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Parents' Perception and Cultural Construction of Episodes of Childhood Pneumonia in Buea, Cameroon

Christine Futella Akum¹ Dickson Shey Nsanga² Emmanuel Yenshu Vubo³ William Shu Neba⁴

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Abstract

Childhood pneumonia deaths are still common despite the availability of potent antibiotics and other treatments. The study explores how parents perceive and culturally construct episodes of childhood pneumonia in Buea, Cameroon. Specifically, the study explores parents' perceptions and interpretations of the signs and symptoms of childhood pneumonia, the causes of childhood pneumonia and perception of preventive measures of childhood pneumonia in Buea, Cameroon. A phenomenological research design within a qualitative research approach was used. The Theory of Reasoned action and the Theory of Planned Behaviour guided the study. A multistage sampling technique was used to select 38 participants. In-depth interviews, focus groups, and observations were used for primary data collection. The Colaizzi seven-step method together with NVivo 11 were employed for data analysis. Results on signs and symptoms revealed that parents' awareness and understanding of pneumonia were low, with most of the information coming from unofficial sources. Four causes of childhood pneumonia were identified: environmental, biological, cultural, and spiritual. Findings on preventive measures revealed that immunisations, proper nutrition, and adequate water may help avoid paediatric pneumonia. It is vital to implement realistic suggestions in rural areas that prioritise boosting healthcare access, nutritional status, sanitation, and immunisation rates.

Keywords: Buea, Cameroon, Childhood Pneumonia, Cultural Construction, Parents' Perception.

¹ Department of Sociology and Anthropology, University of Buea, Southwest Region, Cameroon.

Email: futellapraise@gmail.com

² Department of Health Sciences, University of Buea, Southwest Region, Cameroon.

Email: nsagha.dickson@ubuea.cm

³ Department of Sociology and Anthropology, University of Buea, Southwest Region, Cameroon.

Email: emmanuel.yenshu@ubuea.cm

⁴ Department of Social Work, University of Fort Hare, Alice Campus, Eastern Cape, South Africa.

Corresponding Author: William Shu Neba, **Correspondence through:** shuwilly@yahoo.com



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Introduction

Globally, pneumonia is one of the leading causes of death in children under the age of five (Marangu & Zar, 2019). Despite improvements in living conditions, nutrition, and immunisations, pneumonia killed around 700,000 children under 5 years old globally in 2015 (Ma et al., 2025). Compared to 14% for malaria and 10% for diarrhoea, pneumonia causes 16% of all deaths in Africa (Maastrich University, 2016). More than half of all deaths among children under the age of five occur in Sub-Saharan Africa (Konadu et al., 2019). The fight against pneumonia has progressed more slowly than in other sectors. Mean vaccine coverage rates in most Sub-Saharan African countries have not kept pace, even though the development of efficient Pneumococcal Conjugate Vaccines (PCV) marks a substantial improvement in public health (Libwea et al., 2014). This clearly reveals underutilisation and low coverage of existing immunisations in many parts of the world, which are resource-poor (Oladokun et al., 2010). Aside from insufficient vaccine coverage, there are other reasons why immunisations are not given to every child. The majority of these include indigenous traditional beliefs, as well as the perspectives of parents, guardians, and medical professionals (Libwea et al., 2014).

Pneumonia mortality can be reduced by seeking adequate and timely care, which is dependent on caretakers and community health and illness standards (Bakare et al., 2020). The delay or inability to receive proper care is a major contributor to Cameroon's high pneumonia fatality rates, particularly for children and adults who present with advanced, severe stages of the illness (Tufon et al., 2025). According to studies, many carers do not seek medical help for pneumonia symptoms until the illness has progressed to the point where it cannot be handled at home (Bantie et al., 2019). According to research, diagnosing symptoms of pneumonia is a substantial obstacle to seeking treatment (Nichter & Nichter, 1993; Zaman et al., 1997; Hildenwall et al., 2007; UNICEF, 2007). According to Multiple Indicator Cluster Surveys conducted in 55 countries between 2000 and 2006, about one out of every five carers is aware of the warning signs of pneumonia, such as rapid and/or laboured breathing (UNICEF, 2007). When children in rural areas have pneumonia, they receive relatively little medical attention.

Parents in Buea Health District (BHD), Cameroon's Southwest Region, may misinterpret symptoms such as rapid breathing for moderate coughs. Contrary to common opinion, the condition is believed to be caused by exposure to dust, cold, or other environmental factors. This frequently encourages carers to forgo seeking professional medical attention in favour of home treatments. The indications, symptoms, and causes of childhood pneumonia, as well as the associated mortality, remain a public health concern. This study explores parents' perception and cultural construction of episodes of childhood pneumonia in Buea, Cameroon. The research focuses on parents' perceptions and cultural constructions of episodes of childhood pneumonia, parents' interpretations of its causes, and perceptions of preventive measures. The paper then goes into the methodology, results and discussion before concluding.

Literature Review

Parents' perception and cultural construction of episodes of childhood pneumonia

Childhood pneumonia deaths are still common despite the availability of potent antibiotics and other treatments. Carers' understanding of childhood illnesses is altered by core belief systems, which affects how they identify and treat illnesses. A study on views of childhood illness and pneumonia detection was carried out by Ngere et al. (2025), with implications for Western Kenyan health-seeking behaviour. A phenomenological hermeneutic technique was used to examine the

transcribed interviews. This involves reading and rereading the transcripts to identify recurrent themes and interpret perceptions of pneumonia, understandings of paediatric diseases, and how they affect health-seeking behaviour. The study found that cough was a sign of measles, pneumonia, and malaria in addition to being a disease (Ngere et al., 2025). It was a mild illness that was either treated with over-the-counter medications or not at all. Pneumonia is frequently difficult for carers to identify at home, which leads to hospitalisation and ignorance of available treatments. Traditional treatments, oral conventional medicine, or a combination of the two were used to treat measles, which were frequently only diagnosed by experienced eyes (elderly community members) (Ngere et al., 2025). Carers could usually easily recognise the symptoms of malaria, and treatment was usually administered in a medical institution or with over-the-counter drugs. The symptoms of measles and malaria were generally characterised as being comparable to those of pneumonia. Pneumonia and other juvenile infections can be identified with the help of health promotion initiatives that raise awareness of children's ailments. Giving carers useful information about illnesses can improve children's health outcomes.

Ferdous et al. (2014) describe how mothers in rural Bangladesh perceive pneumonia signs and symptoms, disease causes, and healthcare-seeking behaviours, as well as the main modifiable obstacles to getting their under-5 children timely treatment. To learn more about mothers' attitudes around childhood pneumonia and how they seek medical attention, they conducted focus groups (Ferdous et al., 2014). Most mothers ($n = 24$) were unable to detect whether their kids had pneumonia, even though mothers classified the illness as a serious, potentially fatal condition in young children (Ferdous et al., 2014). Pneumonia has been linked to environmental factors such as dust particles spread by a coughing mother, drinking cold water, and playing with water (Ferdous et al., 2014). Three main obstacles were found: the illness was not thought to be severe enough, the location was far from a medical facility, and the household did not have enough money to seek treatment elsewhere (Ferdous et al., 2014). The seriousness of paediatric pneumonia was unknown to most rural mothers.

Theoretical Framework

The theoretical underpinnings of this study are the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB).

Theory of reasoned action (TRA)

Behavioural purpose is the primary motivator of behaviour, according to the theory of reasoned action (TRA) (see unshaded boxes in Figure 1). People's attitudes about carrying out the activity and their subjective norm associated with it have a direct impact on their behavioural intention. Considering situations where one does not have whole volitional control over conduct, TPB enhances perceived control over behaviour (see shaded boxes in Figure 1). People's attitudes are shaped by their beliefs about the characteristics or outcomes of carrying out the action (behavioural beliefs), which are influenced by assessments of those features or consequences.

A person will therefore have a positive attitude toward the action if they are certain that finishing it will produce outcomes that are highly appreciated. A person will have a negative attitude if they firmly believe that their actions will produce results that are not highly regarded. Like this, a person's normative beliefs, which include whether important reference people support the action, as well as their desire to fit in with those referents establish their subjective norm. A person has a positive subjective norm if she feels that certain referents expect her to act in a particular way and is driven to meet those expectations.

A person who is less motivated to follow those referents will have a neutral subjective standard, whereas someone who feels that these referents think she shouldn't carry out the action will have a negative subjective norm. Similarly, this part of the hypothesis explains why some parents seek medical attention for their children under five who have symptoms like pneumonia. When their children have pneumonia, most of these parents rely on recommendations from other parents, especially mothers (the kids' grandmothers), spouses, and neighbours. They often follow their advice and live up to these people's expectations.

According to TRA, behavioural intention is the primary direct determinant of behaviour. The degree to which behaviour is under volitional control, that is, when people have a great deal of control over their behavior, determines how well the theory explains behaviour. It's unclear if the TRA components are adequate to forecast behaviours if volitional control is diminished.

To account for variables outside of an individual's control that might influence intentions and behaviours, Ajzen and colleagues (Ajzen, 1991; Ajzen & Driver, 1991) incorporated perceived behavioural control to TRA. They created the Theory of Planned Behaviour using this input (see the shaded boxes in Figure 1). Control assumptions regarding the existence or lack of obstacles and facilitators to behavioural performance, weighted by perceived power or the impact of each control element on promoting or impeding conduct, determine perceived control.

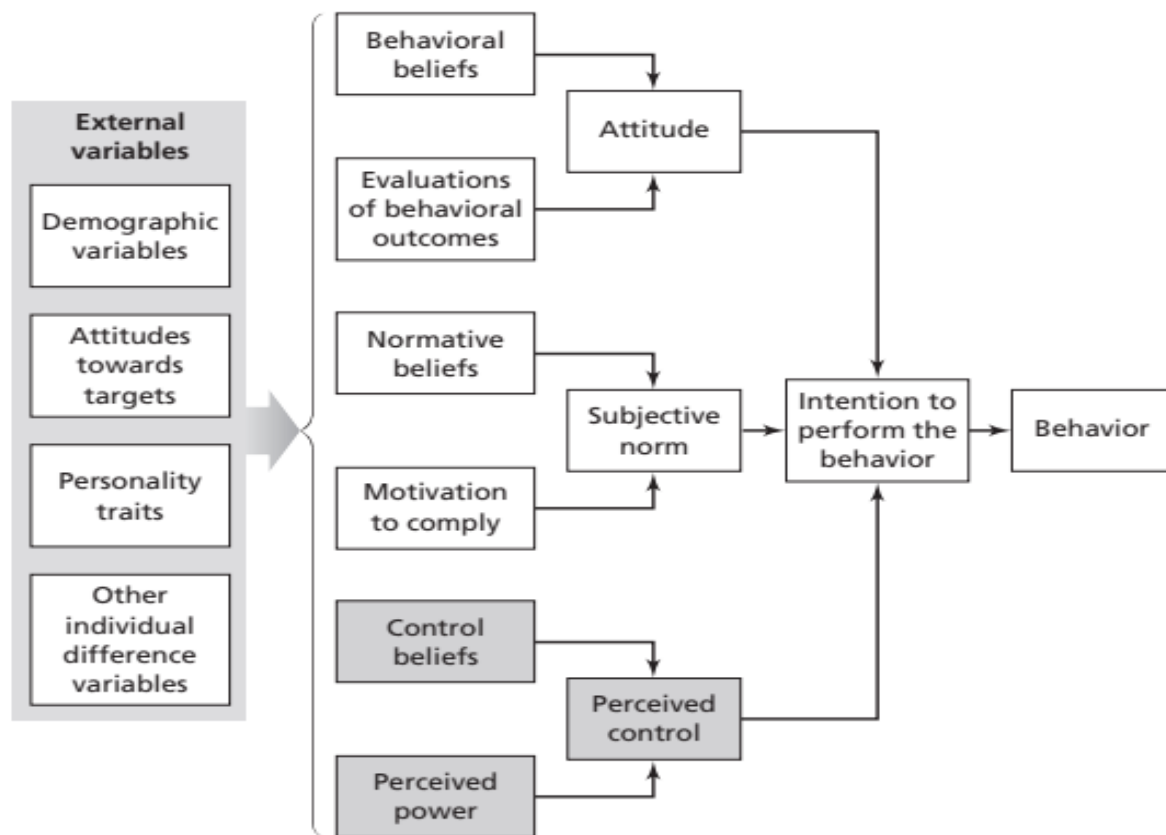
When parents of children with pneumonia in the Buea health district were interviewed, it was found that most parents believed that scientific or biological medicine could not adequately address their children's symptoms. These parents claim that when their children sought medical care in biomedical hospitals, there was an issue with the return of pneumonia symptoms. This is a bad consequence because these parents will seek medical care from a traditional healer who they think can treat pneumonia permanently. Additionally, some parents worry that their kids will die, especially if they start exhibiting signs like breathing difficulties. Instead of using the trial-and-error method used by traditional practitioners, this group of parents go to a medical facility where they feel their children can be appropriately assessed and treated. Similarly, this part of the hypothesis explains why some parents seek medical attention for their children under five who have symptoms like pneumonia. When their children have pneumonia, most of these parents rely on recommendations from other parents, especially mothers (the kids' grandmothers), spouses, and neighbours. They often follow their advice and live up to these people's expectations. In summary, these ideas suggest that an individual's beliefs or subjective norms may have an impact on their attitudes or actions. The concept addresses some of the factors that lead to children under five in Buea requiring medical care for pneumonia.

Theory of planned behaviour (TPB)

One of the most significant theories for explaining a decision-making process that results in action is the theory of planned behaviour (TPB) (Ajzen & Fishbein, 2004; Ajzen, 2011; Ajzen, 2015). Attitudes, subjective norms, and perceived behavioural control are the three belief-based categories included in the TPB (Ajzen, 2011). A person's attitude, subjective norms, and perceived behavioural control all have a role in their decision to engage in a particular activity (Ajzen, 2011; Ajzen & Fishbein, 2004; Ajzen, 2015). Parents' decision-making intent, which is influenced by several factors, may have an impact on how they perceive and interpret the signs, symptoms, and causes of childhood pneumonia. Using the TPB framework, we addressed what factors influenced parents' intentions while selecting care and therapy for their children. Their attitude and subjective norms can both influence their intention in this situation. Parents who have a good attitude about biological medicine and recognise the social pressure to seek healthcare are more likely to seek it

from appropriate sources. And the theory assumes that intentions precede behaviour; therefore, the intention to seek proper treatment will result in seeking suitable healthcare.

Figure 1: *Theory of reasoned action and theory of planned behaviour*



Source: Karen et al. (2008).

Methods

Research design

This study employed a phenomenology research design within a qualitative research technique, concentrating on focus groups, interviews, and observations to better understand parents' perspectives and cultural constructions of paediatric pneumonia episodes in Buea, Cameroon. To accurately examine and comprehend human experiences, attitudes, views, and behaviours, this methodical approach to research focuses on the "why" and "how" of human occurrences rather than quantitative data (Tenny et al., 2022).

Population

The study population was made up of parents who lived in the study area and had children who developed signs and symptoms of pneumonia during the study or a few days before it. Parents who did not identify with the above-mentioned criteria were not included in the study.

Sampling size and sampling techniques

A multistage sampling procedure was employed to choose a sample of 38 people. In the first stage, the BHD was purposively chosen. Following the identification of the seven Health Areas (HAs) that comprise the BHD, two semi-urban (Buea Road and Molyko) and rural (Bokwoango, Muea,

and Tole) HAs were chosen by simple random selection. Second, all households in each of the chosen HAs with parents who had children who showed symptoms of pneumonia during the trial or within a few days were identified by the researchers. A total of 38 participants were obtained by identifying and purposively selecting 15 parents in the semi-urban HA and 23 parents in the rural HA. Third, the snowball sampling technique was used to find key informants. A non-probability sampling technique called "snowball sampling" involves current participants working together to find new members (Tsindos, 2023). These include medical professionals, traditional practitioners, community leaders, drugstore owners, and drug sellers

Data sources

There were two types of data sources: primary and secondary. Focus groups, in-depth interviews, and observations were used to get primary data directly from sources. A wide range of sources, including books from libraries like the University of Buea, journals, and research papers, provided secondary data. By providing access to peer-reviewed journal articles, theses, and books on a range of subjects, academic search engines also make thorough literature research easier.

Instruments of data collection

To acquire primary data an in-depth interview guide, a focus group discussion guide and an observation guide were administered to parents of afflicted children as well as medical specialists. The interview guides were designed using open-ended questions. A Focus group discussion (FGDs) guide was also used to collect data from parents, community leaders, and traditional healers in the five HAs. Each focus group was composed of ten to twenty members, and interviews and talks were meticulously documented until data saturation was reached. An observation guide was also utilised to track parents' and practitioners' health-seeking attitudes and behaviours.

Pretesting of instruments

The researchers analysed and appraised the study tools to verify that they could collect reliable data for analysis. To pretest the instruments, a sample of the target population from the BHD was used. In August 2024, the researchers held two focus group discussions at the BHD following approval from the relevant institutional review board at the University of Buea (UB), Cameroon. The data was analysed to ensure that the instruments were valid. Following confirmation of consistent and steady results, the data were triangulated to evaluate the instrument's dependability or reliability.

Data collection

Qualitative information was gathered through focus groups, observations, and in-depth interviews. To enable thorough data collection and impromptu discourse within 45 to 60 minutes, in-depth interviews were carried out in casual situations. Interviews were conducted until data saturation was reached after verbal consent for tape recording was obtained. Focus groups were held with parents, traditional healers, pharmaceutical vendors, and medicine marketers to talk about healthcare issues, early habits, cultural views, and attitudes toward healthcare. To further understand the issue, additional field images of medical facilities were taken in addition to using observation to record health-seeking behaviours and treatment procedures. A comprehensive understanding of how parents view and culturally construct paediatric pneumonia episodes in Buea was made possible by this mixed-methods approach.

Data analysis

NVivo 11 and the Colaizzi seven-step technique were used to examine phenomenological data. The method allows researchers to meticulously organise, code, and analyse qualitative data to reveal the underlying structure of a phenomenon. By classifying the data and identifying connections, the researchers were able to develop themes and subthemes from the qualitative interview data. The themes, which focused on informants' answers to interview questions, were pertinent to the goals of the study. Shosha (2012) asserts that the Colaizzi technique enables a thorough description and analysis of the phenomenon being studied. Reading transcripts for comprehension, recognising important remarks, and studying these utterances were all part of the research process. Lastly, the researchers developed a comprehensive explanation of the phenomena using the results and participant input.

Ethical considerations

The Department of Sociology and Anthropology, the Sub-Divisional Delegation of Public Health, and the University of Buea all granted the researchers ethical authorisation. Access to the community and hospital was made easier by these authorisations. The University of Buea, Cameroon's Faculty of Health Sciences institutional review board gave its clearance to guarantee adherence to ethical standards. Consent forms were produced during fieldwork, and participants were informed of the goal of the study to ensure knowledge and willing cooperation. Confidentiality and privacy were equally protected for the participants.

Results

This section began with the presentation of parents' perceptions and interpretations of the signs and symptoms of childhood pneumonia, the causes of childhood pneumonia and the preventive measures of childhood pneumonia in Buea, Cameroon. The results have been presented into themes and subthemes derived from the study objectives.

Theme 1: Parents' perceptions and interpretations of the signs and symptoms of pneumonia

The findings demonstrated that parents' awareness and knowledge of pneumonia were inadequate, with the majority obtaining their information from unofficial sources. This demonstrates a knowledge gap between parents' perceptions of the signs and symptoms of pneumonia, as they are unfamiliar with the indicators. As a result, parents choose the wrong medical specialist to treat their child's condition, which leads to the increased morbidity and sometimes death. This was clearly defined by a participant in the FGD in Tole, a 54-year-old grandmother living with a 2-year-old child suffering from pneumonia, who said, "she is aware of pneumonia, and she has heard about pneumonia in a situation where the junior sister lost a child about 2 years old". Similarly, another participant in the FGD in Bokwaongo, Buea Road Health Area, a 50-year-old mother, revealed that:

Her friend's 3-year-old child in Muyuka died of pneumonia, which was the first time she heard about it. The toddler acquired a fever unexpectedly and had been coughing for several days before it became severe.

Subtheme 1: Provision of information, education and communication

Some parents were able to learn about pneumonia through door-to-door sensitisation campaigns sponsored by medical professionals, which provided detailed information on the disease's causes, symptoms, and preventive therapies. The results further revealed that many parents during interviews claimed to have learned about pneumonia through community activities. They also

mentioned that they learned about some of the signs and symptoms throughout their attempts, as well as how serious and potentially lethal it could be for children. According to a 26-year-old female FGD participant at Muea Health Area, stated:

She first learned about pneumonia two years ago, when healthcare providers came out to talk about it, and they also discussed how hazardous it is when a child has pneumonia.

Succinctly, another participant during FGD in Bokwaongo, Buea Road Health Area, a 30-year-old female, states that:

She learned about pneumonia many years ago from medical professionals who came to their village for a health awareness program. She repeated that she still cannot recall all the signs and symptoms discussed throughout the health program.

This implies that door-to-door health awareness initiatives have been an effective way to educate community members about significant health issues, such as pneumonia and the prevalence of other illnesses that affect children aged 0 to 5.

Subtheme 2: Health promotion using the radio as a medium

The use of radio as a health promotion medium was also discovered to alter parents' perceptions of the unfavourable effects of a child contracting pneumonia. Radio can efficiently disseminate health information in cities, but in rural areas with a high illiteracy rate and parents preoccupied with farming, many parents will not be informed. Several participants stated that they learned about pneumonia, its symptoms, and how severe it may be during these discussions. During an individual interview at Tole, a 25-year-old single mother of a 4-year-old girl who had been experiencing recurring episodes of pneumonia with the kid expressed the following:

Around the year 2020, she learned about pneumonia on the Christian Broadcasting Service (CBS) radio from medical workers who were giving health promotion programs. The informant advanced that, while these health presentations on the radio are beneficial, one problem is that there are often no opportunities to ask questions, resulting in little awareness about pneumonia in the community.

Subtheme 3: Informal sources

Some parents heard about pneumonia via unofficial sources, such as herbalists and neighbours who treat paediatric pneumonia. During an in-depth interview in Bokwoango, Buea Health Area, a key informant who was 40 years old and had a three-year-old son with pneumonia explained that:

She learned about it a long time ago, when a child in the community contracted the disease, and the child's mother approached her to direct her to an elderly woman who was well-known in the community for treating childhood pneumonia, and she took the child there, where he was treated. She went on to say that she is most aware of the disease's prevalence in children under the age of ten.

Another participant of the in-depth interview in Molyko Health Area, a 45-year-old woman with a one-year-old who exhibited all the signs and symptoms of pneumonia, pushed the opinion that:

She learned about it from her neighbours. They are continuously discussing it and how it impacts most children. You will hear people shouting at their children (leave that spot, do you want to have pneumonia, or go and wear your pullover, do you want to have pneumonia?), and it was from there that I became aware of pneumonia in children.

All these unofficial sources of information are concerning, even for medical professionals, because community members may be well-versed in a subject but have their own interpretation of it, which can be misleading or dangerous to people's health, and in extreme situations, lead to death. A man in his early seventies who took part in the in-depth interview from the Bokwoango, Buea Road Health area, told the researchers that he learned about pneumonia after contracting it. According to him:

He's heard about pneumonia for over 60 years. And that's when he caught the sickness. He saw a doctor, but the doctor did not refer him to the laboratory because his condition was not serious. Following that, the doctor ordered certain oral drugs to be taken within one week and then returned for a medical examination, which he completed and was treated for.

Subtheme 4: Post-natal vaccination sessions

Many mothers learned about pneumonia via postpartum immunisation campaigns. This means that mothers in the research area should give their newborns frequent immunisations for nine months after giving birth. These free immunisations protect children from infections like pneumonia, hepatitis, chickenpox, and measles. The postpartum period is an essential time to protect mothers and babies from diseases that can be averted with vaccination. A participant of the in-depth interview from Bokwoango, Buea Road Health Area, a 37-year-old mother who was interviewed at the Buea Regional Hospital, admitted with her 3-year-old suffering from Pneumonia had said.

She heard about pneumonia in the hospital and during their normal routine vaccination for children, when the nurse talked about pneumonia and emphasised that it is common among children 0-5 years old.

Contrary to this, another participant, a 28-year-old woman, revealed during a FGD session in Tole that she only learned about it when her young daughter became ill, and she had to take her to the hospital, where the doctor diagnosed the child with pneumonia. She stated this:

She had never heard of it before, nor had she heard of any illness called pneumonia. She had heard of malaria and even suspected that the infant had it because she had a very high temperature.

However, most of the participants were familiar with pneumonia; they discussed some of the signs and symptoms but were unable to recall where they originally learned about it. This statement was reinforced by a FGD a participant in the Buea Road Health Area, a 45-year-old man, who emphasised that:

He had heard of pneumonia but had no idea where he heard it, and he had little knowledge of the disease's signs and symptoms until his daughter became ill.

Except for a few respondents in the Muea Health Area, most respondents said they had heard about pneumonia before their children became infected. Nonetheless, the knowledge they received on pneumonia was insufficient to allow them to connect the signs and symptoms they were aware of to what they observed in their children. To educate inhabitants of these communities about pneumonia-related issues, health professionals must launch huge social sensitisation and mobilisation efforts.

Subtheme 5: Signs and symptoms of childhood pneumonia

The findings show that most parents in almost every Health Area surveyed are familiar with the warning signs and symptoms of pneumonia, except for the Muea Health Area, where many respondents could only recall two signs and symptoms of the condition. Coughing, difficulty

breathing, fever, lower chest drawing, chest discomfort, and fluid in the chest were signs that participants could identify in acute cases. However, several parents did not recognise lower chest indrawing when accompanied by fever as a sign of pneumonia. During an in-depth interview, a 32-year-old mother in Bokwaongo, Health Area, stated:

The signs and symptoms of pneumonia include coughing, difficulty breathing, fever, lower chest pain, and chest pain. She went on to say that fluid in the chest is a severe symptom in acute situations. This individual is one of the many study participants who mentioned fluid in the chest as an indication of acute pneumonia.

In a similar vein, another participant, a 78-year-old grandmother from Tole who lost a granddaughter suffering with pneumonia, shed more insight into the issue of difficulty breathing and attested that:

The main signs and symptoms of a child suffering from pneumonia include aberrant breathing, especially if the child has gotten a cold, and his or her breathing system tightens, causing trouble breathing. Then, parents can start to suspect pneumonia.

On the contrary, another participant from Bokwoango, a 32-year-old woman, during the FGD advanced the opinion that:

She knows very little about pneumonia, but she is aware that it is a common childhood ailment. She underlined that a child with pneumonia will have difficulty breathing, especially around the ribs, have a fast heartbeat, be very bony, and seem pale.

Another FGD participant, a 25-year-old mother from Bokwoango, put it succinctly:

When a child has pneumonia, the hands and feet are cold, the body is hot when touched, and the child shivers from a high fever, as if it is malaria.

However, she brought up another point, equating the fever from pneumonia bouts in children to that of malaria. This is a prevalent misconception about pneumonia, which leads to parents treating malaria with roadside medication vendors or traditional healthcare delivery methods. According to a FGD participant in Tole, a 43-year-old woman said:

Cough is a major sign and symptom of pneumonia that varies depending on the stage of the disease. She stated that in the first stage, the person may experience fever and chest pain, while in the latter or secondary stage, the person may develop an unproductive cough.

These findings suggest that pneumonia progresses in stages, with signs and symptoms varying according to the stage of the disease. She believes pneumonia has two stages: a primary stage with fever and chest pain, and a secondary stage with a nonproductive cough. Supportive therapies are part of general management in the early stages of the illness, and antimicrobials are necessary if a bacterial aetiology is suspected.

A FGD participant from Tole, a 42-year-old lady, added that:

Once a child has been infected with pneumonia, they will have influenza and high nighttime temperatures. The youngster behaves erratically and cries profusely, as if in pain, has a high temperature, and his or her feet and hands are extremely chilly. He or she is unable to feed, is in pain, and continues to wail in situations in which you may want to carry the child.

Subtheme 6: Cultural construction

The cultural construction of pneumonia episodes refers to how societies, communities, and people define, interpret, and react to the symptoms of this lung infection based on shared ideas, knowledge, and values. These cultural attitudes frequently influence whether pneumonia is considered a serious, actionable medical condition or a trivial ailment, hence significantly impacting health-seeking behaviours. It is important to note that though most parents are aware of pneumonia in children and can discuss some of the signs and symptoms of pneumonia, they usually mix up with signs and symptoms of other diseases as a result of their cultural belief system, such as cough and catarrh (normal influenza), fever (malaria), chest retraction "under bobi /corner belle", rapid /abnormal heartbeat "corner belly" (spleen), side pain (side pain, cannot be treated at the hospital), difficulties in breathing (airtight). Ribs, coughing and catarrh, as well as chest pain and lower chest indrawing, were frequently considered to be signs and symptoms of something other than pneumonia culturally in the Buea Health District. These findings underlined the significance of getting medical assistance in a medical health centre to properly diagnose and determine the ailment before prescribing medication. According to a participant in the FGD from Soppo, a 68-year-old man and father of a 4-year-old granddaughter, he backed that.

When it comes to the signs and symptoms of pneumonia, he is frequently confused with a common cough for which treatments may be purchased at the community pharmacy. With such confusion, he regularly purchases medication from pharmacies until the problem becomes bad. Then he can seek medical help.

This implies that parental misunderstanding is the leading cause of death among children with pneumonia in the study area. This argument was also supported by a medical expert in Mount Mary Hospital, a 27-year-old woman affirmed that:

Many parents will think that it is a normal cough and catarrh causing the fever and say that after 3 days it will finish "nar that cough and catarrh di give yi fever and after 3 days eih go finish" so they wait at home doing nothing until the situation becomes worse.

This suggests that the doctor will have to put the child on a higher category of antibiotics to combat the problem, which would incur additional costs. The choice of primary healthcare is impacted by parents' cultural perceptions and interpretations of the signs and symptoms of the disease. During a FGD in Muea, a 32-year-old woman and mother of a four-year-old child stated:

They referred to chest retraction as "under bobi ", and it is not treated in the hospital. She noted that pneumonia in children might result in a rapid or irregular heartbeat. Her perception and interpretation of pneumonia's signs and symptoms led her to traditional healthcare delivery, based on the cultural belief that this sickness in children cannot be treated in a hospital.

Another participant in the FGD in Molyko, a 40-year-old mother, agreed: "Corner belly", also known as spleen, is what is called pneumonia. Spleen disease is a childhood ailment caused by excessive or untreated malaria. They regard an enlarged spleen as a childhood ailment that medical professionals cannot treat. When the lower chest indrawing was identified in most of the FGDs as a sign and symptom of pneumonia, there were several differences. Some parents supported it, while others opposed it, claiming that it was a sign of "corner belle," or spleen caused by acute or poorly treated malaria. These responses culturally defined the diverse perceptions and interpretations of the condition by parents, hence determining the various health-seeking behaviours. This was expressed by a participant in the in-depth interview in Molyko, a 65-year old mother and retired nurse, who said:

As nurses, we refer to what the people called "corner belly" as a spleen, not pneumonia. It is an indication of acute malaria that has been present in the child for an extended period or has been poorly treated, and it causes the infant's feet to grow cold. She referred to it as a sign of acute malaria rather than pneumonia, even though pneumonia damages the lungs and causes difficulty breathing and coughing.

It is worth noting that side pain accompanied by cough is not a sign or symptom of pneumonia unless it is discovered before the true reason can be determined. During interviews, several parents argued that side pain is a sign and symptom of pneumonia, whereas others disagreed. A 40-year old woman from Soppo stated,

Side pain and pneumonia are not the same thing; side pain has its own manifestations. Side discomfort causes a strong sensation accompanied by coughing and is typically handled by traditional practitioners.

The results show that in Buea Health District, most parents believe that pneumonia is severe and life-threatening. However, parents may delay seeking care because of misconceptions or misinterpretations regarding the signs and symptoms.

Theme 2: Parents' perceptions and interpretations of the causes of childhood pneumonia

Respondents in the Buea Health District identified four key causes of childhood pneumonia: environmental, biological, cultural, and spiritual. This demonstrates that the underlying causes of pneumonia in children aged 0 to 5 in the study area are unclear, necessitating more investigation. Most environmental factors were linked to housing, living conditions, climate, and socioeconomic position. Most biological factors were associated with ageing, underlying medical problems, infections, malnutrition, and poor eating habits. According to the study's findings, participants in all five focus group discussions recognised colds as the most common cause of paediatric pneumonia. Respondents were motivated to propose several remedies and explanations about how colds causes pneumonia in children. In a Soppo interview, a 60-year-old grandma disclosed that *"the cold is the leading cause of pneumonia in children. When very young children are repeatedly exposed to cold, they are more likely to develop pneumonia"*. This suggests that children should always be kept warm by wearing warm clothing to avoid pneumonia. In the same vein, another participant from Soppo, a mother of a 3-year-old child, reiterated that "Pneumonia is caused by severe cold, playing in the rain, drinking cold water and food, and not putting on warm clothes". Another participant during the KII in Tole, a mother of a 4-year-old girl suffering from pneumonia, added "colds impact the chest and ribs, causing catarrh and cough, which can develop into pneumonia".

It is also crucial for parents to understand what to feed their children, when to play, and what to wear, especially in the cold. The findings suggested that childhood pneumonia can also have biological causes. Age of the child, poor food or malnutrition, and underlying medical conditions were all perceived biomedical factors that contributed to pneumonia infection in children. A 60-year-old grandmother who took part in the FGD in Great Soppo highlighted it by saying:

One of the primary causes of pneumonia in children is fungal infection, particularly when the child moves or plays in the rain and drinks cold water, which generates a fever in the child and can eventually lead to pneumonia.

According to the study, premature birth and Down syndrome were two such conditions associated with an elevated risk of pneumonia infection. In this context, a 50-year-old parent stated during a one-on-one interview in Great Soppo that "His daughter was born prematurely and has had

pneumonia complications since birth." During an individual interview at the regional hospital in Buea, the 42-year-old father revealed that:

He tries everything to keep her warm and follows her up with traditional treatments, and her health has remained steady. If his child had been born naturally, we would not have had these issues. She was born with Down syndrome, and as a result, she has become unwell regularly; one of these illnesses is pneumonia, for which we have been admitted to the hospital.

Pregnant women should be vigilant about the meals and beverages they consume, as well as the activities they engage in, because some of these may result in premature births or cases of Down syndrome.

During the conversations, it became evident that pneumonia may affect anyone at any age. However, medical specialists emphasised that it was common in children under the age of five and seniors beyond the age of sixty. Some participants believed that pneumonia has spiritual causes, whereas others believe that diseases have both natural and spiritual causes. As a result, therapeutic alternatives for these cases will not be limited to natural or biological ones. This perception has also been heavily influenced by people's cultural beliefs. The response underlines the importance of developing proper strategies and support mechanisms to combat pneumonia in the community.

Similarly, a Tole FGD participant, a 25-year-old single mother of a 4-year-old girl who had pneumonia treatment at the Tole Integrated Health Centre, stated:

Yes, because when a child becomes ill and needs to be taken to a traditional practitioner, they have unique eyes and can tell you that your child's pneumonia is caused by envy. As a result, such cases cannot be treated in hospitals and must be treated by a traditional practitioner who recognises the case.

Another participant in the Muea FGD, a 50-year-old mother, explained succinctly that:

We should understand that we are Africans. There are cases of childhood pneumonia that the hospital cannot treat due to the origin of the sickness, such as jealousy or man-made, in which case we must resort to traditional treatment. Native doctors will make a traditional diagnosis and simply explain why the child is sick. Some will argue that your foes do not want the child to live. In such cases, the native doctor will treat it spiritually, something that the hospital cannot do.

To back up these claims, another participant in the individual interview in Molyko, a 49-year-old female traditional practitioner who treats pneumonia in children, stated:

Before treating a child, she attempted to determine when the symptoms appeared within the month. If the symptoms emerge during the month, it is a bad omen; if the symptoms appear at the start or end of the month, they are normal. She, however, failed to provide a reasonable explanation for the effect.

The type of health practitioner to contact is determined by the community's beliefs and understanding of the disease's causes. These practitioners may be traditional, spiritual, or medical.

Theme 3: Perception of preventive measures of childhood pneumonia

According to the study's findings, except for Muea, most parents in all five Health Areas were well-versed with the disease's signs and symptoms. As a result of parents' awareness of the potentially lethal nature of childhood pneumonia, we will be able to better understand the multiple steps they take to prevent the infection. According to a 32-year-old mother of a 4-year-old child who participated in the individual interview in Bokwoango, childhood pneumonia has major

negative consequences and so “should be prevented by keeping children warm and avoiding crowded and poorly ventilated rooms or environments”. This was also repeated by a participant in the FGD in Bokwoango, a 53-year-old mother with a 4-year-old child suffering from pneumonia, who stated, “She can prevent her child from pneumonia by keeping the child warm and avoiding giving the child cold food and water”.

Similarly, a participant of the FGD from Muea, a 32-year-old mother, commented:

To avoid malnutrition, it is best to provide a well-balanced diet to children. It is also recommended that the mother give the child enough water to drink at least three times per day, even if the child does not ask for it. This will protect the child from numerous infections, including pneumonia.

During the FGDs, several parents identified a healthy diet and adequate water as one of the best methods to keep their children from acquiring pneumonia. They emphasised the need to feed children a balanced diet and provide them with water on a regular basis to prevent pneumonia.

A 46-year-old mother living with a 4-year-old expressed similar feelings at a FGD in Great Soppo, saying:

Yes, we can prevent pneumonia by caring for the child, ensuring that the child does not expose the chest to cold, does not consume cold food, bathe or drink cold water, and keeps the child warm. Also, shield the child's head and legs to avoid catching a cold.

Participants in the study believed that pneumonia vaccinations may prevent the illness, but they were unsure whether there was still a vaccine available to prevent childhood pneumonia. Some parents believed there existed a pneumonia vaccine, while others disagreed. This implies that these parents of young children are unaware of the existence of a community-wide pneumonia vaccine.

In an individual interview, a 32-year-old mother of a 3-year-old child in Bokwoango supported this viewpoint:

She is not aware of a vaccine for pneumonia, but she knows that while attending post-natal for all her babies, the children are given many vaccines, and the pneumonia vaccine can be one of them.

In the same vein, a participant, a 53-year-old father of a 5-year-old in Molyko, stated in an individual interview that “he is not aware of a vaccine for pneumonia and cannot consider vaccination to be a preventive measure for pneumonia”. Another individual interview respondent from Tole stated succinctly, “there is no vaccine for pneumonia, and she cannot assure whether her children have ever taken the vaccine.”

The study found that, while participants discussed a range of preventive measures, many were unaware of the pneumonia vaccine. Children who received the vaccine unintentionally did so because their moms had regular vaccination sessions between the ages of 0 and 9 months. However, their lack of knowledge about the vaccination hampered their capacity to continue receiving pneumonia vaccine doses, and because further doses are paid for, money is an issue. This means that medical professionals should create awareness of the availability of the pneumonia vaccine in the research setting.

Discussion

Findings on parents’ perception and cultural construction of episodes of childhood pneumonia revealed that parents’ awareness and knowledge of pneumonia were inadequate, with the majority obtaining their information from unofficial sources. This has serious implications for community health because there is frequently no widely recognised local terminology for pneumonia, and

parents interpret the illness based solely on observed signs and symptoms (e.g., coughing, breathing with chest congestion) rather than recognising it as a severe, medically distinct infection. The results are in line with those of Amuka et al. (2020), who studied the knowledge, attitudes, and behaviours of caretakers addressing pneumonia in children under five at Kenya's Migori County Referral Hospital. According to their findings, 27% of cases had pneumonia (Amuka et al., 2020). Over 90% of carers did not know enough about preventive, risk factors, and causes (Amuka et al., 2020). Most children sought care on the second and subsequent days after apparent illness start, while self-treatment with over-the-counter drugs constituted most management techniques (Amuka et al., 2020). During a pneumonia episode, carers' eating habits were likewise not ideal. Even though most caretakers (87.1%) were aware of pneumonia, their viewpoint on the illness was appropriate, but their knowledge and behaviours were lacking (Amuka et al., 2020). The consequences of the theory of planned behaviour and the theory of reasoned action are as follows: parents' attitudes toward medical aid are often delayed because they rely on cultural constructs, such as the belief that pneumonia is only caused by "cold air" rather than germs. They want to try traditional treatments first if they think the illness is just a common cold. However, the finding that parents rely on unofficial sources highlights the importance of the opinions of family, elders, and community networks. Parents try to act in accordance with whether traditional remedies or contemporary medical care are the standard reaction in their community.

Results indicate that some parents were able to learn about pneumonia through door-to-door sensitisation campaigns sponsored by medical professionals, which provided detailed information on the disease's causes, symptoms, and prevention therapies. This shows that vital public health messages may not reach families in distant or marginalised locations through traditional hospital settings, necessitating direct community outreach and targeted home-based health education to overcome knowledge obstacles. The results align with Bedford and Sharkey's (2014) qualitative research on local obstacles and remedies to enhance care-seeking for malaria, diarrhoea, and juvenile pneumonia in Kenya, Nigeria, and Niger. In addition to activities to address underlying issues such social ideas and practices and gender dynamics, participants suggested solutions that ranged from community-level to facility-level and more policy-oriented (Bedford & Sharkey, 2014). They examine the viability and implications of the suggested fixes (Bedford & Sharkey, 2014). This study offers crucial insights into demand-side barriers and locally suggested solutions, given the substantial burden of childhood morbidity and mortality from pneumonia, diarrhoea, and malaria in Kenya, Nigeria, and Niger. The theories of reasoned action and planned behaviour state that parents can replace negative or neutral attitudes with positive ones by prioritising preventive (like immunisation and handwashing) when they have a thorough understanding of the causes and symptoms. Endorsement by medical professionals lends legitimacy to campaigns, making prescribed preventive behaviours the accepted social norm in the community. By providing targeted prevention strategies, the campaigns increase carers' self-efficacy, making them believe they have the skills and resources to safeguard their children.

The use of radio as a health promotion medium was also discovered to alter parents' perceptions of the unfavourable effects of a child contracting pneumonia. This finding suggests that radio-based health promotion effectively dispels harmful myths and changes parents' perceptions of childhood pneumonia. Instead of rejecting the sickness as a "mild cold," parents come to realise its full severity. A radio communication campaign is (a) intended to alter human behaviours; (b) targeted at a large audience; (c) conducted over a predetermined period; and (c) consists of a series of communication acts (Rogers & Story, 1987). The increased use of formative evaluation research (research with the intended audience) to develop campaign strategies and pretest messages, as well

as the division of overall audiences into distinct sub-audiences that are subsequently reached with targeted messages, have made communication campaigns more successful in recent years (Bhatia & Sahni, 2017). The idea of reasoned action holds that parental attitudes are influenced by the radio. Parents create a negative judgment of childhood pneumonia and a favourable attitude toward preventative or health-seeking efforts after learning about their severe, undesirable outcomes (e.g., fatality, long-term respiratory difficulty). Radio ads can shape broader social expectations (for example, normalising doctor visits and lowering household smoke). When parents learn that other members of the community prioritise their children's health, they feel compelled to follow similar health habits. The idea of planned behaviour reinforces the notion of reasoned action by stating that, while changing a parent's attitude (knowing the danger of pneumonia) produces the intention to act, they must also feel capable of doing so. Effective radio programs not only warn parents about the dangers of pneumonia but also offer practical answers to help them feel more in control. The theory of planned behaviour admits that external constraints may hinder a planned activity. For example, a parent may desire to take their child to the clinic but is unable to do so due to financial or transportation issues. Radio campaigns must also highlight accessible and affordable health measures to be extremely effective.

Many mothers learned about pneumonia via postpartum immunisation campaigns. This implies that relying on immunisation campaigns to break the news means mothers may not be receiving vital pneumonia education during their postnatal care visits. These results are consistent with the findings of Razai et al.'s (2024) qualitative systematic review on the factors that encourage and hinder vaccine uptake during pregnancy. According to their findings, vaccination adoption was hampered by worries about the safety and effectiveness of vaccines, ignorance of their advantages and necessity, fear of negative effects on the mother or foetus, and low perception of the severity of the illness (Razai et al., 2024). Recommendations from reputable medical professionals, simple access to immunisation, clear explanations of the advantages and security of immunisation, and encouraging social influences from friends and family were all facilitators (Razai et al., 2024). Strong and proactive vaccine recommendations from reputable medical professionals, vaccines administered during routine prenatal care, and clear and consistent communication about vaccines addressing pregnant women's concerns were all strategies for boosting vaccination uptake (Razai et al., 2024). The hypothesis of action prioritises maternal vaccination to allow mothers to transfer protective antibodies through the placenta and lactation, bridging the immunity gap.

The findings show that most parents in almost every Health Area surveyed are familiar with the warning signs and symptoms of pneumonia, except for the Muea Health Area, where many respondents could only recall two signs and symptoms of the condition. Coughing, difficulty breathing, fever, lower chest drawing, chest discomfort, and fluid in the chest were all identified by participants as signs and symptoms of pneumonia. The results corroborate Ngere et al.'s (2025) study on perceptions of childhood illness and pneumonia recognition: consequences for Western Kenyan health-seeking behaviour. According to the study, cough was identified as a disease and a sign of measles, malaria, and pneumonia (Ngere et al., 2025). The notion of planned behaviour suggests that a parent's attitude toward seeking treatment is linked to their understanding of the ailment. Because Muea's parents recall fewer danger symptoms, they may underestimate the severity of pneumonia, resulting in dangerous treatment delays. This includes the community, cultural, and societal expectations that shape a parent's health-seeking behaviours. If the Muea community normalises certain respiratory symptoms, parents will be less inclined to seek medical attention. This assesses a parent's confidence in their capacity to recognise pneumonia and act.

This is likely impaired in Muea due to a lack of understanding of which warning signs necessitate immediate medical attention.

It is important to note that though most parents are aware of pneumonia in children and can discuss some of the signs and symptoms of pneumonia, they usually mix up with signs and symptoms of other diseases as a result of their cultural belief system, such as cough and catarrh (normal influenza), fever (malaria), chest retraction "under bobi /corner belle", rapid /abnormal heartbeat "corner belly" (spleen), side pain (side pain, cannot be treated at the hospital), difficulties in breathing (airtight). Ribs, coughing and catarrh, as well as chest pain and lower chest indrawing, were frequently considered to be signs and symptoms of something other than pneumonia. This shows that cultural beliefs can provide a barrier to prompt medical care, allowing families to confuse the life-threatening indications of childhood pneumonia (such as fast, laboured breathing and chest indrawing) with more benign or other ailments.

Findings on parents' perceptions and interpretations of the causes of childhood pneumonia revealed that in the Buea Health District, four causes of childhood pneumonia were identified, including environmental, biological, cultural, and spiritual factors. The results of this study are in opposition to those of Rudan et al. (2008), who looked at the aetiology and epidemiology of pneumonia in children. Their research indicates that undernutrition, indoor air pollution, low birth weight, crowding, and a lack of measles vaccination are the main risk factors for pneumonia incidence (Rudan et al., 2008).

Results on the perception of preventive measures of childhood pneumonia indicate that, while participants discussed a range of preventive measures, many were unaware of the pneumonia vaccine. Children who received the vaccine unintentionally did so because their moms had regular vaccination sessions between the ages of 0 and 9 months. However, their lack of knowledge about the vaccination hampered their capacity to continue receiving pneumonia vaccine doses, and because further doses are paid for, money is an issue. These results contrast with Zulkifili et al.'s (2022) qualitative study on the community's impression of pneumococcal immunisation for babies in Selayang, Selangor. The result showed that Pneumococcal Conjugate Vaccine (PCV) awareness was good and was generally accepted among most participants, as a protection mechanism for children, and because of recommendations from healthcare and services provided by the government (Zulkifili et al., 2022). Meanwhile, three out of nine participants refused to take vaccines due to external barriers, personal beliefs, and vaccine-related reasons (Zulkifili et al., 2022). The theory of reasoned action implies that because carers are unaware of the vaccine, they cannot develop a positive cognitive attitude toward it. They may fall back on traditional medicines or other established preventive behaviours (such as nutrition or nursing). Social influences and recommendations from familiar community members or trusted healthcare workers are important motivators. If peers, elders, or doctors do not discuss or promote the pneumonia vaccine, carers will not consider it an expected or usual health behaviour. However, the theory of planned behaviour suggests that even if a carer becomes aware of the pneumonia vaccination, they may lack the perceived control or self-efficacy to ensure that their child receives the vaccine. Barriers such as vaccination shortages, lengthy wait times at local institutions, and a lack of mobility reduce this perceived control. Carers may believe that pneumonia prevention is beyond their direct control due to environmental factors, overlapping symptoms (such as mistaking it for malaria or measles), or a general lack of understanding about how the disease is transmitted.

Conclusion

This study explores parents' perception and cultural construction of episodes of childhood pneumonia in Buea, Southwest Region, Cameroon. The study was directed by three major themes and subthemes: parents' perception and cultural construction of episodes of childhood pneumonia, parents' perceptions and interpretations of the causes of childhood pneumonia and perception of preventive measures of childhood pneumonia. Parents' awareness and understanding of pneumonia were insufficient, with the majority obtaining information from unauthorised sources, according to the findings on how parents saw and culturally constructed childhood pneumonia episodes. The Buea Health Area identified four major causes of childhood pneumonia based on parental perceptions and interpretations: environmental, biological, cultural, and spiritual. Findings on the perception of preventive measures of childhood pneumonia revealed that many parents believed that vaccines, appropriate nutrition, and adequate hydration were useful in preventing pneumonia by strengthening the immune system and blocking pathogens. This shows that pneumonia, rather than being an unavoidable infection, is mostly a preventable, poverty-related sickness caused by weakened immunity and low vaccination rates. The study concludes that it is critical to undertake practical steps that prioritise boosting healthcare access, improving nutritional status, improving sanitation, and increasing immunisation rates in rural communities.

Recommendations

To address cultural misunderstandings and enhance parental awareness of biological pneumonia symptoms, we suggest a multi-sectoral strategy in the Buea Health Area that places a high priority on the creation of approved, community-led health education campaigns. Local legislators and healthcare administrators must increase immunisation coverage through mobile vaccination clinics, subsidise paediatric respiratory care, and incorporate targeted nutritional counselling and clean water initiatives to strengthen childhood immunity in order to eliminate the poverty-related barriers causing high infection rates. To change the paradigm from treating an inevitable infection to methodically preventing a disease linked to poverty, practical interventions must simultaneously concentrate on improving rural environmental health by promoting improved household ventilation and improved community sanitation infrastructure.

Conflict of Interest

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References

- Ajzen, I. & Fishbein, M. (2004). Questions raised by a reasoned action approach: comment on Ogden (2003). *Health Psychology*, 23(4), 431–434. <https://psycnet.apa.org/doi/10.1037/0278-6133.23.4.431>
- Ajzen, I. (1991). “The Theory of Planned Behaviour.” *Organisational Behaviour and Human Decision Processes*, 50, 179–211. [http://dx.doi.org/10.1016/0749-5978\(91\)90020-T](http://dx.doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2011). The theory of planned behaviour: reactions and reflections. *Psychology Health*, 26:1113–27. <https://doi.org/10.1080/08870446.2011.613995>
- Ajzen, I. (2015). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Presseau, and Araújo- Soares. *Health Psychology Review*, 9:131–7. <https://doi.org/10.1080/17437199.2014.883474>
- Ajzen, I., & Driver, B. L. (1991). “Prediction of Leisure Participation from Behavioural, Normative, and Control Beliefs: An Application of the Theory of Planned Behaviour.” *Leisure Sciences*, 13, 185–204. <https://doi.org/10.1080/01490409109513137>
- Amuka, D. O., Onguru, D., & Ayodo, G. (2020). Knowledge, perceptions and practices of caregivers on pneumonia among children aged below 5 years in Migori County Referral Hospital, Kenya. *International Journal of Health Sciences and Research*, 10(11), 40-57.
- Bakare, A. A., Graham, H., Agwai, I. C., Shittu, F., King, C., Colbourn, T. & INSPIRING Project Consortium. (2020). Community and caregivers’ perceptions of pneumonia and care-seeking experiences in Nigeria: A qualitative study. *Pediatric pulmonology*, 55, S104-S112. <https://doi.org/10.1002/ppul.24620>
- Bantie, G. M., Meseret, Z., Bedimo, M., & Bitew, A. (2019). The prevalence and root causes of delay in seeking healthcare among mothers of children under five with pneumonia in hospitals of Bahir Dar city, Northwest Ethiopia. *BMC pediatrics*, 19(1), 482. <https://doi.org/10.1186/s12887-019-1869-9>
- Bedford, K. J. A., & Sharkey, A. B. (2014). Local barriers and solutions to improve care-seeking for childhood pneumonia, diarrhoea and malaria in Kenya, Nigeria and Niger: a qualitative study. *PloS one*, 9(6), e100038. <https://doi.org/10.1371/journal.pone.0100038>
- Bhatia, P. S., & Sahni, A. (2017). Role of media in the health communication system of Punjab. *International Journal of Physical Education, Sports and Health*, 4(4): 103-105
- Ferdous, F., Dil Farzana, F., Ahmed, S., Das, S. K., Malek, M. A., Das, J., ... & Chisti, M. J. (2014). Mothers’ perception and healthcare-seeking behaviour of pneumonia children in rural Bangladesh. *International Scholarly Research Notices*, 2014(1), 690315. doi: 10.1155/2014/690315. PMID: 24967328; PMCID: PMC4041267.
- Hildenwall, H., Rutebemberwa, E., Nsabagasani, X., Pariyo, G., Tomson, G., & Peterson, S. (2007). Local illness concepts: implications for management of childhood pneumonia in eastern Uganda. *Acta tropica*, 101(3), 217-224. <https://doi.org/10.1016/j.actatropica.2007.02.003>
- Konadu, S. O., Owusu, S. K., Osei-Akoto, A., Nyarko, O. O., Opoku, G., & Osei, F. A. (2019). Pneumonia dominance in under-five mortalities in sub-Saharan Africa: Urgency for more

- research and capacity improvement. *African Journal of Current Medical Research*, 3(1). <https://doi.org/10.31191/afrijcmr.v3i1.26>
- Libwea, J. N., Kobela, M., Ollgren, J., Emah, I., Tchio, R., & Nohynek, H. (2014). Predictors of parental knowledge about childhood immunisation/EPI vaccines in two health districts in Cameroon before the introduction of 13-valent Pneumococcal Conjugate Vaccines (PCV-13). *The Pan African Medical Journal*, 17, 187. <https://doi.org/10.11604/pamj.2014.17.187.1911>
- Ma, Y., Fan, S., & Xi, J. (2025). Recent updates regarding the management and treatment of pneumonia in pediatric patients: a comprehensive review. *Infection*, 53(6), 2341-2359. <https://doi.org/10.1007/s15010-025-02605-w>
- Maastrich University, (2016). Pneumonia is still the biggest killer in Africa. Retrieved from: <https://www.maastrichtuniversity.nl/news/%E2%80%9Cpneumonia-still-biggest-killer-africa%E2%80%9D>. Accessed June 2026.
- Marangu, D., & Zar, H. J. (2019). Childhood pneumonia in low-and-middle-income countries: An update. *Paediatric respiratory reviews*, 32, 3-9. <https://doi.org/10.1016/j.prrv.2019.06.001>
- Ngere, S. H., Olang'o, C., Ondeng'e, K., Ochola, K., Sagam, C. K., Maixenchs, M., ... & Nyambedha, E. (2025). Perceptions of childhood illness and pneumonia recognition: Implications for health-seeking behaviour in Western Kenya. *Social Sciences & Humanities Open*, 12, 101979. <https://doi.org/10.1016/j.ssaho.2025.101979>
- Nichter, M., & Nichter, M. (1993). Acute respiratory illness: popular health culture and mothers' knowledge in the Philippines. *Medical anthropology*, 15(4), 353-375. <https://doi.org/10.1080/01459740.1994.9966099>
- Oladokun, R. E., Adedokun, B. O., & Lawoyin, T. O. (2010). Children not receiving adequate immunisation in Ibadan, Nigeria: what reasons and beliefs do their mothers have? *Nigerian Journal of Clinical Practice*, 13(2), 173-178. PMID: 20499751.
- Razai, M. S., Mansour, R., Ravindran, P., Freeman, S., Mason-Apps, C., Morris, J., ... & Oakeshott, P. (2024). Facilitators and barriers to vaccination uptake in pregnancy: a qualitative systematic review. *PLoS One*, 19(4), e0298407. <https://doi.org/10.1371/journal.pone.0298407>
- Rogers E.M., Storey J.D. (1987). Communication campaigns. In C. Berger & S. Chaffee (eds), *Handbook of communication science* (pp. 817–846). Newbury Park, CA: Sage.
- Rudan, I., Boschi-Pinto, C., Biloglav, Z., Mulholland, K., & Campbell, H. (2008). Epidemiology and aetiology of childhood pneumonia. *Bulletin of the World Health Organisation*, 86, 408-416B. <https://doi.org/10.2471/BLT.07.048769>
- Shosha, G.A. (2012). Employment of Colaizzi's Strategy in Descriptive Phenomenology. A Reflection of a Researcher. *European Scientific Journal*, 8, ISSN: 1857-7881.
- Tenny, S., Brannan, J. M., & Brannan, G. D. (2022). Qualitative studies. StatPearls [Internet], StatPearls Publishing, FL, 93-187.
- Tsindos, T. (2023). Recruitment and sampling. Qualitative Research—a practical guide for health and social care researchers and practitioners. <https://oercollective.caul.edu.au/qualitative-research/>

- Tufon, K. A., Foumene, T. P., Esembeson, M., Bolimo, A. F., Yemene, T. P., Nguatem, C. M., ... & Mokake, N. D. M. (2025). Trends and factors associated with pneumonia mortality at Buea Regional Hospital in Cameroon from 2020 to 2023. *PLoS One*, 20(12), e0313234. <https://doi.org/10.1371/journal.pone.0313234>
- UNICEF (2007). UNICEF. Child Survival and Health – Pneumonia Progress. New York: Available from: http://www.childinfo.org/pneumonia_progress.htm. Accessed April 2026
- Zaman, K., Zeitlyn, S., Chakraborty, J., De Francisco, A., & Yunus, M. (1997). Acute lower respiratory infections in rural Bangladeshi children: patterns of treatment and identification of barriers. *The Southeast Asian Journal of Tropical Medicine and Public Health*, 28(1), 99-106. PMID: 9322291. <https://pubmed.ncbi.nlm.nih.gov/9322291/>
- Zulkifili, A., Azehar, N. S., Zamalolaily, S. N., Zulfaka, Z. R., & Hamid, S. A. (2022). Perception on pneumococcal vaccination towards infants among the community in Selayang, Selangor: a qualitative study. *Asian Journal of Medicine & Health Sciences*, 5(2), 134-144. <https://ejournal.unikl.edu.my/index.php/ajmhs/article/view/144>.