

Healthcare Seeking Behaviors and Associated Factors among Caregivers of Children with Neglected Tropical Diseases in Eastern Ethiopia

Kedir Urgesa¹, Fitsum Weldegebreal^{1, 2}, Mitiku Getachew^{3*}, Assefa Desalew^{4, 5}, Temam Beshir Raru⁶, Ukash Umer¹, Getachew Kabew Mekonnen¹

¹School of Medical Laboratory Sciences, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

²Laboratory Bacteriology Research, Department of Diagnostic Sciences, Faculty of Medicine and Health Sciences, Ghent University, Ghent, Belgium

³Midega Tola Woreda Ibro Salama Health Center

⁴School of Nursing, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia.

⁵Department of Obstetrics and Gynecology, Leiden University Medical Centre, Leiden University, Leiden, Netherlands.

⁶School of Public Health, College of Health and Medical Sciences, Haramaya University, Harar, Ethiopia

Background: Although several studies have explored healthcare-seeking behaviors for common childhood illnesses in Ethiopia, a significant knowledge gap remains concerning neglected tropical diseases (NTDs), particularly in the Amir Nur and Babile districts. Therefore, this study was designed to assess healthcare-seeking behavior and associated factors among caregivers of children with neglected tropical diseases in the Amir Nur and Babile districts, eastern Ethiopia.

Methods: A community-based cross-sectional study was conducted among 148 caregivers of children aged from 1 to 18 years old from November 15 to December 30, 2023. Data were collected through questionnaire-based interviewing of caregivers. Stool examination and clinical eye and skin examination were performed by trained laboratory technicians, ophthalmic nurses, and public health professionals, respectively. The data were collected using ODK software and then exported to the Statistical Package for the Social Sciences (SPSS) version 26 software for analysis. Descriptive statistics and logistic regression were utilized to analyze and interpret the data. Statistical significance was defined as a *p-value* less than 0.05, with corresponding 95% confidence intervals.

Results: The overall proportion of healthcare-seeking behavior was 43.2% (95% CI: 35.0%, 51.0%). Of 148 children, 43.9% had soil-transmitted helminth infections, primarily *Ascaris lumbricoides*. Additionally, 31.1% were positive for active trachoma, and 25% were diagnosed with scabies. Factors such as being employed (AOR = 2.92, 95% CI: 1.08, 7.89), easy accessibility of health information (AOR = 2.66, 95% CI: 1.02, 31.5), and average monthly income less than 3, 000 birr (AOR = 0.36, 95% CI: 0.13, 0.91), were statistically associated with caregivers' health care seeking behavior.

Conclusion: Caregivers' health-care-seeking behavior for children with neglected tropical diseases was found to be low, highlighting a critical public health concern. Targeted interventions such as financial support for unemployed and low-income families, community health outreach, and enhanced health information campaigns are urgently needed to address this gap in care-seeking behavior.

Keywords: Health-care seeking behavior, caregivers, children, neglected tropical diseases, and Ethiopia.

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Introduction

Healthcare-seeking behavior refers to the steps an individual takes to address a health issue, driven by both personal perceptions and external influences, to find an appropriate remedy (Bahrami *et al.*, 2014). Mothers' inability to access timely healthcare in modern facilities remains a key factor in child mortality globally, with particularly severe impacts across sub-Saharan Africa (Noordam *et al.*, 2015). Healthcare-seeking behavior is shaped by multiple factors, including the

availability, affordability, and quality of health services, as well as sociocultural influences, individual beliefs, and geographic location (Amin *et al.*, 2010; Begashaw *et al.*, 2016; Bojola *et al.*, 2018). Additionally, socio-demographic, economic, and cultural factors play a significant role in determining care-seeking preferences (Cronin *et al.*, 2013). Research suggests that there are distinct healthcare-seeking tendencies between urban and rural populations. Urban residents typically demonstrate greater willingness to adopt novel healthcare approaches, often exhibiting more



experimental health behaviors. Conversely, rural populations tend to maintain stronger adherence to traditional health practices and demonstrate more conservative attitudes toward healthcare innovation (Mebratie *et al.*, 2014).

The community healthcare-seeking behavior in response to neglected tropical diseases (NTDs) is influenced by a combination of factors, including limited awareness about the diseases, cultural beliefs, economic constraints, and barriers to accessing healthcare services (Amin *et al.*, 2010; Yimer *et al.*, 2009). People with NTDs often face stigma, discrimination, and social exclusion, particularly when they show significant physical disfigurement, because of negative public beliefs about some NTDs (WHO, 2020). As a result, people with these diseases are less likely to seek help, access treatment, or adhere to it (Ackley *et al.*, 2021). This cycle again negatively affects their disability and recovery, as well as overall work to eliminate and eradicate NTDs (Wainwright *et al.*, 2020).

In Ethiopia, healthcare-seeking behavior is generally poor, and only a small proportion of children receive appropriate treatment (Kolola *et al.*, 2016; Simienuh *et al.*, 2019). Understanding health care seeking behavior and its determinants at the district level is critical for developing targeted strategies and designing effective interventions. Although several studies in Ethiopia have explored caregivers' healthcare-seeking behaviors, there remains a significant gap in research focusing on caregivers of children affected by NTDs.

This study specifically focuses on caregivers of children aged 1–18 years. This age range captures the critical period of high NTD incidence and vulnerability. Children under one year are often excluded from mass drug administration (MDA) programs and may follow health-seeking pathways dominated by neonatal and infant care issues. Conversely, the upper limit of 18 years aligns with the World Health Organization's definition of a child and allows for the inclusion of chronic NTD-related disabilities that begin in childhood but persist into adolescence (WHO, 2023). This study aims to evaluate the level of healthcare-seeking behavior among caregivers of children with NTDs in eastern Ethiopia and identify the factors influencing their decisions.

Materials and Methods

Study Setting, Design, and Period

A community-based cross-sectional study was conducted in Harari regional state, Amir Nur district 01 and 02 kebeles, and Oromia regional state, Babile district Bisidimo and Ifadin Kebele, from November 15 to December 30, 2023. Harari Regional State is one of the regions in Ethiopia, located 523 km away from Addis Ababa to the east. This region includes nine districts (Amir Nur, Abadir, Shenkor, Jinela, Aboker, Hakim Sofi, Erer, and Dire-Teyara) with 19 urban and 17 rural Kebeles. Amir Nur district is one of the urban districts. It has three Kebeles, namely 01, 02, and 07, with 5,380 households and a total population of 24,215. The number of households in each kebele was 1,868, 1,714, and 1294, respectively. The populations of 01, 02, and 07 Kebeles were 10,674, 7,713, and 5,828, respectively. There were 8,054 children aged 1–18 years of age in the district, of whom 3,550 were in 01 Kebele, 2,564 were in 02 Kebele, and 1,940 were in 07 Kebele. Ganda Ferroo village is one of the villages in 01 Kebele, and it was a leprosy settlement area in the Amir Nur district (Health Extension Workers Report, 2023).

The other study sites were Babile District, Bisidimo, and Ifadin Kebeles, which are found 540 km away from Addis Ababa and 23 km from Harar to the east. Bisidimo Kebele is an area around Bisidimo Hospital, and it includes 1,237 households, a total population of 7,229, and 4456 children aged 1–18 years of age. Bisidimo Kebele is a historically leprosy settlement area. People with leprosy cases came to Bisidimo Hospital for treatment and made their residence around Bisidimo Hospital. Ifadin Kebele is a non-leprosy settlement area around Bisidimo Kebele, and it includes 1,381 households with a total population of 6,627, and 4,356 were children aged 1–18 years (Health Extension Workers Report, 2023).

Population, Inclusion/ Exclusion Criteria

The study included all households having children aged from 1-18 years who were diagnosed with one NTD and lived for a minimum of six months in Amir Nur District of 01 and 02 Kebeles and Babile District of Bisidimo and Ifadin Kebeles in eastern Ethiopia. Caregivers of children who were not present at home at the time of data collection were excluded.

Sample size and Sampling Technique

The sample size was calculated using a single population proportion formula, considering a 95% confidence level, a 5% margin of error, and an estimated prevalence of 87.2% for healthcare-seeking behavior among urban residents of the Dera District in North Shoa, Oromia Regional State, Ethiopia (Tsion, 2008). After accounting for a 5% non-response rate, the final sample size was determined to be 181.

The study areas were stratified into urban and rural. Two rural and two urban kebeles were selected by simple random sampling. Then, a systematic sampling method was employed to select the sample allocated to each randomly selected kebele. Households with an under-eighteen child were identified by health extension workers, and all children in the selected households were examined ($n = 1048$). One hundred forty-eight were diagnosed with NTDs (skin NTDs, trachoma, and soil-transmitted helminthiasis). Then, the health care seeking behavior of caregivers of children diagnosed with was assessed.

Data Collection Instruments and Procedures

Data were collected using a structured questionnaire-based oral interview of children's caregivers, performing physical and stool examination, which was adopted from different literature (Dagnew *et al.*, 2018; Kolola *et al.*, 2016; Simieneh *et al.*, 2019; Solomon *et al.*, 2020; WHO, 2010). Data were collected from the caregivers of children on socio-demographic characteristics of the caregivers and children, and caregivers' health care-seeking behavior for illnesses like skin NTDs, trachoma, and soil-transmitted helminthiasis.

After completion of the interview questionnaire, all eligible children, except those who had received deworming treatment within preceding two months were provided with marked, clean, labeled plastic stool cups and instructed to bring about five grams of stool specimen aliquot of each sample was transported to Haramaya University, College of Health and Medical

Sciences, Medical Parasitology Teaching Laboratory within the same day using a cold box for examination using the formal-ether concentration technique. During data collection, BSc public health officers, laboratory technicians, and ophthalmic nurses examined the child's eye and skin. Clinical signs of trachoma were identified by the trained data collectors using a pen torch and a lens with a 2.5x magnifying power.

Formol Ether Concentration Technique: Stool samples were processed using the formol-ether concentration technique to detect parasitic elements (eggs, larvae, or cysts) (Marjot, 2015). A drop of sediment was placed on a glass slide, covered with a coverslip, and examined under a light microscope (10 \times and 40 \times magnification). For enhanced visualization, iodine staining was applied when necessary.

Operational Definition/Definition of Terms

Health-care seeking behavior. A level of caregiver's visit to a formal health facility (hospital, health center, health post, or private clinic) for NTD-related care for their child within 28 days of either the onset of initial symptoms or a noticeable exacerbation of a pre-existing NTD diagnosis, as reported through a self-administered questionnaire featuring "yes or no" questions on common NTDs (Dos Santos *et al.*, 2020)

Neglected tropical diseases: are operationally defined as laboratory confirmed cases of Soil-Transmitted Helminthiasis (ascariasis, trichuriasis, or hookworm diagnosed by formal-ether concentration technique), Trachoma (diagnosed by clinical eye examination using the WHO simplified grading system), or Scabies (confirmed by clinical skin examination for characteristic signs like burrows and papules), as these constitute the most prevalent NTDs in the Amir Nur and Babile districts.

Caregivers: refer to individuals who are primarily responsible for the day-to-day care and health-related decisions of children under 18 years old, including meeting their physical, emotional, educational, supervision, and medical needs (Jeong, 2018).

Data Processing and Analysis

The data were collected using ODK software and exported to SPSS version 26 for analysis. Descriptive analysis was done to determine the magnitude and distribution of healthcare-seeking behavior for children with signs and symptoms of NTDs. Bivariate and multivariable logistic regression analyses were computed to identify the association between independent variables and the outcome variables. In bivariate analysis, variables with a *p-value* less than 0.25 were included in the multivariable analysis to control for all confounding variables. The model goodness of fit was tested by the Hosmer-Lemeshow statistic. The model was considered a good fit if it was found to be insignificant for the Hosmer-Lemeshow statistic (>0.05). Multicollinearity was checked by using variance inflation factors. The association between health-care seeking behavior and the independent variables was reported as an odds ratio with its 95% CI, with a *p-value* less than 0.05 in the multivariable backward Wald logistic regression analysis, considered to be statistically significant.

Data Quality Control

Two nurses and three public health professionals, who are fluent in the local language (Afan Oromo) and Amharic, and are familiar with the community culture, were recruited for data collection. Data quality was ensured during collection, coding, entry, and analysis. A pretested questionnaire was applied to other related variables. The questionnaire was pretested among 5% of children living in Harar town, Hakim district, 17 Kebeles. Two days of training were given to the data collectors and supervisors. Regular supervision was performed by the investigators. The laboratory analysis was conducted in accordance with standard operating procedures.

Ethical Consideration

This study was approved by the Institutional Health Research Ethics Review Committee at Haramaya University College of Health and Medical Science and was granted ethical approval (IHRERC) (Reference number: IHRERC/ 185/2023). Permission letters were

obtained from the Amir Nur District and Babile District administrative offices. The interview and clinical eye and skin examination of the chosen children took place in the presence of the children's caregivers after the signed informed voluntary assent was obtained. Their names and other personal identifiers were not registered to maintain confidentiality. The study's goals, as well as the rights and advantages of study participants, were explained. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians. Written informed consent was obtained from the individual(s) and minor(s)' legal guardian/next of kin for the publication of any potentially identifiable images or data included in this article.

Results

Socio-demographic characteristics of participants.

A total of 148 caregivers were involved in this study, giving an overall response rate of 81.3%. Mean age was 30.8 (SD: ± 6.16) years. Eighty-seven (58.8%) caregivers were rural residents. Regarding caregivers' educational status, 91 (61.5%) did not attend a formal education. Fifty-one (34.5%) of caregivers had an average monthly income of less than 3,000 Ethiopian birrs. Of the children, 45.9% were under five years of age, and 55.4% were male (Table 1)

Prevalence of Neglected Tropical Diseases

Stool examination revealed that 65 (43.9%) were infected with soil-transmitted helminthes (STH). Among these, *Ascaris lumbricoides* was the most prevalent, detected in 44 (67%) cases, while hookworm infections were found in 21 (33%) children. Additionally, screening for active trachoma showed that 46 (31.1%) children were positive. Of these, 21 (45.7%) presented with trachomatous follicular (TF), while 25 (54.3%) exhibited trachomatous intense (TI). Additionally, scabies was diagnosed in 37 (25%) of the enrolled children (Figure 1).

Table 1: Socio-demographic characteristics of the caregivers in selected kebeles in Amir Nur and Babile District, Eastern Ethiopia, 2024. (n = 148)

Variables	Response category (n = 148)	Frequency	Percent (%)
Place of residence	Urban	61	41.2
	Rural	87	58.8
Caregivers age in full years	< 25	38	25.7
	25–34	87	58.8
	≥ 35	23	15.5
Caregiver’s educational status	No formal education	91	61.5
	Primary school	36	24.3
	Secondary school and above	21	14.2
Marital status	Married	135	91.2
	Single	13	8.8
Occupation	Employed	22	14.9
	House wife	52	35.1
Monthly income (birr)	<3000	51	34.5
	≥3000	97	65.5
Number of children	<5	127	85.8
	≥5	21	14.2
Age of children	< 5	68	46
	5-12	61	41.2
	13-18	19	12.8
Sex of children	Male	82	55.4
	Female	66	44.6
Child’s educational status	Not applicable	34	22.9
	KG	30	20.3
	Primary and secondary school	84	56.8

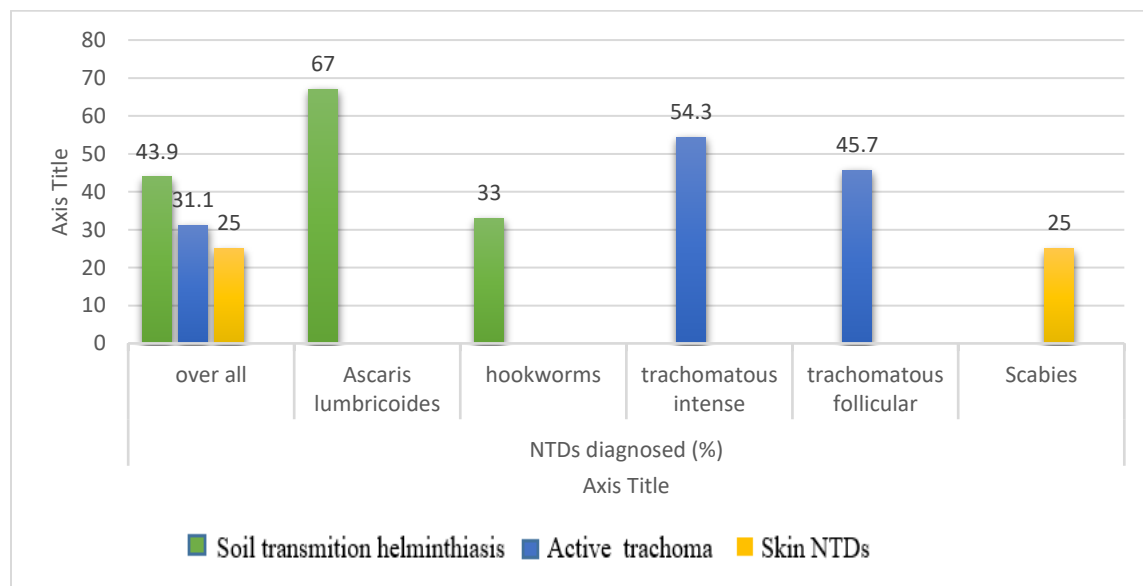


Figure 1: Neglected tropical diseases diagnosed among children aged 1-18 years old in Amir Nur and Babile Districts, Eastern Ethiopia

Level of healthcare-seeking behavior for children's illnesses

According to this study, 43.2% (95% CI: 35.0%, 51.0%) of caregivers visit health institutions for the sake of treatment for their child who experiences NTD symptoms, and the other 84 (56.8%) of caregivers did not visit health institutions. The majority, 120 (81.1%)

of caregivers were insurance users, and 134 (90.5%) stated that the cost of drugs hinders them from visiting health institutions. Among those who did not visit a health institution, 35 (23.6%) reported that the symptoms were not serious, and 49 (33.1%) stated that it was due to financial constraints (Table 2).

Table 2: Caregivers' access, knowledge, and healthcare-seeking behavior for childhood illnesses in Amir Nur and Babile Districts, Eastern Ethiopia, 2024 (n=148)

Variables	Category	number	Percentage (%)
Health post distance (m)	<2000	101	68.2
	≥2000	47	31.8
Health center distance (m)	<2000	102	68.9
	≥2000	46	31.1
Hospital distance (m)	<4000	94	63.5
	≥4000	54	36.5
Presence of a private clinic	Yes	84	56.8
	No	64	43.2
Insurance users	Yes	120	81.1
	No	28	18.9
Treatment cost influence	Yes	134	90.5
	No	14	9.5
Health professional approach	Good	89	60.1
	Not good	59	39.9
Access to health information	Yes	128	86.5
	No	20	13.5
Source of health information	HEW	92	62.2
	Others ^{##}	36	24.3
Knowledge of any NTDs	Yes	120	81.1
	No	28	18.9
Did you seek treatment?	Yes	64	43.2
	No	84	56.8
Days of visiting the health institution	within 7 days after the onset of symptoms	33	22.3
	After 7 days from the onset of symptoms	31	20.9
Reason for not seeking treatment	Symptoms were not serious	42	28.3
	No effective treatment	12	8.1
	Lack of time	9	6.2
	Lack of money	21	14.2

Factors associated with caregivers' healthcare-seeking behavior for their children with NTDs

In bivariate logistic regression analysis, place of residence, caregiver educational status, occupation, monthly income, child educational status, health center distance, presence of a private clinic, and access to health information were found to have a *p-value* less than or equal to 0.25 and were selected as candidates for the final multivariable analysis. Multivariable logistic regression analysis revealed that variables like the caregiver's occupational status, average monthly income (birr), and access to health information were significantly associated with caregivers' healthcare-seeking behaviors for their children with NTDs at a *p-*

value of less than 0.05. The likelihood of health care seeking of employed caregivers was 2.9 (AOR=2.92, 95% CI: 1.08–7.89) times higher than that of unemployed caregivers. The odds of health care seeking of children's caregivers who had an average monthly income of less than 3,000 birr were 0.36 less likely to seek health care treatment (AOR = 0.36, 95% CI: 0.13–0.91). The likelihood of health care seeking of caregivers who had health information access was 2.66 (AOR = 2.66, 95% CI: 1.02–31.5) times higher than that of caregivers who had no access to health information (Table 3).

Table 3. Bivariate and multivariable logistic regression analysis of health care seeking behavior and its associated factors among households of children with NTDs living in Amir Nur and Babile District, eastern Ethiopia

Variables	Category	Health care seeking behavior		COR (95% CI)	P-value	AOR (95% CI)	P-value
		Yes	No				
Place of residence	Rural	34 (39.7%)	53 (60.3%)	0.66 (0.34,1.28)	0.22	2.43 (0.23,2.56)	0.46
	Urban	30 (49.2%)	31(50.8%)	1		1	
Caregivers' age (in full years)	<30	39 (45.3%)	47 (54.7%)	1.23(0.63,2.38)	0.54		
	≥30	25 (40.3%)	37 (59.7%)	1			
Caregiver's educational status	Read and write	31(54.4%)	26 (45.6%)	2.09(1.33, 3.19)	0.13	1.86(0.15,5.08)	0.57
	Not read or write	33(36.3%)	58 (63.7%)	1		1	
Occupation	Employed	15 (68.2%)	7 (30.8%)	3.37(1.11, 5.78)	0.01	2.93 (1.08,7.89)	0.03*
	Others [#]	49 (38.8%)	77 (61.2%)	1		1	
Monthly income (birr)	<3000	16 (31.4%)	35 (68.6%)	0.47 (0.23,0.95)	0.04	0.36 (0.13, 0.91)	0.01*
	≥3000	48 (49.5%)	49 (50.5%)	1		1	
Number of children	<5	57 (44.8%)	70 (55.2%)	1.63(0.62,4.31)	0.33	1.23(0.41,3.71)	0.71
	≥5	7 (33.3%)	14 (66.7%)	1		1	
Health center distance (m)	<2000	48(47.1%)	54(56.9%)	1.67 (0.89,1.23)	0.17	1.39 (0.34, 3.91)	0.99
	≥2000	16(34.8%)	30(65.2%)	1		1	
Hospital distance (m)	<4000	43(67.2%)	21(32.8%)	1.32 (0.56, 3.67)	0.40	1.18 (0.52, 3.97)	0.19
	≥4000	51(60.7%)	33(39.3%)	1		1	
Presence of a private clinic	Yes	32(59.3%)	52(40.7%)	0.62 (0.32,1.49)	0.11	1.47 (0.28, 8.23)	0.52
	No	32(50%)	32(50%)	1		1	
Treatment cost influence	Yes	59(44%)	75(56%)	1.42(0.45,4.45)	0.55	0.90(0.24,3.35)	0.87
	No	5(35.7%)	9(64.3%)	1		1	
Access to health information	Yes	58(45.3%)	70(54.7%)	1.93(0.69,5.35)	0.20	2.66 (1.02,31.5)	0.048*
	No	6(30%)	14(70%)	1		1	

[#]: includes housewife, student and labor worker, ^{##}: includes friends, mass media and social media, CI: Confidence Interval; COR: Crude Odds Ratio, AOR: Adjusted Odds Ratio

Discussion

In this study, the magnitude of caregivers' health care seeking behavior was 43.2% and factors like monthly income less than 3,000 birr, being employed, and having access to health information were significantly associated with caregivers' health care seeking behavior.

The findings of the current study regarding the level of caregivers' health care seeking behavior are in line with the study findings in Northwest Ethiopia (48.8%) and Mota town (39.3%) (Hamid *et al.*, 2024; Simineh *et al.*, 2019). However, this study finding is lower than most of the previous findings reported from urban Es-era district of Southwest (58.4%), Dale Woreda, Sidama Zone (72.8%), Jeldu District, Oromia Regional State (74.6%), Dangila town, North West Ethiopia (82.1%), Wolaita Zone (57.9%), Tsegedie district (72.5%), Ensaro District, North Shoa of Ethiopia (68.3%) (Begashaw *et al.*, 2016; Bojola *et al.*, 2018; Dagnew *et al.*, 2018; Falaha *et al.*, 2016; Kolola *et al.*, 2016; Sisay *et al.*, 2015; Wellay *et al.*, 2018; Yimer *et al.*, 2009) This difference might be due to differences

in age and gender of study participants, study setting, community awareness variation, perceived illness severity, and access to health information (Bojola *et al.*, 2018; Das *et al.*, 2018; Di Novi *et al.*, 2024; Wharton-Smith *et al.*, 2019). The lower prevalence observed in our study could also be influenced by a higher degree of stigma or normalization of NTDs within this specific community, leading to a lower perceived severity and a reluctance to seek formal care (Hofstraat and Van Brakel, 2015).

According to this study, the status of health care seeking of employed caregivers was 2.9 times higher than that of unemployed caregivers. This is in line with the study findings in Türkiye (Güney *et al.*, 2024). The possible explanation might be that employed caregivers are more likely to have stable income and employer-sponsored health insurance, reducing financial barriers to accessing health care (Damaske, 2021). Besides, high monthly income was significantly associated with the healthcare-seeking behavior of chil-

dren's caregivers. This study also showed that the status of health care seeking of caregivers who earned less than 3,000 birr average monthly income was 64% less likely to seek health care treatment than those who earned more than 3,000 birr average monthly income. This study finding was in line with the study findings in Ethiopia, Pakistan, and Nigeria (Bojola *et al.*, 2018; Ladha *et al.*, 2009; Senbeto *et al.*, 2013; Uzochukwu and Onwujekwe, 2004). The possible explanation might be that caregivers who earn high monthly incomes may have more access to information because the affordability of health care services may not bother them (Tiffin and Ross-Ibarra, 2014). These findings are also supported by the Andersen Behavioral Model of Health Services Use, which posits that enabling factors such as income and employment are fundamental determinants of healthcare utilization (Rhodes, 1995).

In the current study, accessibility of health information was significantly associated with the healthcare-seeking behavior of children's caregivers. Caregivers who had access to health information were 2.6 times more likely to seek health care than those who had no access to information. This finding is in line with the study findings of the Swedish population (Sundell *et al.*, 2022). This could be explained by the fact that health information reduces uncertainty, increases perceived need for care, and improves self-efficacy in seeking medical help (Bangerter *et al.*, 2019; Nwagwu and Akanji, 2024; Qiu *et al.*, 2019). However, access to information is also a function of the health system's strength, including the effectiveness of health extension workers and the availability of culturally appropriate messaging (Defar *et al.*, 2021). This study highlights that economic stability, employment, and health awareness are critical drivers of healthcare-seeking behavior among caregivers of children with NTDs. However, these individual-level factors operate within a context of structural barriers. The affordability of care includes not just direct costs but also indirect costs like transportation and lost wages, which remain a significant burden (Hunde *et al.*, 2024). To address the challenges identified, policymakers should adopt multisectoral approaches. These may include economic interventions such as conditional cash transfers to offset opportunity costs; community-level initiatives aimed at reducing stigma and improving health literacy through trusted community health workers; and system-level strategies to decentralize NTD care,

ensure consistent drug availability, and strengthen the responsiveness of primary healthcare services.

Strengths and Limitations

A key strength of this study lies in its focus on community-based settings, offering valuable insights into the barriers and decision-making processes that influence timely treatment and prevention of neglected tropical diseases. However, the study is not without limitations. Its cross-sectional design restricts the ability to establish causal relationships and is prone to recall bias. Additionally, the study did not qualitatively explore cultural beliefs and stigma factors likely to play a significant role in care-seeking behaviors, which should be a focus of future research.

Conclusion

Among caregivers of children with NTDs, health-care-seeking behavior was low compared with most previous studies in Ethiopia. Key factors, including employment status, a monthly income greater than 3,000 birr, and access to health information, were significantly associated with improved health-care-seeking behavior among caregivers. These findings underscore the importance of socioeconomic stability and health literacy in motivating caregivers to seek medical care for their children. The consistency of these results with the existing literature strengthens the evidence that financial security and health education play crucial roles in enhancing healthcare utilization among caregivers in Amir Nur and Babile district, Eastern Ethiopia. Thus, to promote better health-care access, policymakers and stakeholders should implement integrated programs that simultaneously address financial barriers through income-generation support and strengthen awareness of health services via community education initiatives. These research findings establish an evidence base for future studies examining multi-component interventions to improve caregivers' health-seeking behaviors.

Author Contributions

KU: conceptualization, data curation, formal analysis, funding acquisition, methodology, project administration, resources, software, supervision, validation, visualization, review & editing. FW: conceptualization, data curation, formal analysis, methodology, software, supervision, validation, visualization, review & edit-

ing, investigation. MG: conceptualization, data curation, formal analysis, investigation, methodology, software, supervision, validation, visualization, writing, review & editing, funding acquisition, project administration, resources, and draft writing. AD: conceptualization, data curation, formal analysis, methodology, software, supervision, validation, visualization, writing, review & editing. TBR: data curation, formal analysis, methodology, software, supervision, validation, visualization, review & editing. UU: conceptualization, formal analysis, investigation, methodology, project administration, resources, software, supervision, visualization, review & editing. GK: conceptualization, data curation, formal analysis, methodology, software, supervision, validation, visualization, draft writing, review & editing.

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Competing Interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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List of Abbreviations

MDA: Mass Drug Administration, NTD; Neglected Tropical Diseases, WHO: World Health Organization

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