on traditional treatment. In this study 323 (50.4%) had believed on traditional healer, other Study done on Mecha Oromo lived in Weliso showed that 70% of illnesses treated traditionally by using home remedies, traditional healers, holy waters and others.

Type of childhood illness and Perceiving severity

Mothers’/caregivers’ the main reasons for not seeking care from health facilities were 53.3% illness was not serious, 26.7% lack of money and 13.3% did not believe the benefit care seeking from health facilities for such childhood illness This healthcare seeking behavior is often linked to perceptions about causes of illnesses and source(s) of Solution [7]. Perceived severity of illness and affordability of health care cost found as independent factors of health care seeking behavior of mothers in this study. Those mothers who perceived the present illness as severe and affordable cost for the utilization of health services were more likely to seek formal health care than those mothers who perceived as mild/moderate condition and perceived the cost of health service as unaffordable. Perceived severity of illness and knowledge of child danger signs, gender of the child were significantly related to prompt health care.

Conceptual framework

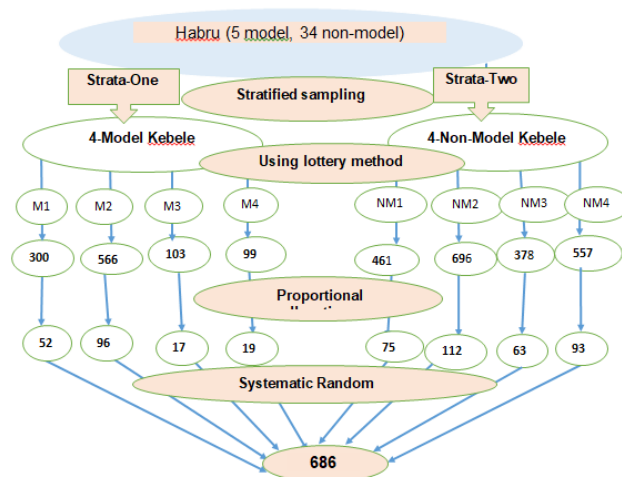


Figure 1: Conceptual farmework adopted and adapted

Significance of the study

Worldwide, the most common causes of death in children less than five years are easily prevented by avoiding delay in health seeking behaviors.

Delays in seeking appropriate medical care is one of the major factors contributing to severe disease among children presenting to hospitals with severe forms of malaria, pneumonia and diarrhea.

The HSB may vary by the local contexts such as socio-demographic and economic characteristics of the community. Assessing health care seeking behavior and identifying factors at a district level are important to develop strategies and design appropriate interventions. Moreover, limited research conducted to assess factors affecting mothers/caregivers health seeking behavior on common childhood illness in Habru district, northeast Ethiopia. Therefore, this study helps:

- At the community level, information regarding health care practice and preferences can be used to improve the appropriateness of the medical and health care services offered.
- To understand caretaker's behavior by identifying associated factors and it helps to seek appropriate care timely.
- Identifying associated factors is important to government officials to create awareness to the community through mass media and create the policies that improve good HSB in order to promote child health.
- This study may play a significant role in evaluating the HSB of model kebeles.
- Moreover, the information for the present study used as a base line for other researchers who want to conduct further research and in general doing this research has paramount significance to bridging the information gap.

Objective

General objective

- To assess health seeking behaviors to common childhood illness among mothers/care-givers having under five children and associated factors on model and non-model kebeles Habru district, North Wollo, Northeast Ethiopia, 2020.

Specific objective

- To determine the magnitude of health-seeking behavior of mothers/caregivers for common childhood illnesses among model and non-model kebeles.
- To identify factors affecting health seeking behaviors among mothers/caregivers with under five children for common childhood illnesses in model and non-model kebeles.

Methods

Study design, Study area and period

A community based comparative cross-sectional study design was employed. The study conducted in Habru district, North Wollo zone, Amhara, Northeast Ethiopia. Habru district is located 488 kilometers (k.ms) northeast from Addis Ababa and 387 km from

Bahir-Dar, capital city of Amhara region. The district has 39 kebeles. Of the 39 kebeles, five are model kebeles. Most of the climatic condition of the district is temperate. According to information obtained from the district health office, the total population of the district is 231580 and total households were 53856. Out of these 31356 were under five children. The district had 5 health centers, 20 private clinics, 15 pharmacy and 1 primary hospital. The study period was from October 1 to November 1, 2020. ARI, diarrhea and AFI are among ten top under five morbidities in the district for the last six months.

Source population

All mothers /caregivers who had under five children in Habru district, 2020.

Study population

Mothers/caregivers who had under five children who experience with at least one common childhood illness during data collection period in Habru.

Study Unit

Mothers/caregivers who had under five children with common childhood illness.

Inclusion and Exclusion criteria

Inclusion criteria:-

Mothers/ caregivers who have under five children in selected kebeles and had history of at least one common childhood illness within two weeks preceding the data collection period.

Exclusion criteria:-

Mothers/care givers that were critically sick were excluded.

Sample size and Sampling procedures

The sample size of this study determined by double population formula and using Epi Info Statcalc version 7 considering the following assumptions:

Power: 80%,

Confidence interval (CI): 95%

Sample ratio of health seeking behavior to common childhood illness in model household in model kebele to non-model household in non-model kebele 1:1

Design effect 1.5

$$n = \frac{r + 1 \bar{p}(1 - \bar{p})(Z_{\beta} + Z_{\alpha/2})^2}{r (p_1 - p_2)^2}$$

Where:

n = size of smaller group

r = ratio of larger group to smaller group

$p1 - p2$ = clinically meaningful difference in proportions of the outcome

$Z\beta$ = corresponds to power (.84 = 80% power)

$Z\alpha / 2$ = corresponds to two - tailed significance level (1.96 for $\alpha = .05$)

$P1=84.6\%$ and $P2= 76.4\%(43)$ the sample size become 416. Using design effect of 1.5 and non-response rate of 10 became 686. The total sample size will therefore 686.

S.N.	Variables	Power	CI	% unexposed	COR	Sample size
1	Educational status(read and write)	80%	95%	17.3	2.095	352(36)
2	Age of the mother(20-24years)	80%	95%	16.7	2.128	350(36)
3	Place of residence(urban)	80%	95%	4.7	6.748	114(36)
4	Child age	80%	95%	15.2	2.04	246(44)

Sampling technique and sampling procedure

A multi-stage stratified sampling technique used to select the kebeles and households. The kebeles were selected by lottery method. Households were selected proportionally in each kebeles. Household numbers took from health extension workers and made sampling frame from it. Then Systematic sampling technique were employed for households selection from each kebeles. The first household in the first fifth interval selected by simple random method (lottery methods) and start from that house every five households were selected. However, when selected households did not full fill inclusion criteria next household in the left direction used. Whenever more than one sick child at the same time at one household, the youngest child was considered.

Proportional allocation: allocating sampling proportional to the total population of each strata using the formula:

$$n_i = \frac{n}{N} * N_i$$

Where n=total sample size to be selected

N=total population

N_i = total population of each strata

n_i =sample size from each strata

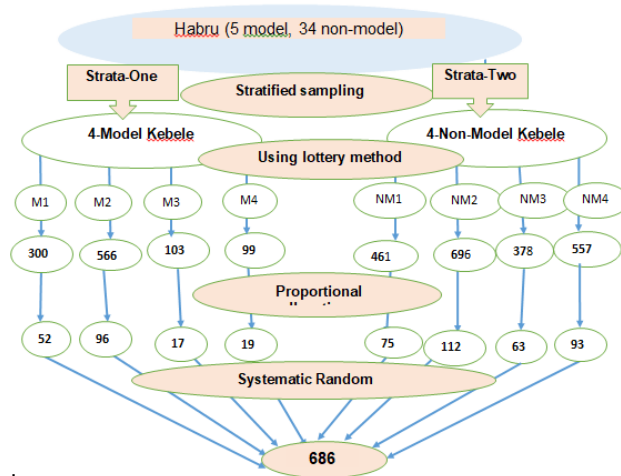


Figure 2: Sampling procedure for Model and Non-model kebeles

Study Variables

- Health seeking behaviors of mothers/care givers (Yes/No).
- Socio demographic characteristics of mothers/ caregivers: Age, marital status, education, occupation, age of child and sex of child, family number, type of kebele and income.
- Environmental characteristics: source of water, use of electricity, cook in the house, use of wood /coal/dung.
- Type of illness and symptoms: ARI, diarrheal diseases, febrile illnesses, and pain in the ear.
- Severity of illness: severity, mild (this classification is based on Integrated Management of neonatal and child illness).
- Clinical Characteristics: preterm pregnancy wanted, place of last delivery, PNC attendance, home delivery practice, health education, bottle feeding, pregnancy complication.
- Income: caregivers whose monthly income ≤ 1000 were poor, 1000-2000 were middle and >2000 were rich.

Operational definition

Common childhood illnesses: In this study common childhood illnesses are acute respiratory infections (ARI), diarrheal diseases and febrile illnesses [Presence of at least one of the following (cough, diarrhea, fever, or ear pain) two weeks preceding the survey]

Model Kebele: When all the families living in the kebele are able to take care of their own health beyond the production of their own health, they can improve the health of their environment in an organized and sustainable way.

- Model Kebele is required to meet the following requirements:

Criteria for model kebele in rural Ethiopia

Criteria	Weigh	Very low	Lower	Middle	Model kebele
Model HH	40	< 60%	60%-69%	70-80%	≥80%
Improved latrine	20	< 60%	60%-69%	70-84%	≥85%
Facility delivery	20	< 60%	60%-69%	70-84%	≥85%
Model school	20	< 60%	60%-69%	70-84%	≥85%
Total average score	100	< 60%	60%-69%	70-84%	≥85%

- Acute respiratory infection: all cases who had cough accompanied by short or rapid breathing in the two weeks preceding the survey as perceived by mothers or caretakers (Yes/No).
- Diarrhea: is determined as perceived by mother or caretaker, three or more loose or watery stools per day or blood in stool were reported (Yes/No).
- Fever: perceived by mother as fever or hot body for any child two weeks preceding the survey (Yes/No).
- Perception of severity: subjective evaluation caregivers who perceive a given health problem as severe/not severe.
- Health seeking behavior: defined as mother's/caregivers response for signs and symptoms of illnesses to reduce severity, complication or even death after she/he recognized her/his child's illness and if she/he reported visiting any health institutions; health center, health post, privet clinic or at least community health worker. Mothers that did not report visiting any health institution for the perceived common childhood would considered as healthcare non-seeker. Health care seeking behavior was the outcome variable which dichotomized as "yes" (seeking health care) or "no" (did not seeking health care) when their children were ill. Mothers considered as seeking health when they visited any health facilities (Hospital, Health Center, Health Post, Private Clinic) after perceiving the illness of their child within two weeks preceding to data collection period.

Data Collection Procedure and Quality assurance

Data Collection Procedure

Structured questionnaire used to collect the data. The questionnaire had three parts: part I, sociodemographic characteristics of mothers/care givers, part II, health-seeking behavior of mothers/care givers, and part III factors affecting of mothers/care givers health seeking behavior. English version of the questionnaire translated in to Amharic language for better understanding by the data collectors and respondents and back to English versions. Consistency checked by translating the Amharic version back to English by another individual fluent in both languages. Data collected using face-to-face interview with structured questionnaire after receiving verbal consent from the

respondents. The time needed to complete the interview was 15-30 minutes.

Data collectors were two clinical nurses those were working in Mersa town and four HEWs .Two BSC Nurses working from Mersa health center for supervision activities. Training was given for data collectors and supervisor for two days on method of extracting the needed information through interviewing, how to fill the information on a structured questionnaire and the ethical aspect in approaching the caregivers which was in a polite and respectful manner. The interviewers were collect the information based on the given guide line using a structured questionnaire. The supervisors were monitor the data collection process of the interviewers and solved problems by themselves and with the principal investigator.

Data Quality Assurance

In order to achieve a good data quality: Questionnaires was prepare in English, translate into Amharic language, and then back to English to keep its consistency. Data collectors was select based on profession and previous experience of data collection. Pre-testing was conduct on 5% of sample size prior to the actual data collection process in Mersa town. Then a pretested structured questionnaire was use to collect data on care seeking behavior of mothers/care givers to under five years of age and factors affecting of it. Training was provided to selected data collectors for two days about the objective and process of data collection. Vague points and other problems encountered about the questionnaire was give explanations and clarifications. Closer supervision was undertake during data collection. Every questionnaire crosschecked daily by the supervisors and the principal investigator. Problems or doubt on data collection was discuss over night with data collectors and the supervisors the doubts was clarify with them.

Data Management and analysis

After data collection, each questionnaire checked for completeness and coding was given at the right margin of the questionnaire followed by almost all variables in the questionnaire. The template scheme for data entry was develop, pre-tested for ranges, skipping patterns, and allow legal values by entering about 15 questionnaires. After this validation, the principal investigator was sort the data using Epidata version 3.1 and then the data was export to SPSS version 25.0 statistical software packages for data cleaning and analysis. All variables found significantly associated with health care seeking behavior at p-value <0.2 in the bivariate analysis entered into the multivariate model, and AOR with the 95% confidence intervals corresponding to variables included in a model were calculated. Enter and Backward LR were used for variable selection method for binary and multiple logistic regression respectively. Goodness of fit test was checked for multiple logistic regression based on Hosmer and Lemeshow goodness of fit test.

Ethical consideration

The principal investigator was obtain ethical clearance from the institute Review Board (IRB) of University of Gondar via IPH. Communication with the head of district and kebele

administrators made through formal letter obtained from the University of Gondar. After the purpose and objective of the study was inform, verbal consent was obtained from each study participants. Participants also informed that participation were on voluntary basis and we ensured participants could withdraw from the study at any time whenever they were not comfortable about the questionnaire. In order to keep confidentiality of any information provided by study subjects were coded.

Result

Socio demographic characteristics

In this study, 686 mothers/caregivers, 343 in model kebele and 343 in non-model kebele were interviewed with a response rate of 100%. 86(25.1%) caregivers in model, 96(28%) caregivers in non-model kebele were in the age group of 25 to 29 years with mean age of 28(SD=+7.6/-7.6) model and 29(SD +6.2) non model. [283 (82.5%), 292(85.1%)] were Muslims in model and non-model respectively. 131 (38.2%) and 148(43.1%) were unable to read and write. The mean age of children were 29.8(SD+ 14.4) and 28.9(SD+ 15.8) months among model and non-model respectively (Table 1).

Types Variables	Model		Non-model		
	Frequency	%	Frequency	%	
Age of caregiver	15-19	54	15.7	40	11.7
	20-24	68	19.8	69	20.1
	25-29	86	25.1	96	28
	30-39	68	19.8	69	20.1
	>=40	67	19.5	69	20.1
Religion	Orthodox	60	17.5	51	14.9
	Muslim	283	82.5	292	85.1
Child age in months	<=11	63	18.4	78	22.7
	Dec-23	61	17.8	64	18.7
	24-35	92	26.8	71	20.7
	36-47	81	23.6	65	19
	48-59	46	13.4	65	19
Educational Status	Unable to read and write	131	38.2	148	43.1
	Read and write	52	15.2	68	19.8

	Primary school	95	27.7	61	17.8
	Secondary school	26	7.6	45	13.1
	Diploma and above	39	11.4	21	6.1
Occupation	House wife's	260	75.8	257	74.9
	Merchant	18	5.2	23	6.7
	Farmer	40	11.7	37	10.8
	Governmental work	25	7.3	26	7.6
Family size	<5	138	40.2	136	39.7
	>=5	205	59.8	207	60.3
No of children <5yrs	1	283	82.5	282	82.2
	>=2	60	17.5	61	17.8
Income	<=1000	29	8.5	37	10.8
	1001-2000	204	59.5	195	56.9
	>2000	110	32.1	111	32.4
Source of Water	River water	73	21.3	48	14
	Well water	74	21.6	76	22.2
	Spring water	89	25.9	95	27.7
	Piped water	107	31.2	124	36.2

Table 1: Socio demographic characteristics of mothers/caregivers and under five children's in Habru district, Amhara, Northeast Ethiopia, 2020.

The overall two weeks prevalence of common childhood illnesses mostly complained by mothers/caregivers were high among non-model kebeles fever 153(44.6%) [95%CI, (39.7-49.6)] and diarrhea 136(39.7%) [95%CI (34.5%, 44.6%)]. Cough/difficulty of breath were high in model kebeles 40.6%, [95%CI (35.6-45.5)]. The following figure indicates that the overall prevalence of common childhood illness among model and non-model kebeles of Habru district, 2020 (Figure3).

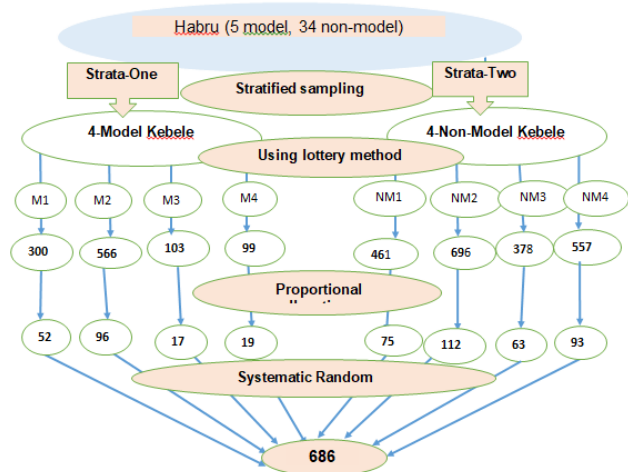


Figure 3: Prevalence of common childhood illness among mothers/caregivers with under five children's between model and non-model kebeles in Habru district, Amhara, Northeast Ethiopia, 2020

Health seeking behavior to common childhood illnesses and caregivers response with the corresponding 95%CI

Of the total 252 and 201 care seekers [50.4%, 95%CI (48.2, 56.1)] and [36.7, (32.4, 43.1)] were sought in gov't health facilities in model kebele and non- model kebele respectively. HSB of caregivers for diarrhea, Fever, and cough/difficulty of breath were high in model kebele [66.4%, 78.2%, and 77.9] respectively as shown in the following (Figure 4).

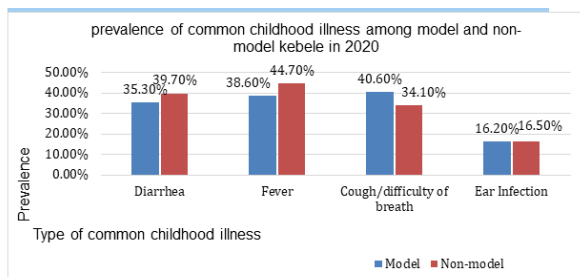


Figure 4: Health seeking behavior for common childhood illness of Habru district, north Wollo, Ethiopia 2020

The overall HSB of mothers/caregivers were [73.6%: 95%CI (68.5, 77.8)] and [58.6%: 95%CI (53.4, 63.8)] model and non-model kebele respectively. Out of sick children, [173(50.4%), 79(23.0%)] and [126(36.7%), 75(21.8%)] were sought medical care to government and private health institutions in model and non- model kebeles respectively.

Of the total medical treated episodes of illnesses, care sought between 3rd and 4th days of perceived onset of illness were high in model kebeles 112(32.7%), 95%CI (30.4, 41.7). Of the 686 caregivers 91(26.5%), (95%CI (23.4, 35.9)) and 142(41.4%), 95%CI (38.8, 52.1) did nothing even if the caregivers believe that their child get sick in model and non-model kebele respectively. 4.4 % (2.1-10.3) and 9.0%(7.4-17.5) of caregivers/ mothers take their children to traditional health facilities (Table 2).

	Model		Non-model	
Variables	Frequency	%(95%CI)	Frequency	%(95%CI)
Seeking care for sick child	252	73.5(65.5,77.8)	201	58.6(53.4,63.8)
Where did you take your child				
Take to Gov't health facilities	173	50.4(48.2,56.1)	126	36.7(32.4,43.1)
Take to private health facilities	79	23.0(19.7,30.3)	75	21.8(18.2,27.8)
Take to traditional treatment	15	4.4(2.1,10.3)	31	9.0(7.4,17.5)
Do nothing	76	22.1(20.3,29.6)	111	32.3(29.8,40.5)
How long did you stay to seek care				
Immediately	37	10.8(7.4,16.2)	32	9.3((6.9,18.1)
Between 1st-2nd days	44	12.8	44	12.8
Between 3rd and 4th days	112	32.7(30.2,43.7)	70	20.4(17.3,29.5)
After 4th days	59	17.2	55	16
Did nothing	91	26.5(23.4,35.9)	142	41.4(38.8,52.1)

Table 2: Mothers/Caregivers response to common childhood illnesses in Habru district among model and non- model kebele, 2020.

Factors affecting health seeking behavior of mothers/caregivers on common childhood illness

Three different models fitted to assess factors determine health care seeking behavior of caregivers in model and non-model kebeles.

The first model fitted to assess the overall factors of health care seeking behavior for common child hood illness. Variables such as type of kebele, perceived severity, age of the child, reasons not to seek care, and severity of illness were significantly associated with health care seeking behaviors for the whole mothers irrespective of type of kebele. Mothers who lived in model kebele [AOR: 2.1(1.3- 3.4)], and perceived severity of illness [AOR: 2.5 (1.6-3.9)] were more likely to seek health care than

the counter parts. Mothers whose age of child were <=11months [AOR: 3.5(1.9-7.6)] than mother/caregivers with child age 48-59 months age. The odds of HSB of caregivers who identify the severity of their child’s illness severe were [AOR: 2.7(1.6-3.9)] than the odds of HSB of caregivers identify the perceiving not severe (Table 3).

Variables	Health seeking		95%CI		
	Yes	No	COR	AOR	
Child age in months	<=11 months	106	35	2.7(1.6-4.6)	3.5(1.9-7.6)**
	12-23 months	78	47	1.5(0.9-2.6)	1.5(1.9-6.4)**
	24-35 months	110	52	1.9(1.1-3.1)	1.8(1.1-3.3)**
	36-47 months	99	47	1.9(1.1-3.1)	2.4(1.3-4.6)**
	48-59 months	59	52	1	1
Type of Model kebele	Model	252	91	2.4(1.8-3.3)	2.1(1.3-3.4)**
	Non-model	201	142	1	1
Perception of severity	Severe	220	146	0.77(0.57-1.1)	2.7(1.6-3.9)**
	Not severe	172	147	1	1

Table 3: Factors associated with health seeking behavior of caregivers to common child hood illness in Habru district 2020.

The second model fitted only for model kebele mothers/caregivers. Accordingly, only age of the child and perceived severity showed a significant association. The odds of HSB on model kebeles caregivers with relatively younger age (<=11months age) were 6 times more to seek health care as compared to older age mothers [AOR: 4.5(1.6-12.4)]. In addition, the odds of mothers/caregivers who perceive childhood illness were severe were 5.2 times more than the odds of HSB of caregivers perceived not severe. [AOR: 5.2(3.3-9.1)]. (Table 4).

Variables	Health seeking		95%CI		
	Yes	No	COR	AOR	
Child age in months	<=11	53	10	5.3(1.6-17.6)	4.5(1.6-12.4)**
	Dec-23	43	18	2.4(1.1-4.1)	1.3(0.5-3.3)

	24-35	71	21	1.9(1.1-3.1)	1.9(0.79-4.6)
	36-47	57	24	2.4(2.1-5.5)	2.9(1.2-7.2)**
	48-59	28	18	1	1
Perception of severity	Severe	25	38	0.8(0.6-1.1)	5.2(3.3-9.1)**
	Not severe	49	53	1	1

Table 4: Factors associated with Health seeking behavior of common childhood illnesses in model kebele only Habru district 2020.

The third model fitted for non-model kebele mothers only. Age of the caregivers, child age in months were significantly associated. The odds of HSB of caregivers whose age 30-39 years were 59% decreased than the odds of HSB of caregivers aged >=40 years [AOR: 0.41(0.18-0.92)]. The odds of HSB of mothers/caregivers in non-model kebele whose child 12-23 months age were 2.8 times more than the odds of HSB of caregivers whose child were 48-59 months age [AOR: 2.6(1.0-6.2)]. The odds of HSB of caregivers who were take child to in private health facility were 2.7 times more than the odds of HSB of mothers treat their child at home at home (Table 5).

Variable	Health seeking				
	Yes	No	COR(95 %CI)	AOR(95 %CI)	
Age of caregivers in years	15-19	40	14	2.5(1.6-3.9)	1.8(0.70-4.5)
	20-24	49	19	1.9(1.3-3.9)	1.1(0.52-2.5)
	25-29	65	21	2.2(1.6-3.0)	1.2(0.56-2.3)
	30-39	50	18	1.5(1.1-2.2)	0.41(0.18-0.92)**
	>=40	48	19	1	1
Child age in months	<=11	52	25	2.7(1.6-4.6)	2.8(1.3-5.9)
	Dec-23	35	29	1.5(0.9-2.6)	2.8(1.3-5.9)**
	24-35	39	31	1.9(1.1-3.1)	2.3(1.1-4.9)**
	36-47	42	23	1.9(1.1-3.1)	1.8(0.83-3.9)

48-59	34	47	1	1
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Table 5: Factors associated with health seeking behavior of caregivers for common childhood illnesses in non-model kebele only in Habru, 2020.

DISCUSSION

This study aimed to assess prevalence of health-seeking behavior for common childhood illnesses and explore factors affecting it among mothers/caregivers having under five children in model and non-model kebeles in Habru district, Northeast Ethiopia. A total of mothers/caregivers participated in this study were 343 from model and 343 non-model kebele. Of these 86(25.1%) caregivers in model, 96(28%) caregivers in non-model kebele were in the age group of 25 to 29 years with mean age of 28(SD=+7.6/-7.6) model and 29(SD +6.2) non model.

In this study, health-seeking behavior of mothers/caregivers had significance difference between model kebele 73.6% [95%CI (68.5-77.7) and non-model kebele 58.2% [95%CI (53.4-63.8). Mothers/caregivers in model kebeles were 2.1 times more likely to seek health care than non-model mothers/caregivers did [2.1(1.3-3.4)]. The HSB of this study is higher than a study done in rural part of Ethiopia and Addis Ababa for both model and non-model kebeles. The HSB of model kebeles were concurrent with studies done Shire town, and Shashogo district. The difference among model and non-model may be due to the awareness of the model kebele community on health seeking behavior were encouraged by health extension workers. Moreover, it could be due to accessibility of information about the importance of seeking of health care by health extension workers for prevention of childhood illness.

The mothers/caregivers seeking behavior for diarrhea, fever, cough/difficulty of breath and ear infection were [66.4, 78.2%, 77.9%, 58.9%] and [56.7%, 59.2%, 60.3%, 53.6] in model and non-model kebeles respectively. Health seeking behavior were higher in model than non-model kebeles except, ear infection was higher in non-models. This study is higher than study done in somewhere in Ethiopia. This difference among model to non-model may be related to the presence of good health package practice Health Extension workers serve the community in different ways like providing health related information's about illness and treatments of diseases. Mothers in health extension program implementing villages do have higher HSB than don't. In this finding HSB for model kebele is lower than study done in North West Ethiopia and Dangila town. The HSB was high for children having cough followed by fever for both model and non-model kebele caregivers. This may due to fear of caregivers acquiring their kids COVID-19 a newly emerged viral infection. In contrast HSB were high for diarrhea than fever in a study done rural parts of Ethiopia.

In this study, medical treated episodes of illnesses, care sought between 3rd and 4th days of perceived onset of illness were high in model kebeles 32.7% [95%CI (30.4, 41.7)], which is comparable to other study done in Yemen shows most of mothers seek medical care for three days after onset of illness. This could be due to sociodemographic characteristics and

health-seeking behavior differences a method of data collection in Yemen were convenience sampling this may affect on the HSB of caregivers. This result is later than to study done in Oromia region Ethiopia.

The factors associated with HSB of mothers/caregivers in model kebeles were only age of the child and perceived severity showed a significant association. The odds of HSB for caregivers with relatively younger age child (≤ 11 months age) were 4.5 times more to seek health care as compared to odds of caregivers who had older age children. This might be because of mothers/caregivers understand that younger children have lower immunity than their elder children do. Therefore, caregivers with younger child may have high tendency to seek medical care even if mild disorders. The odds HSB of mothers/caregivers who perceive childhood illness severe were 5.2 times more than the odds of HSB of caregivers perceived not severe. This is in line with study done in Addis Ababa and Dangila town mothers/caregivers tend to have higher seeking behavior when they perceive their child illness is severe. This may be due to mothers/cares knowledge about danger signs of childhood illnesses evidenced by a study done in Northwest Ethiopia and Kenya shows caregivers' knowledge on danger signs have a paramount importance in HSB.

The factors influencing HSB of mothers/caregivers in non-model kebeles. Only age of caregivers and child age were significantly associated. The odds of HSB of caregivers whose age 30-39 years were decreased by 59% compared to the odds of HSB of aged ≥ 40 years. This study is similar with a study done Dangila and Nigeria as the age of caregivers get older HSB tend to increase. This study is contrast with a study done Northwest Ethiopia revealed that elder age mothers/caregivers less likely to seek care than Younger ones.

The factors determining mothers/caregivers HSB of the district identified in this study were; type of kebele (model/non-model), perception of severity of illness, lack of time, and child age. Studies done in Nigeria and Ethiopia had reported a positive relationship between age of the child (younger one) and perceived severity of the illness with HSB, which is in agreement with our study. The finding of this study shows that the odds of HSB of mothers/caretakers whose child age less than or equal to 11 months were 3.5 times to seek medical care than the odds of caregivers having 48-59 months age children. This finding is comparable to study done in Kenya health care seeking was highest for the youngest age group (62.9%) and slowly declined thereafter for older groups, 42.5% and study conducted in North west Ethiopia. This may be due to young infants were highly vulnerable to common childhood illness than elder ones and mothers/caregivers more seeker due to frustration of illness or perceived the illness was more severe. In the current study, mothers/caregivers perceived illness severe were 2.7 times more likely to seek medical care than mild ones and this finding is similar to a systemic review done in developing countries, study carried out in Yemen and Kenya (mothers more likely to seek medical care when disease conditions are more severe). This difference related to mothers/ caregivers were not seek care if they perceived their children illness was mild and believed it is improve by itself and wait until the children shows different

manifestations and complications. Probably majority of mothers/ caregivers seek medical care were after two and consecutive days of onset of child hood illness and it may lead to complication or aggravate the severity of illness.

The implication of this study is for FMOH, district health office, HEWs and the communities at large. This study revealed that having model kebele has an effect on HSB of mothers/ caregivers. Therefore, all concerned bodies need to take part on creating model kebeles. An awareness creation should be done to the community in order for perceiving every childhood illnesses are serious and needs medical attention.

This study might be affected by social desirability bias. Even though the bias might occur in this study, we tried to minimize by Keep the main purpose of the survey vague and personal details were confidential. Data collectors training also minimize this by providing adequate information e and emphasize importance of honesty in the survey responses.

CONCLUSION

Type of kebele (model/non-model kebele) has an effect on the mothers' health care seeking behaviors for common childhood illness. Independent determinant of health seeking behavior of caregivers in the district were type of kebele, child age, perception of severity of illness, and lack of time. Only age of caregivers, child age were determinant factors in non-model

kebeles. Whereas child age and perceiving severity of the illness were the only independent predictors of HSB in model kebele caregivers.

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