HEALTH SEEKING BEHAVIOR FOR PNEUMONIA AMONG CAREGIVERS OF CHILDREN UNDER FIVE YEARS IN EMBU TEACHING AND REFERRAL HOSPITAL, EMBU COUNTY, KENYA

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ABSTRACT

Background: All over the world,pneumonia is responsible for most of the ailments and mortalities among the under five years population.(Perin et al., 2022). Recent research conducted in Kenya revealed showed there is low seeking of care among the under five years population with respiratory diseases like pneumonia as parents attempt to self-medicate the children first. Additionally, due to lack of timely and appropriate treatment, the respiratory conditions complicate leading to need for admission and longer hospital stay for pediatric patients.(Emukule et al., 2023)Study objective: To establish the determinants of health seeking behavior for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital.Methods: This was as cross sectional study where 196 caregivers were consecutively sampled. Interviewer administered questionnaire was used.Frequencies and percentages were used for descriptive analysis.Bivariate analysis was done using chi-square test for association. Significant variables from bivariate analysis were subjected to multivariable analysis using binary logistic regression.SPSS version 29.0 was used. Results: Average age of the caregivers was 32.3 years (SD = 9.0). Of the caregivers, 51% (n=100) were aged 30 years or older.88.3% (n=173) of caregivers were female. Overall analysis of the health seeking behavior established that 70.9% (n=139) of caregivers had inappropriate health seeking behavior, while 29.1% (n=57) had appropriate health seeking behaviour. Married caregivers (aOR = 2.92, 95% CI: 1.15, 10.40, P = 0.009), those with children were not referred for care (aOR = 4.33, 95% CI: 1.23, 15.21, P = 0.022), who had children aged 1-24 months (aOR = 3.86, 95% CI: 1.35, 11.06, P = 0.012) and caregivers of firstborns (aOR = 5.18, 95% CI: 1.43, 18.78, P = 0.012) were more likely to have appropriate HSB. Caregivers who had SHIF insurance cover were more likely to seek appropriate healthcare (aOR = 1.89, 95% CI: 1.12, 3.13, P < 0.001).Conclusion and recommendations: There is inappropriate health seeking behavior among caregivers of children with pneumonia. Factors such as marital status, referral status, child age, and birth order significantly influence HSB for pneumonia in children. Therfore, there is need to implement interventions to focus on educating caregivers, especially those with older children, to encourage timely healthcare access.

INTRODUCTION

Background of the Study

Pneumonia affects the lung parenchyma due to bacteria, viruses and fungi.
According to WHO classification, there is pneumonia which is not severe and it presents with as cough or difficulty in breathing, fast breathing and lower chest wall in drawing. This can be treated with oral antibiotics in an outpatient setting. However, there is severe pneumonia which presents with danger signs like lack of ability to drink or breastfeeding, grunting, central cyanosis, reduced level of consciousness or reduced oxygen saturation below ninety percent. This often requires admission for treatment with supplemental oxygen, supportive care and injectable antibiotics.(WHO, 2014).

Most of the unplanned outpatient visits and admission in under fives are due to this disease. Pneumonia that appears severe often requires admission in an inpatient setting and can leads to complications and is a major reason for admission and mortalities in pediatric intensive care units especially in younger children, who tend to deteriorate faster and need respiratory support till they fully recover.(Roux et al., 2021).

Globally,pneumonia is responsible for most of the ailment and mortalities in pediatric patients aged two to fifty nine months.(Perin et al., 2022). Those children less than five years are more susceptible more so in third world nations.(McAllister et al., 2019). A study done on how prevalent pneumonia is among under fives, from year 2002 to year 2019 among countries in the region revealed that Kenya had the highest burden of the disease, having a prevalence of 64.3 .(Beletew et al., 2020).

The main reason for admission in health facilities among patients aged five years and below in Kenya in 2018,2019 and 2020 was Pneumonia.(*Economic-Survey-2021.* n.d.).There is remarkable strain in the Kenyan healthcare system due to pneumonia in patients within this age bracket in Kenya despite ongoing programs like management of childhood Illnesses via integrated strategies and vaccination against childhood pneumonia.(Wambui et al., 2018).

Activities that human beings do when they feel or see that their health is not good in order to find the right treatment for their illness is what is called health care seeking behavior.(Penjor et al., 2019).Caregivers participate in the management of children since they are the ones involved in making health care seeking decisions on behalf of the children. A research done within the Peruvian Amazon and Ethiopia showed that caregivers delayed to look for prompt treatment for children with pneumonia ,leading to poor outcomes, with proportion of delay being 65% and 62.2% respectively.(Pajuelo et al.,2018);(Temsesgen et al., 2022) and 62.1% in Kenya.(Ndungu, 2018).

Prompt and appropriate healthcare seeking can be useful in ensuring early detection of pneumonia cases and early commencement of appropriate therapy to minimize the chances of complications.(Dinku et al., 2023). This will in turn reduce the burden on the healthcare system caused by cases that need prolonged hospitalization, which leads to increased cost of care for the facility, the household and the medical insurance providers.

Problem Statement

Recently,research done in Kenya elicited that there is low HSB for children with acute respiratory diseases like pneumonia as parents attempt to self-medicate the children first. Additionally, due to lack of timely and appropriate treatment, the respiratory conditions complicate leading to need for admission and longer hospital stay for pediatric patients.(Emukule et al., 2023).Despite the introduction and use of medical insurance cover in the country, most households spend about forty to sixty percent of their monthly income on medical expenses for every episode of hospital admission that occurs due to a respiratory illness, as sometimes they have to top up the hospital bills out of the pocket.(Emukule et al., 2019).

In ETRH, pneumonia made up about 32% of the annual admissions done in the pediatric ward in 2022. There has been gradual rise in pediatric admissions due to severe pneumonia since the year 2020 by about 30% annually, as per MOH 705A reports generated from the facility's Records Department. This is despite Embu County being among those with the highest immunization coverage for under-fives at 91% in the country.(*Kdhs, 2022*.) and also despite that there is use of IMCI in management of pneumonia cases at the facility.

Additionally, mortality rate among under five years in Embu County is at 44 per 1000 live births while at the national level it is at 41 per 1000 live births.(*Kdhs,2022*.) With pneumonia being the leading cause of morbidity, there may be implications as well on the mortalities occurring in the under-fives generally.

Few studies have been done on HSB for pneumonia in patients aged five years and below in Kenya, therefore, generally there is a gap in research. No documented study on the same was found to have been done in Embu County, more so in ETRH. This study will therefore establish if there are determinants influencing HSB that could be facilitating pneumonia cases at the facility.

Research Questions

i. What is the HSB for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital?
ii. What are the patient -related factors influencing HSB for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital?
iii. What are the caregiver -related factors influencing HSB for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital?

iv. What is the health facility-related factors influencing HSB for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital?

Research Objectives

Broad Objective

To establish the determinants of health seeking behavior for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital.

Specific Objectives

i. To determine the health seeking behavior for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital
ii. To determine the patient -related factors influencing health seeking behavior for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital.
iii. To determine the caregiver -related factors influencing health seeking behavior for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital.
iv. To determine the health facility-related factors influencing health seeking behavior for pneumonia among caregivers of children under five years at Embu Teaching and Referral Hospital.

Justification

ETRH was the proposed setting of the research work because pneumonia is the main reason for about 32% of the annual admissions done in the pediatric ward in 2022. Gradual rise of pediatric patients hospitalized with severe pneumonia since the year 2020 by about 30% annually, as per reports generated from the facility's Records Department was noted.

Research done in Kenya acknowledged presence of low HSN for diseases like pneumonia as parents attempt to self-medicate the children first. Additionally, due to lack of timely and appropriate treatment, the respiratory conditions complicate leading to need for admission and longer hospital stay.(Emukule et al., 2023)
No documented study on the same was found to have been done in Embu County, more so in ETRH.

Significance of the Study

Findings on determinants of HSB will be useful to nurses and other relevant stakeholders in planning strategic interventions to improve caregiver HSB at community and facility levels.
They shall also assist in restructuring, strengthening and improving the existing health seeking behaviors and treatment programs for pneumonia.

Appropriate care seeking behavior will lead to better health outcomes in patients, less disease complications, reduced hospital stay and reduced healthcare cost for admitted children.

Theoretical Framework

The research was done using a theoretical framework based on the Health Belief Model.(*Marshall H. Becker, 1988*.).This model has five constructs which propose that health seeking behavior is dependent on determinants such as:

i. Perceived susceptibility(belief in possibility of acquiring a disease)
ii. Perceived severity(belief in how serious an ailment is and the effects it produces)
iii. Perceived benefits(conviction in how well an undertaking shall control the health problem)
iv. Perceived barriers(physical and mental hindrances that can hinder one from performing an advised solution)
v. Cues to action(motivation that causes an individual to accept an advised action) such as advice from others, mass media
    a. Modifying factors in the model include one's age, sex, socioeconomic status and personality. These indirectly influence the perceived susceptibility, severity, benefits and barriers.
    b. People who have more perceived susceptibility and perceived severity of a disease have higher likelihood of looking for care services. Individuals with higher perceived benefits and more cues to action are more likely to comply to treatment.(Latunji & Akinyemi, 2018).
    c. This model was applied as follows;
vi. Modifying factors influencing health seeking behavior were the patients' and caregivers' socio-demographic factors.
vii. Cues to action were informed by caregivers' socio-cultural factors like family support as the family members can be a source of advice to prompt one to seek care
viii. Perceived benefits might be influenced by cultural beliefs on use of traditional and alternative complementary medicine.
ix. Perceived barriers were informed by health facility-related factors like availability of resources, waiting time, and access to health facility and cost of care.

Conceptual Framework

The independent variables were patient related factors,caregiver related factors and health facility-related factors.

The intervening variable were government policies on health issues.

Some studies have shown that policies that promote awareness on appropriate care seeking such as through health education,mass campaigns indirectly lead to improved health seeking behaviours.(Adedokun & Yaya, 2020).Another study in Pakistan revealed that favorable health policies on health insurance funding affect families financially and influence their ability to afford quality care.This in turn has a positive influence on health care seeking

behavior.Additionally,policies that favour adequate budget allocation for infrastructural development of hospitals affect coverage and accessibility to services thus influencing health seeking behavior indirectly.(Shaikh, 2024).

Conceptual Framework

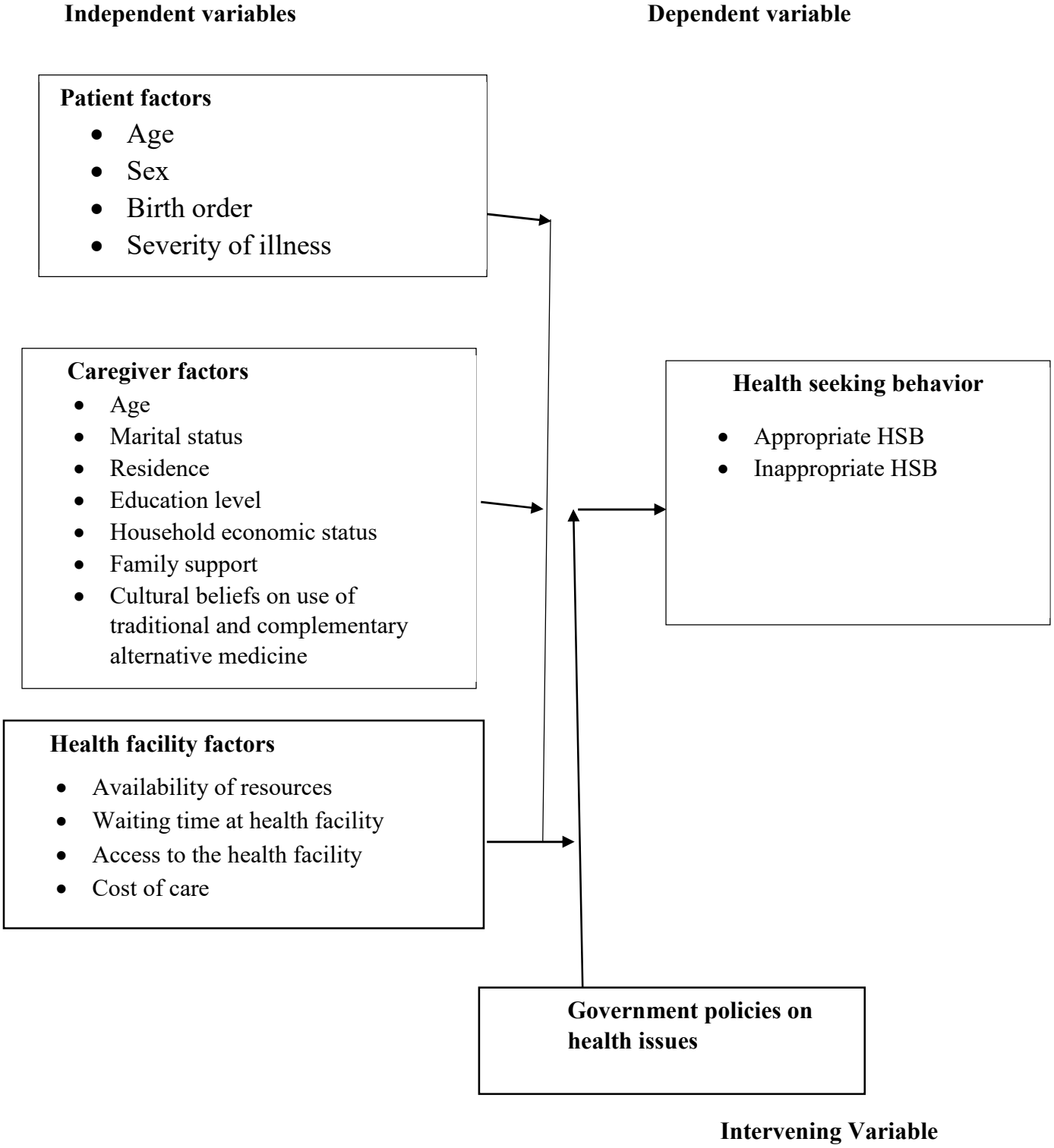

Figure 1.1 Conceptual Framework

LITERATURE REVIEW

Health Seeking Behaviour

Most caregivers prefer informal sources of healthcare as a first choice when a child is sick. These are mostly self medication with home remedies and buying medication over the counter since they are more affordable.(Aftab et al., 2018),(Q.Aigbokhaode et al., 2023).

Most caregivers in Uganda reported delaying to find health care for the children since care was found after twenty four hours from onset of symptoms.,(Ekyaruhanga et al., 2023).This is agrees with results from other studies in Ethiopia(Temsesgen et al., 2023) and Kenya.(Ndungu, 2018).

The delay in health care seeking has led to poor outcomes like complications of this disease and even death.(Kajungu et al., 2023)

The gap identified in existing literature is whether caregivers seek prompt health care for pneumonia, especially in Kenya.

Association Between Patient –Related Factors and Health Seeking Behavior

Several studies have shown a significant relationship between the patient's factors like age, sex and previous history of hospitalization with the level of health seeking behavior.

Patient's Sex

There is higher level of care seeking for boys than girls in many countries in Asia (Sultana et al., 2019), probably due to cultural practices which place more value on male children.(Naheed et al., 2019),(Yaya et al., 2021).This contrasts results from research conducted in Malawi and Uganda that revealed no correlation of child's sex and HSB.(King et al., 2021),(Kajungu et al., 2023).

Patients' Age

A child's age influences the promptness with which health care is sought. Some studies have shown that there is more prompt health care seeking for younger children, especially those less than twelve months of age since they are perceived to be unable to tolerate illness unlike the older children.(Ekyaruhanga et al., 2023), (Temsesgen et al., 2022).However, other studies contradict these findings as care seeking for infants less than twelve months of age is usually delayed since they have subtle symptoms when sick leading to more complications and deaths within this age bracket.(King et al., 2021).However ,other studies have failed to find any association.(Bakare et al., 2023)

Birth Order

In Indonesia,parents sought prompt hospital services for their first child than the subsequent children.(Khasanah et al., 2023).It is because first tme parents perceive they have little experience and fear taking chances.Caregivers of children in higher birth orders like thirdborns and onwards assume they have enough skills and knowledge to deal with illnesses from the previous child's experience.(Titaley et al., 2020).This concurs with findings from another study in Burundi.(Ahinkorah et al., 2021).

Severity of Illness

According to WHO classification of pneumonia among under fives, there is pneumonia which is not severe and it presents with as cough or difficulty in breathing ,fast breathing and lower chest wall in drawing . This can be treated with oral antibiotics in an outpatient setting. However there is severe pneumonia which presents with danger signs like lack of ability to drink or breastfeeding, grunting, central cyanosis, reduced level of consciousness or reduced oxygen saturation below ninety percent. This often requires admission for treatment with supplemental oxygen, supportive care and injectable antibiotics.(WHO, 2014).

Several studies have shown that caregivers who perceived that a child was severely ill such that a child could not drink or breastfeed reported seeking care as quickly as possible in government and private hospitals.(Bakare et al., 2020),(Titaley et al., 2020).

Association Between Caregiver –Related Factors and HSB

A study in Bangladesh identified caretaker age,level of education and economic status have a significant effect on how they perceive illness and look for health services for diseases like pneumonia.(Sultana et al., 2019b). It differs with results from research in Kenya and Ethiopia as these factors among caretakers of sick children were not connected with how they look for health services and the time they go to a hospital.(Ndungu, 2018);(Abegaz et al., 2019)

Age

In Sub Saharan Africa, the chance of a sick child's caretaker looking for health service decreased with maternal age as caretakers between 45 and 49 years had higher possibility of looking for treatment since they had more experience about caring for sick children than those who were between 15 and 19 years.(Ahinkorah et al., 2021).

It differs with findings from a research in Kenya as caregivers aged 31 years and above did not look for instant healthcare for a child with acute respiratory illness. Instead, youthful caretakers had better chance to seek instant healthcare as they lacked experience on actions to take and feared losing their children to the illness thus they had increased perceived severity of an illness.(Wambui et al., 2018).

Marital Status

Research carried out in Nigeria identified correlation of maternal marital status and HSB as married caregivers sought health care more than unmarried caregivers.(Adeoti & Cavallaro, 2022)

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This is supported by results from a research in Kenya which found married caregivers had 3.3 times chances of looking for prompt care as opposed to the single caregivers. This was perhaps due to the monetary and psychological support accorded to married caregivers by their male

partners and kin. The partners provided advice on care seeking as well as support. (Wambui et al., 2018).

Residence

Residence of caregivers is remarkably connected to a lag in looking for health services, as chance of lagging in looking for health service for those residing in remote regions is 2.3 times more than those residing in urbanized regions. (Bantie et al., 2019).This agrees with other research done in S Africa's Sub Sahara region (Ahinkorah et al., 2021) and Kenya.(Wambui et al., 2018). In most African countries, remote regions have infrastructure problems like poor road and transport network, unlike urban regions. Perhaps this is a barrier that negatively affects the timeliness in how people in rural regions look for health services.(Adewoyin et al., 2018).

Level of Education

Caregivers' education level has a remarkable connection with appropriate manner in which they look for health care services for their young ones aged five years and below.(Sultana et al., 2019b);(Adeoti & Cavallaro, 2022).Mothers with secondary or tertiary level of education seek better care and have more awareness, perhaps due to exposure and ability to utilize mass media, which provides cues to action.(Wambui et al., 2018).

Household Economic Status

There is significant connection between the financial status of a household and how individuals look for health services as mothers from low income households lack finances to access health services thus delaying the time when they go to a health facility. This is because they need money for transport and payment of servces.(Ahinkorah et al., 2021);(Temsesgen et al., 2022).

Family Support

Social –cultural factors on family norms influence promptness of care seeking behavior. This is because in families where the man is the chief decision maker of the household, for example in Peru, there is quicker decision making and more financial and emotional support to a mother whose child has an acute respiratory tract infection. The father tends to provide advice on care seeking to the mother which prompts the action to seek care.(Pajuelo et al., 2018).This contrasts a study in Uganda which found that where the mother is the head of household there was more prompt care seeking as the larger family does not get involved in decision making.(Ekyaruhanga et al., 2023). However in most Eastern African countries, support was accorded to mothers who were heads of households only if they sought for decision making from extended family members like their parents or parents-in-law, who provide advice on where and when to seek care.(Akinyemi et al., 2019).In Kenya, a child was considered part of the larger family thus mothers reported receiving financial and emotional support from the extended family and their partners.(Wambui et al., 2018).

Cultural beliefs on Use of Traditional and Complementary Alternative Medicine

Several studies in Asia reveal that use of traditional remedies is the initial choice for most caregivers at the onset of illness. For example in India, This is usually influenced by the advice they get from elderly family members, positive experience after using them in previous illness and their low cost. These remedies are valued culturally and passed on from one generation to another. Additionally, cultural beliefs on use of traditional medicine negatively affect how caregivers perceive the benefits of conventional medicine given in the health facilities.(Mohanraj et al., 2019).In Pakistan, the traditional remedies for pneumonia in children include concoctions of warm milk and honey, herbal tea and cardamom added in soup. They are usually given to the child at the of the illness.(Aftab et al., 2018).It concurs with research results from Ethiopia whereby mothers reported they used traditional remedies first since they believed they more effective, cheaper and more readily available than modern medicine.(Abegaz et al., 2019).

A study done in Kisumu and Siaya counties in Kenya, revealed findings that contrast the studies above. Traditional medicine like herbs and spiritual healing were not the first choice as caregivers believed modern medicine was more effective. They were only used if the condition failed to respond or responded slowly to the conventional medicine issued at the hospital, for example if a child had persistent fever. The use of traditional medicine was influenced mostly by cultural beliefs on witchcraft, evil spirits and violation of taboos.(Ngere et al., 2022).

Association Between Health Facility-Related Factors and Caregivers' Health Seeking Behaviour

Availability of Resources at the Health Facility

A research in Ethiopia revealed that parents and guardians who had experienced lack of adequate resources like medication and inadequate staff in public hospitals delayed to seek care during the subsequent illness. The caregivers preferred private hospitals since there was a guarantee there is all drugs and personnel needed to attend to the children.(Bantie et al., 2019).It agrees with findings from a study in Pakistan where inadequate resources in hospitals would discourage mothers to seek timely care due to dissatisfaction with the services.(Das et al., 2023).Majority of caregivers sought care in private hospitals and had timely care seeking due to availability of drugs prescribed.(Aftab et al., 2018).In Kenya, mothers who sought care from public facilities with inadequate resources were more dissatisfied and delayed to seek care in subsequent illness unlike those who sought care from private facilities.(Ndungu, 2018).

Waiting Time at the Health Facility

Mothers who had waited for long at a health institution to receive health services reported delayed care seeking, with care being sought twenty four hours after onset of illness. Reasons for the prolonged waiting time included inadequate staff in facilities to provide timely care.(Abegaz et al., 2019).Majority of caregivers opt to avoid prolonged waiting time in health facilities by doing self-

medication using drugs bought over the counter and left over medicine at home as they observe the child, thus delaying appropriate care seeking.(Q.Aigbokhaode et al., 2023).It concurs with another research work in Kenya as caregivers who had experienced a long waiting time above one hour at a facility reported delaying to seek care for more than twenty four hours during a subsequent illness.(Ndungu, 2018).

Access to the Health Facility

A research in Pakistan revealed that caregivers who travelled for long distances to a health facility reported delay in seeking care as they had to incur more financial cost.(Das et al., 2023).This agrees with another reseach in Ethiopia.(Abegaz et al., 2019).The recommended distance by WHO from one's residence to nearest facility should not exceed five kilometres for ease of access to care.(Ekyaruhanga et al., 2023).In Kenya, similar findings were also present as mothers who lived near the facility ,less than or equal to two kilometers from a facility sought care as soon as the child showed signs of illness unlike those who lived far from the facility.(Ndungu, 2018).

Cost of Care

Several studies have revealed mothers delayed to seek timely care from health facilities if the cost of care was high during a previous visit. Instead, they opted to do home remedies and buy medication over the counter since they were more affordable. (Q.Aigbokhaode et al., 2023).It agrees with research in the Peruvian Amazon, whereby financial costs incurred at the facility hindered timely care seeking.(Pajuelo et al., 2018).In India, mothers reported timely care seeking in public facilities where services were offered freely unlike in private hospitals where they had to pay.(Das et al., 2023).

Gap in the Literature Review

The scholarly articles reviewed did not provide sufficient information on HSB in Kenya.
Few research articles about the same topic in this country has been identified and thus this work intends to bridge that gap.
Additionally,the influence of patient related factors on HSB was less discussed in most articles that were reviewed. Instead,most articles focused on caregiver and health facility related factors that influenced HSB.The researcher also intended to address this research gap.

RESEARCH METHODOLOGY

Introduction

The methods utilized in this research work intends to be decribed here.

Design of Study

A descriptive quantitative cross sectional design as investigator intendend to observe, describe and document the phenomenon as it occurred naturally without conducting any experimental intervention.The study period was three months.

Study Setting

The research setting was Embu Teaching and Referral Hospital,at the Pediatric Outpatient Department. The hospital was selected purposively since it was noted to have gradual increase in the statistics of pneumonia admissions in the Pediatric ward since 2020 by about 30% annually, as per reports generated from the facility's Records Department. Secondly, most of the people in the county look for healthcare services from the hospital, since it's the largest government hospital in the county, thus has a wider catchment area. Embu County has four sub-counties with Manyatta sub-county being where the facility is located. The hospital has an inpatient pediatric bed capacity of 60 for both medical and surgical cases.

Study Population

Caregivers of children under five years, who met the inclusion criteria. A minimum of 110 children less than five years are admitted due to severe pneumonia every month at Embu Teaching and Referral Hospital as per the records. Therefore, the study targeted about 330 children in a period of 3 months. The respondents were one caregiver per child.

Procedure of Sampling

Sample Size Determination

Fisher's al formula (1998) was utilized to calculate sample size of primary caregivers who took part in this research work. The formula for fishers' is illustrated as follows;

$$n= \frac{z2pq}{d2}$$

Where by: n was the sample size

z was the standard deviation value for 95% level of confidence which is 1.96

d was the margin of error at 0.05

p was the proportion which was in the target population that was estimated to have characteristics that could be measured

q was the proportion which was to be estimated, assuming p=0.5, q would be 1-p

Therefore $n = \frac{(1.96^2)\ (0.5)\ (0.5)}{(0.05)^2}$

Therefore, N=384. Therefore, sample size for the caregivers was 384.

study population was below 10,000 so sample size was altered using Cochran formula (2000):

$$nf = \frac{n}{1 + \frac{n}{N}}$$

$$\frac{384}{1 + \frac{384}{330}}$$

This gives 178

Then add a non-response rate of about 10% from the sample size = 18

Total sample size was 196.

Method of Sampling

The researcher utilized consecutive method of sampling to recruit all the available subjects at the point of data collection. This was conducted such that the first subject who qualified for the inclusion criteria was selected. Incase the second subject also met that criteria, he or she would also be included and so forth till the size of the sample needed was met. Additionally,consecutive sampling was utilized since the researcher had a limited time of three months to collect data thus ensured time was used efficiently.

Criteria of Inclusion and Exclusion

Inclusion Criteria

Caregivers who provided informed consent to participate in the study.

Caregivers with children who were being managed for a diagnosis of pneumonia during the data collection period.

Exclusion Criteria

Caregivers who had children with preexisting diagnosed chronic conditions. The caregiver was asked if the child was on treatment for an additional disease needing them to attend specific clinic days.

Caregivers who were bringing the children back for follow up .They were identified by being asked if they had come as an initial visit or for follow up care.

Study Variables

Health seeking behavior was the dependent variable.

The respondent was asked about pneumonia signs and symptoms experienced by the child which included a cough,difficulty in breathing,lower chest wall indrawing and fast breathing.If pneumonia symptoms were identified,the respondent was asked whether care was sought or not.If care was sought,they were asked the first action they took in seeking care and the source of care.The respondent was also asked if they sought care within twenty four hours or after twenty four hours from the onset of the illness symptoms.

The outcome variable was separated into appropriate and inappropriate health seeking behavior.

Independent Variables

The independent variables for this study comprised of:

i. The health seeking behavior
ii. Patient- related factors like age,sex,birth order,severity of illness
iii. Caregiver –related factors like age, marital status, residence, level of education, family support, cultural beliefs on use of traditional and alternative complementary mediine
iv. Health facility-related factors like availability of resources, waiting time, access to health facility and cost of care.

Data Collection Methods

Instrument Reliability and Validity

Reliability is ability of a tool to yield same results over multiple trials.(Sürücü & Maslakçi, 2020) It was achieved through pretesting the tool to identify consistency of results. The research assistant was also trained to minimize interviewer bias.

To determine content validity, the tool was reviewed by supervisors to ensure clarity,relevance and appropriateness. Construct validity was used whereby the items were developed through a thorough literature review and aligned with study objectives.

Pretesting

It was done at Meru Teaching and Referral Hospital. This is because it was a government level five facility like ETRH and served a large catchment area in Meru County, thus there was likelihood of observing similar findings. The setting was at the pediatric outpatient department.It was done on a sample size of 20 caregivers. It was done over a period of two weeks. Incase an error was identified in the questionnaire it was corrected .

Data Collection Process

Informed consent was got from willing participants. An interviewer –administered questionnaires was utilized.Recruitment of respondents was done via consecutive sampling such that the first subject who qualified for the inclusion criteria was selected. Incase the second subject also met that criteria, he or she was also included and so forth till the size of the sample needed was met.

Data Management

Data that was quantitative was typed and entered in Microsoft Excel. Cleaning of data was done by the researcher then it was coded and verified for easy analysis.

Data Analysis

Descriptive analysis done using SPSS version 29.0.

Descriptive statistics which include percentages,means, ranges,frequencies were utilized to analyze the data. For,Inferential analysis,Chi-Square test was done for bivariate analysis and Binary logistic regression for multivariate analysis to determine the relationship between the variables for health care seeking behavior.

Ethical Considerations

Permit to do the research was sought from Kenyatta University Ethics Review Committee, NACOSTI, Embu County Department of Health and Embu Level Five Hospital, prior to collecting data.

The researcher obtained informed consent from caregivers who were eligible before starting the interview. The reason for the study was explained to respondents as per the guideline in the consent

form. Personal identity of each respondent was maintained anonymous and confidential by not indicating personal identifying details and using numbers instead. Hard copies were locked in cabinets only accessible to the researcher. The soft copy of the data was stored in a computer with a password accessible to authorized persons like the investigator and supervisors. The information collected from respondents was used only for this study. The results will be handed in to the Embu County Department of Health upon completion of the reaearch work. The researcher will publish the research work in an appropriate journal and also present in relevant seminars, workshops and conferences.

Limitations and delimitations

Delimitation

The study was limited to the study objectives, study variables and target population.

Limitation

The caregivers needed to give information on the duration they took to seek health care thus there was likelihood of recall bias. This was minimized by ensuring the caregivers interviewed were those whose children were being treated for pneumonia at the time of data collection.

Collection of data was at one point in time thus exposure and outcome was measured at the same time hence this study may not determine a cause and effect relationship. The investigator recommends that an experimental design may be used in similar future studies.

RESEARCH RESULTS

A total of 196 caregivers were recruited into the study.

Univariate analysis

Demographic Characteristics of Caregivers of Children Under Five Years at ETRH

The average age was 32.3 years with standard deviation of 9.0. Out of the 196 the caregivers, 51% (n=100) were aged 30 years and above. Regarding gender, 88.3% (n=173) of caregivers were female, with only 11.7% (n=23) being male. In terms of education, 62.8% (n=123) had completed secondary education, 31.6% (n=62) had tertiary education, and 5.6% (n=11) had only primary education. Most caregivers (55.6%, n=109) lived in urban areas. The relationship of the caregivers with the child showed that 75.5% (n=148) were mothers. A majority of the caregivers (89.3%, n=175) were Christians. Regarding employment, 46.4% (n=91) were self-employed, 19.4% (n=38) were formally employed, 13.8% (n=27) were in casual employment, and 20.4% (n=40) were unemployed. The average monthly income of the caregivers was Ksh 28,280.61. Out of these 196 caregivers, 70.4% (n=138) earned Ksh 20,000 or more per month in their households. In terms of family support, 55.1% (n=108) did not receive family support, while 44.9% (n=88) did. The types of support received included physical (10.7%, n=21), emotional (5.1%, n=10), and financial (29.6%, n=58) as shown in Table 1.

Table 4.1: Caregivers' Demographic Characteristics

Characteristics	Frequency	Percent
Age (Means, SD) years	32.3	
Less than 30 years	96	49
30 years and above	100	51
Marital status		
Married	120	61.2
Separated/divorced/widowed	28	14.3
Single/never married	48	24.5
Gender		
Male	23	11.7
Female	173	88.3
Highest education level		
Primary	11	5.6
Secondary	123	62.8
Tertiary	62	31.6
Residence		
Urban	109	55.6
Rural	87	44.4
Level of nearest facility		

Referral status		
Not referred	143	73
Referred	53	27
Relationship with the child		
Mother	148	75.5
Father	22	11.2
Close relative	26	13.3
Religion		
Christian	175	89.3
Muslim	21	10.7
Employment status		
Formal employment	38	19.4
Self-employment	91	46.4
Casual employment	27	13.8
Unemployed	40	20.4
Average monthly income (KES)	28,280.61	
Less than Ksh 20000	58	29.6
Ksh 20000 and above	138	70.4
Family support		
No	108	55.1

Yes	88	44.9
Type of support		
Physical	21	10.7
Emotional	10	5.1
Financial	58	29.6

Patient Related Factors Influencing HSB for Pneumonia Among Caregivers of Children under Five Years at ETRH.

In terms of the children's gender,51.5% (n = 101) were male and 48.5% (n = 95) were female. The age distribution showed that 17.3% (n = 34) were aged 2-24 months, 30.1% (n = 59) were aged 25-48 months, and the majority, 52.6% (n = 103), were more than 48 months old. Among the children, 26.0% (n = 51) were firstborns, 37.2% (n = 73) were second-borns, and 36.7% (n = 72) were third-borns or beyond. All children presented with cough (100%, n = 196), fast breathing (100%, n = 196) and difficulty in breathing (100%, n = 196). A large percentage, 66.3% (n = 130), also presented with lower chest wall indrawing.

Table 4.2: The Patient –Related Factors

Child characteristics	Frequency	Percent
Gender		
Male	101	51.5
Female	95	48.5
Age		
2 - 24 months	34	17.3
25-48 months	59	30.1
49-59 months	103	52.6
Birth order		

Firstborn	51	26.0
Second born	73	37.2
Thirdborn and beyond	72	36.7
Presenting symptoms		
Cough	196	100.0
Fast breathing	196	100.0
Lower chest wall indrawing	130	66.3

Health Facility-Related Factors Influencing HSB for Pneumonia Among Caregivers of Children under Five Years at ETRH.

A majority of caregivers sought care at public facilities (81.6%, n = 160), while 18.4% (n = 36) sought care at private facilities. In terms of proximity, 52% (n = 102) of caregivers lived more than 5 km from the nearest facility, 31.1% (n = 61) lived 3-5 km away, and 16.8% (n = 33) lived ≤2 km. Regarding transportation, most caregivers used public service vehicles (57.7%, n = 113), followed by motorcycles (25.5%, n = 50) and foot (12.8%, n = 25). Further, 69.9% (n = 137) of caregivers paid for services in cash. As for SHIF insurance coverage, 30.1% (n = 59) of caregivers had it. In terms of waiting time, 52% (n = 102) waited more than 30 minutes, while 48% (n = 94) waited less than 30 minutes. Drug availability was reported as sometimes by 73.5% (n = 144), all the time by 24% (n = 47), and never by 2.6% (n = 5).

The majority of caregivers rated the services as satisfactory (73%, n = 143), with 20.9% (n = 41) rating them as excellent and 6.1% (n = 12) finding them not satisfactory. Finally, the main reasons for choosing a facility included experienced providers (32.1%, n = 63) and cheaper services (29.6%, n = 58), with smaller percentages citing availability of drugs (10.7%, n = 21), proximity (14.8%, n = 29), and shorter waiting times (12.2%, n = 24).

Table 4.3: The Health Facility Related Factors

Health related factors	Frequency	Percent
Level of nearest facility		
Private facility	15	7.7
Level 2	79	40.3
Level 3	24	12.2
Level 4	28	14.3
Level 5	50	25.5
Distance to nearest facility		
≤2km	33	16.8
3 - 5Km	61	31.1
More than 5Km	102	52
Mode of transport to nearest facility		
Foot	25	12.8
Motorbike	2	1
Motorcycle	50	25.5
personal vehicle	1	0.5
personal vehicle	5	2.6
public service vehicle	113	57.7
Mode of payment for services		
Cash	137	69.9
Insurance	59	30.1
Presence of SHIF		
No	137	69.9
Yes	59	30.1
Waiting time to receive services		
Less than 30 minutes	94	48
More than 30 minutes	102	52
Drug availability		
Never	5	2.6
Sometimes	144	73.5
All the time	47	24
Rating of the services		
Not satisfactory	12	6.1
Satisfactory	143	73
Excellent	41	20.9
Facility type		
Private	36	18.4
Public	160	81.6
Reason for choice of facility		
Cheaper services	58	29.6
Drugs available	21	10.7
experienced providers	63	32.1
It is near	29	14.8
shorter waiting time	24	12.2

HSB Practices for Pneumonia Among Caregivers of Children Under Five Years at ETRH

Majority of caregivers (73%, n=143) sought healthcare services. Among those who sought care, 61.5% (n=88) sought treatment at the hospital, 26.6% (n=38) used over-the-counter medications, 11.2% (n=16) resorted to home remedies. Regarding the timeliness of care, 29.6% (n=58) of caregivers sought healthcare services within 24 hours, while 70.4% (n=138) sought care after more than 24 hours. In terms of traditional, complementary, and alternative medicine (TCAM), 10.7% (n=21) of caregivers used remedies,with honey being the most common (8.7%, n=17). The reasons for using traditional remedies included beliefs in supernatural healing (3.6%, n=7), quick relief from cough (4.6%, n=9), and affordability compared to modern medicine (2.6%, n=5).

Table 4.4:HSB Practices

Health seeking behavior	Frequency	Percent
Sought healthcare services		
No	53	27
Yes	143	73
Place of care		
Home Remedy	16	11.2
Hospital	88	61.5
Over the counter	38	26.6
Traditional healer	1	0.7
Sought healthcare services within 24 hours		
Less than 24 hours	58	29.6
24 hours or more	138	70.4
TCAM		
No	175	89.3
Yes	21	10.7
Type of traditional complimentary used		
Honey	17	8.7
Egg syrup	2	1
Spiritual healer	4	2
Reasons for traditional medicine		
believes in supernatural healing	7	3.6
It reduces cough quickly	9	4.6
It is more affordable than modern medicine	4	2.6

Level of HSB For Pneumonia Among Caregivers of Children Under Five Years at ETRH

Overall analysis of the health seeking behavior established that 70.9% (n=139) of caregivers had inappropriate health seeking behavior, while 29.1% (n=57) had appropriate health seeking behaviour.

Table 4.5:Level of HSB

Level of health seeking behavior	Frequency	Percentage

Inappropriate	139	70.9
Appropriate	57	29.1

Bivariate analysis

Caregiver -Related Factors Influencing HSB for Pneumonia Among Caregivers of Children under Five Years at ETRH.

Chi-square test was used .

Marital status had a significant effect on HSB, $\chi^2(2) = 5.632$, and the p-value = 0.038.Residence of caregivers also had significance as those living in urban areas were more likely to seek appropriate care than those in rural areas $\chi^2(1) = 17.729$, and the p<0.001. Referral status also played a significant role, $\chi^2(1) = 11.111$, and the p-value = 0.001. Relationship to the child had a significant effect on HSB, $\chi^2(2) = 6.847$, and the p-value = 0.033. Employment status was another significant factor where those who were employed were more likely to have appropriate care, $\chi^2(3) = 7.519$, and the p-value = 0.021.

Table 4.6: Caregiver -Related Factors Influencing HSB for Pneumonia Among Caregivers of Children Under Five Years at ETRH.

	Health seeking behavior				
Caregiver factors	**Inappropriate**	**Appropriate**	**Df**	**χ2**	**P value**
Age			1	2.556	0.118
Below 30 years	63(65.6)	33(34.4)			
30 years and beyond	76(76.0)	24(24.0)			
Marital status			2	5.632	**0.038**
Married	80(66.7)	40(33.3)			
Separated/divorced/widowed	25(89.3)	3(10.7)			
Single	34(70.8)	14(29.2)			
Highest education level			3	4.365	0.113
Primary	10(90.9)	1(9.1)			
Secondary	90(73.2)	33(26.8)			
Tertiary	39(62.9)	23(37.1)			
Residence			1	17.729	**<0.001**
Urban	64(58.7)	45(41.3)			
Rural	75(86.2)	12(13.8)			
Referral status			1	11.111	**0.001**
Not referred	92(64.3)	51(35.7)			
Referred	47(88.7)	6(11.3)			
Relationship to the child			2	6.847	**0.033**
Mother	101(68.2)	47(31.8)			
Father	14(63.6)	8(37.4)			

Religion			1	2.164	0.141
Christian	127(72.6)	48(27.4)			
Muslim	12(57.1)	9(42.9)			
Status of employment			3	7.519	**0.021**
Formal employment	28(73.7)	10(26.3)			
Self-employment	71(78.0)	20(22.0)			
Casual employment	18(66.7)	9(33.3)			
Unemployed	22(55.0)	18(45.0)			
Income			1	1.776	0.183
Less than Ksh 20000	45(77.6)	13(22.4)			
Ksh 20000 and above	94(68.1)	44(31.9)			
Family support			1	0.253	0.615
No	75(70.1)	33(29.9)			
Yes	64(72.7)	24(27.3)			
Type of support			2	2.668	0.263
Physical	13(61.9)	8(38.1)			
Emotional	9(90.0)	1(10.0)			
Financial	42(72.4)	16(27.6)			
TCAM			1	0.317	0.389
No	123(70.3)	52(29.7)			
Yes	16(76.2)	5(23.8)			

Patient -Related Factors Influencing HSB For Pneumonia Among Caregivers of Children Under Five Years at ETRH.

Age of the child had a significant effect on HSB. Caregivers of children aged 2-24 months (73.5%, n = 25) were more likely to seek appropriate care more than those whose children were 25-48 months (6.8%, n = 4). The chi-square statistic was $\chi^2(2) = 46.977$, and the p-value < 0.001.

Birth order also significantly influenced HSB. Caregivers of firstborn children (54.9%, n = 28) were more likely to seek appropriate care than those with second-born (20.5%, n = 15) or third-born and above children (19.4%, n = 14). The chi-square statistic was $\chi^2(2) = 22.306$, and the p-value < 0.001.

Table 4.7: Patient -Related Factors Influencing HSB for Pneumonia Among Caregivers of Children Under Five Years at ETRH

	Health seeking behavior				
Patient factors	**Inappropriate**	**Appropriate**	**Df**	**χ2**	**P value**
Gender of the child			1	1.180	0.113
Male	62(61.4)	39(38.6)			
Female	77(81.1)	18(18.9)			
Age of the child (Months)			2	46.977	**<0.001**
2 - 24 months	9(26.5)	25(73.5)			
25 - 48 months	55(93.2)	4(6.8)			
49-59 months	75(72.8)	28(27.2)			
Birth order			2	22.306	**<0.001**
1	23(45.1)	28(54.9)			

2	58(79.5)	15(20.5)
≥3	58(80.6)	14(19.4)

Health Facility-Related Factors Influencing HSB for Pneumonia among Caregivers of Children Under Five Years at ETRH.

There was a significant association between HSB and the type of nearest facility. The chi-square statistic was $\chi^2(4) = 11.169$, and the p-value = 0.025.Distance to the nearest facility was also significant,with a p-value of 0.004.Mode of payment had significant relationship with health seeking behavior as those who used insurance cover to pay for services sought appropriate care ($p < 0.001$).Additionally,presence of SHIF cover had significant effect on HSB ($p < 0.001$).

Table 4.8:Health Facility-Related factors influencing HSB for pneumonia among caregivers of children under five years at ETRH

Health facility factors	Health seeking behavior		Df	χ2	P value
	Inappropriate	Appropriate			
Type of facility sought care			1	0.046	0.841
Private	25(69.4)	11(30.6)			
Public	114(71.3)	46(28.8)			
The type of nearest facility			4	11.169	**0.025**
Private hospital/clinic	9(60.0)	6(40.0)			
Level 2	63(79.7)	16(20.3)			
Level 3	16(66.7)	8(33.3)			
Level 4	23(82.1)	5(17.9)			
Level 5	28(56.0)	22(44.0)			
Distance to the facility			2	11.296	**0.004**
≤2km	20(60.6)	13(39.4)			
3 - 5Km	36(59.0)	25(41.0)			
More than 5Km	83(81.4)	19(18.6)			
Waiting time for services at facility			1	0.274	0.357
Less than 30 minutes	65(69.1)	29(30.9)			
More than 30 minutes	74(72.5)	28(27.5)			
Drug availability			2	2.006	0.367
Never	3(60.0)	2(40.0)			
Sometimes	99(68.8)	45(31.3)			
All the time	37(78.7)	10(21.3)			
Mode of payment			1	32.415	**<0.001**
Cash	103(75.2)	34(24.8)			

Insurance	19(32.2)	40(67.8)			
SHIF insurance cover			1	28.732	**<0.001**
No	98(71.5)	39(28.4)			
Yes	18(30.5)	41(69.5)			

Multivariate Analysis

Multivariate Analysis of Factors Influencing HSB For Pneumonia Among Caregivers of Children Under Five Years at ETRH.

Significant variables from bivariate analysis were subjected to multivariable analysis using binary logistic regression.

Married caretakers were more likely to seek health care for pneumonia in children under five years (aOR = 2.92, 95% CI: 1.15, 1C0.40, P = 0.009). Caregivers whose children were not referred are significantly more likely to seek health care (aOR = 4.33, 95% CI: 1.23, 15.21, P = 0.022) than those who were referred. Caregivers of children aged 1-24 months are significantly more likely to seek health care for pneumonia (aOR = 3.86, 95% CI: 1.35, 11.06, P = 0.012) compared to caregivers of children older than 48 months. Conversely, caretakers whose children were 25-48 months are significantly less likely to seek care (aOR = 0.06, 95% CI: 0.02, 0.27, P < 0.001). Caregivers of firstborn children are significantly more likely to seek health care (aOR = 5.18, 95% CI: 1.43, 18.78, P = 0.012) than those with children born later.Caregivers who had SHIF insurance cover were more likely to seek appropriate care (aOR = 1.89, 95% CI: 1.12, 3.13, P < 0.001) compared to those who did not have insurance.

Table 4.9: Multivariate Analysis of Factors Influencing HSB for Pneumonia Among Caregivers of Children Under Five Years at ETRH

Factors	aOR(95%CI)	P value
Marital status		
Married	2.92(1.15, 10.40)	**0.009**
Separated/divorced/widowed	0.75(0.12, 4.66)	0.754
Single	Ref	
Referral status		
Not referred	4.33(1.23, 15.21)	**0.022**
Referred	Ref	

Relationship		
Mother	4.08(0.65, 25.64)	0.133
Father	6.60(0.86 50.62)	0.069
Employment		
Self-employment	1.32(0.41, 4.26)	0.643
Casual employment	0.66(0.13, 3.40)	0.619
Unemployed	1.71(0.39, 7.46)	0.478
Employed	Ref	
Child age		
2 - 24 months	3.86(1.35, 11.06)	**0.012**
25 - 48 months	0.06(0.02, 0.27)	**<0.001**
48-59 months	Ref	
Birth order		
Firstborn	5.18(1.43, 18.78)	**0.012**
Second born	0.62(0.21, 1.87)	0.398
Thirdborn and above	Ref	
Nearest facility		
Private facility	2.64(0.52, 13.39)	0.241
Level 2	0.41(0.13, 1.28)	0.124
Level 3	0.3(0.07, 1.25)	0.097

Level 4	0.31(0.06, 1.49)	0.144
Level 5	Ref	
Distance to the facility		
≤2km	2.31(1.13, 4.33)	0.013
3 - 5Km	1.34(0.32, 3.11)	0.112
More than 5Km	Ref	
Mode of payment		
Cash	Ref	
Insurance	2.11(1.09, 6.11)	**<0.001**
SHIF insurance cover		
No	Ref	
Yes	1.89(1.12, 3.13)	**<0.001**

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Pneumonia in children requires urgent care to prevent complications. Caregivers have a key role to identify key signs and make a decision to seek care early. Health seeking behavior therefore varies across different settings which warranted the need to explore HSB and its determinants. This section provides a correlation of the study results to previous literature to help contextualize the current findings.

HSB for Pneumonia Among Caregivers of Children Under Five Years at ETRH

About one third (29.1%) of the caregivers had appropriate heath seeking behavior. Three out of ten of the caregivers sought healthcare within 24 hours after symptoms began. This agrees with results from research done in Uganda and Ethiopia which established highly delayed health seeking behavior with majority seeking care after 24 hours from symptoms onset (Ekyaruhanga et al., 2023).

This agrees with research in Indonesia that revealed caregivers often mistook pneumonia for a a common cold and initially chose traditional remedies. Only if symptoms persisted did they seek care at health centers or hospitals, highlighting a delay in appropriate HSB.(Purwati et al., 2021) Similarly, Bakare et al. (2023) did a household survey in Jigawa State, Nigeria, involving 1,661 women. The study found about a third of children with pneumonia-specific symptoms got appropriate care. Notably, caregiver knowledge of pneumonia symptoms did not significantly affect HSB, suggesting that other factors probably have more substantial role in decision-making (Bakare et al., 2023). In Ethiopia, a study assessing healthcare-seeking delays among caregivers in Nekemte town. They found that 62.2% of caregivers delayed to seek healthcare due to factors like rural residence, low income, and poor knowledge contributing to these delays (Temsesgen et al., 2023).

In this study,most caregivers initially used home remedy and over the counter medicines. This practice was associated with factors like ease of access to medications and previous experiences with similar illnesses. These findings align with those from a study done in Endebes, Kenya that found that some caregivers used home remedies, such as massaging children with Robb methylated ointment and warm water. (Opuba et al., 2021).

Caregiver -Related Factors Influencing HSB for Pneumonia Among Caregivers of Children Under Five Years at ETRH

This study established that marital status had a significant influence on HSB for pneumonia among the caregivers.Married people were more likely to have appropriate HSB than those who were separated or single. These findings agree with another study in rural Uganda. (Kajungu et al., 2023) and in Indonesia. (Purwati Heny et al, 2021).

This study also established that referral status was significant determinant for HSB among caregivers. The findings showed that those who were not referred were more likely to seek appropriate healthcare. It agrees with research by Opuba et al. (2025) in Kenya which found that caregivers who were referred to higher-level facilities often faced challenges like long distances to hospitals, lack of transport means and financial constraints, leading to delay. Conversely, caregivers who sought care without referrals often accessed closer and more accessible healthcare services, resulting in timelier care-seeking behavior. This suggests that while referrals are intended to provide specialized care, they may inadvertently introduce barriers that delay timely care seeking.

Similarly, in Uganda ,caregivers who initially looked for services from chemists before going to hospital were more likely to delay seeking appropriate healthcare.(Ekyaruhanga et al., 2023). Residence, relationship to child and employment status were also found to have an influence on appropriate HSB although this association was not significant under multivariable analysis. Temsesgen et al. (2023) found that early healthcare seeking in Ethiopia was practiced more by

urban than rural caregivers. This was attributed to better access to health facilities and information in urban areas. Similarly, in Ethiopia,urban residence was linked with higher odds of seeking appropriate care for pneumonia (Shibre et al., 2021).

Patient -Related Factors Influencing HSB for Pneumonia Among Caregivers of Children Under Five Years at ETRH

Age of the child was a significant factor for HSB. Caregivers of children aged 2-24 months were more likely to seek appropriate care than for those aged 25-48 months. Similarly in Ethiopia, the odds of delaying to seek healthcare among children aged 12 months and older were 5.49 times higher compared to those under 12 months old.(Temsesgen et al., 2023).
Birth order was a significant factor for HSB as caregivers of firstborns were more likely to seek appropriate healthcare.

Similarly,in Indonesia,parents of firstborn children had higher odds of seeking healthcare than those with second or third children (Khasanah et al., 2023). This was attributed to increased awareness and concern for the health of the firstborn child.

Health Facility-Related Factors Influencing HSB For Pneumonia Among Caregivers of Children Under Five Years at ETRH

Distance to facility had significant influence on HSB in this study. Those who were staying within 2km of the facility were more likely to have appropriate HSB. It agrees with research by Ekyaruhanga et al. (2023) in Uganda where caretakers who lived beyond 5 km from a health facility were twice as likely to delay healthcare seeking for children than those living closer.
Distance to healthcare facilities was also a significant barrier to timely care-seeking. In sub-Saharan Africa ,parents who had difficulty to reach hospitals were less likely to seek appropriate care (Tesema & Seifu, 2023).

Those who had insurance cover were more likely to have appropriate HSB.
It agrees with other studies highlighting the role of health insurance in facilitating appropriate HSB.(Ali et al., 2025; Opuba et al., 2021). A study done in Bangladesh revealed that health insurance reduced out-of-pocket expenses,enabling parents to seek appropriate care for their children. (Ali et al., 2025).

Conclusion

In conclusion, health seeking behavior was low with only 3 in 10 caregivers having appropriate health-seeking behavior

Several factors were found to influence HSB including caregiver marital status, residence, relationship to the child,referral,status and employment status.
Child's age and birth order also played a significant role in HSB.

Distance to nearest healthcare facility, type of nearest facility and the mode of payment, particularly for those using insurance or SHIF coverage, were also influential in determining health seeking behavior.

Recommendations

Targeted health education campaigns should be implemented to raise awareness about the need of seeking timely appropriate care for pneumonia, especially for caregivers of older children and those in rural areas.

Policies promoting health insurance coverage, especially for low-income families, should be prioritized.
Referral systems should be strengthened to ensure smoother transitions between healthcare levels.

Future Research

Investigating the role of mobile health solutions, such as telemedicine or health information apps, in improving timely healthcare-seeking behavior, especially in remote or underserved areas, would provide valuable insights.

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