

## Home management of pneumonia among mothers of under 5 children attending outpatient pediatric clinic at Osun State University Teaching Hospital, Osogbo

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### Abstract

Pneumonia, though a preventable, treatable and curable disease, still poses significant threat to the lives of under-five children in Nigeria. This study assessed the home management of pneumonia among mothers of children under-5 years attending paediatric clinic at Osun State University Teaching Hospital, Osogbo from July to October, 2023.

The study deployed a descriptive cross-sectional research design with simple random sampling technique to select one hundred and seventy (170) mothers of under-five aged children. An adapted validated questionnaire was used to collect data. Hypothesis was tested using the chi square test. Data analysis was done using SPSS version 26.

The result from the study revealed that a preponderant proportion of respondents (98%) had good knowledge of home management of pneumonia in children. Nearly two-thirds (70.6%) had positive attitude towards home management of pneumonia. Majority (89.4%) reportedly had a good practice towards home management of pneumonia. Furthermore, a significant relationship was found between educational level of the respondent and the home management of pneumonia ( $P= 0.04$ ,  $\chi^2=2.680a$ ). There was no significant relationship between the age of the respondent and their knowledge of home management of pneumonia ( $P= 0.07$ ,  $\chi^2=6.894a$ ).

The mothers of children of five years and below in this study had relatively adequate knowledge about the signs and symptoms of pneumonia, the risk factors and treatment measures, a reflection of proactive practices and good attitude among them. Continuing health education and reinforcement mechanisms are necessary to sustain the high knowledge level and positive attitude revealed in this study.

**Keywords:** Pneumonia; Home management; Mothers of under-five; Care-seeking behaviour

### 1. Introduction

Pneumonia, (BP) though a preventable disease, still poses significant threat to the lives of under-5 children across developing countries. Every year, it claims the lives of more than 700,000 children under the age of 5, including over 153,000 newborns, who are particularly vulnerable to infection [1]. It has been estimated that globally, a child dies from pneumonia every 20 seconds [2]. In Nigeria, as is the case in many countries in sub-Saharan Africa, pneumonia remains a common cause of under-five mortality, accounting for 17% of deaths in this age-group.

In the light of the high burden of child BP and to advance towards the laudable goal of achieving a national under-five mortality rate of 25 per 1000 live births or lower by the year 2030, prompt recognition and management of pneumonia

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has become imperative [2]. This imperative, among others, informed the development and implementation of the Integrated Management of Childhood Illnesses (IMCI) strategy to reduce child mortality and morbidity. The strategy aimed at improving curative and preventive medical and behavioural interventions at hospitals, homes, and in the community.

Caregivers' knowledge of pneumonia is important in the effective management of the disease [3]. In part, the high burden of the disease arises from delay and inappropriate care-seeking behaviour by caregivers. Caregivers may delay in seeking care for their sick children at health facilities due to the administration of home-based remedies, often unorthodox alternatives. Some home remedies may lead to a prolonged hospital stay and, in many cases, result in death [4]. A study conducted in Kenya reported that most caregivers administered herbal medicine, pharmaceutical products, warm salty water, glucose and water [4]. A similar study in India revealed that the mother's first response to illness was the use of herbal medicine and visit to unqualified care providers. This may be explained by the existence of strong cultural belief in herbal medicine and shared decision making on the type of medicine to be prescribed by the unqualified care provider [4]. It was also evident in South Africa that caregivers treated their sick children at home or visited clinics, private doctors, traditional healers, faith healers, and the hospital was the last resort [4].

The mother's knowledge level is very essential to prevent and take care of pneumonia in children, as she is usually closer to her children, and thus is often the first to notice changes in a child's health condition. It can also be very helpful for initiating intervention including appropriate care-seeking steps when mothers can recognize pneumonia, its signs and symptoms, and when to seek medical help [5]. Having an adequate knowledge on some of the causes, signs and symptoms as well as preventive measures of pneumonia will empower mothers and caregivers to stop some of the non-beneficial and often harmful home management activities that they carry out and seek timely health care for their children. This will curb the progression of the disease on the child and ultimately reduce the morbidity and mortality rate of the infectious disease in this part of the world. The urgent need to empower mothers and caregivers motivated this study to assess the knowledge, attitude and practices (KAP) of home management of pneumonia among mothers of children under 5 years attending paediatric clinic in Osun state University Teaching Hospital, Osogbo Osun state.

### **1.1. Goal and Objectives of the study**

The main goal of the study was to improve child health and survival rates in Nigeria through contextual strategies that empower mothers and caregivers to reduce mortality and morbidity rates due to pneumonia.

#### *1.1.1. The specific research objectives were to*

- Determine the knowledge, attitude and practices of home management for pneumonia among mothers of under 5 years' children attending paediatric outpatient clinic at the Osun State University Teaching Hospital.
- Identify current gaps and barriers in child health practices that affect caregiver in preventing and managing pneumonia at home.
- Produce evidence-informed recommendations for review of current maternal and child health practices to ensure caregiver empowerment for prevention of pneumonia and other childhood diseases.

### **1.2. Research questions**

The following research questions were addressed:

- What is the level of knowledge, attitude and practices of home management for pneumonia among mothers of under 5 children attending paediatric outpatient clinic at Osun State University Teaching Hospital?
- What are the current gaps and barriers in maternal and child health practices that affect caregiver in preventing and managing pneumonia at home?
- What evidence-informed recommendations can address the challenges in maternal and child health practices that affect caregiver empowerment in preventing and managing pneumonia at home?

### **1.3. Hypotheses**

- H<sub>0</sub> 1- There is no significant relationship between the educational level of the respondent and the home care management of pneumonia
- H<sub>0</sub> 2- There is no significant relationship between the age of the respondent and their knowledge of home management of pneumonia.

## 2. Literature review

Pneumonia is a form of acute respiratory infection that affects the lungs. The lungs are made up of small sacs called alveoli, which fill with air when a healthy person breathes. In disease conditions such as pneumonia, the alveoli are filled with pus and fluid, which makes breathing painful and limits oxygen intake [6]. Pneumonia not only involves the alveoli, but extends upwards to engulf the larger air passages, the bronchi.

Nigeria, the most populous country in Africa, has approximately 32 million children under the age of 5 years [7]. Approximately 750,000 children under five dies annually in Nigeria and with a national under-five mortality rate of 109 deaths per 1000 live births, it has one of the highest under-five mortality rates in the world [7]. Despite high levels of morbidity and mortality from pneumonia, malaria, and diarrhea; most families do not seek care from a trained biomedical provider [7]. Some home remedies may lead to a prolonged hospital stay and, in many cases, result in death [4]. Based on a recent study by Osarogiagbon & Isara (2018), a large proportion of respondents (n=163; 81.1%) indicated that they use shea butter oil (*orioyo*). Respondents also indicated that they apply Mentholatum to the nose (n=83; 41.3%); use palm kernel oil (n=55; 27.4%) or so-called scent leaf (*Ocimum gratissimum*) (n=12; 6.0%), or apply kerosene to the nose (n=35; 17.4%). One respondent indicated the application of palm oil to the nose as a remedy [8].

### 2.1. Empirical review

#### 2.1.1. Knowledge of mothers on the home management of Pneumonia in children under five years

Empirically, study has shown that knowledge of illness goes a long way in determining health seeking behaviour [9]. A study conducted by Chheng (2021) showed that majority of caregivers have good knowledge regarding pneumonia disease. However, looking closely into the score of items there were still the noticeable results of knowledge under the risk factors which stated about the low immunity in children as one of the risks of pneumonia showed only 54% have good knowledge which means that the other 46% of participants chose the wrong answer since the low immunity is one of the most concern factors for children under 5 years old to pneumonia. The study in Kenya also found out similar results of mother's responses to knowledge regarding improving a child's immune system for pneumonia prevention showed 65.4% have low knowledge regarding immunity factor and pneumonia in children [10]. Moreover, about the risk factors of cigarette smoke by family members showed that 43.4% had good knowledge while other 56.6% of participants have poor knowledge regarding environmental risk factors of pneumonia supported by the study in developing countries [10].

Lastly, the dimension of prevention of pneumonia about the exclusive breastfeeding of the child for the first 6 months could help to prevent children from pneumonia, there were only 56.6% that chose the right answer which means that the other half of participants have poor knowledge regarding exclusive breastfeeding which is very important to prevent children from getting pneumonia [5].

### 2.2. Attitude of mothers on home management of febrile convulsions in children under five years

Chheng (2021), conducted a study on Knowledge, Attitudes, and Practices to Prevent pneumonia among Caregivers of Children Aged Under 5 Years Old in Cambodia. The finding of this study based on the score in attitude item about the seriousness of pneumonia that could kill children showed only 35.4% strongly agreed, while other 51.3% were not sure about the danger of pneumonia in children under 5 years old [10].

Another item focused on the necessity of Flu vaccine for preventing pneumonia in children: 49.6% were not sure about one of the important methods for preventing the complication of pneumonia which is the Influenza vaccine (Flu Vaccine) [10]. Furthermore, the item about the un-safety of buying medication from the pharmacy directly for children without any prescription when they have respiratory infections including pneumonia revealed that 51.3% was unsure about this illness management [10]. A study in Kenya that used focus group discussion has revealed that certain mothers were using non-prescribed medication on their sick children [10].

Finally, regarding the provision of enough food for children showed that 67.3% of caregivers were not sure that one of the risk factors of pneumonia is under-nutrition [10]. The report of the World Vision in Cambodia stated that malnutrition resulted from a lack of food even though subjects ate plenty of food, not consuming proper meals at the right time till became malnourished [10].

### 2.3. Practices of mothers on the home management of febrile convulsions in children under five years.

According to Chheng and Thanattheerakul (2021), the result of their study showed that 69.9% of caregivers who had a good practice. However, in the first dimension of vaccination in preventing pneumonia by bringing children for Flu vaccine besides the national vaccination schedule for the first two doses in the first year showed 41.6% chose "Never". This result could indicate the inappropriate practice among half of them, as flu vaccine is important to prevent their children from pneumonia [10]. However, another study reported that parents were more likely to vaccinate their children against influenza if this vaccine was included in the national immunization program [10]. In addition, on the dimension of nutrition in preventing pneumonia by continuing to breastfeed their child until two years old showed that almost half of caregivers (46.9%) chose "Never" which points to the inappropriate practice to the risk of diseases such as pneumonia. According to the study on nutritious and safe complementary foods, breastfeeding should be continued until their child reaches two years old or beyond [10]. Only 2.3% of 220 mothers in that study continued breast feeding their child for 24 months or longer.

Amuka et al., (2020) also conducted a study on Knowledge, Perceptions and Practices of Caregivers on pneumonia among children aged below five years in Migori County Referral Hospital, Kenya. Their study demonstrated that drug sellers and home remedies were the most preferred treatment options by caregivers. Majority of caregivers delayed seeking care for more than two days as they gave over-the-counter drugs such as antibiotics, cough syrup, analgesics and other home remedies, care was majorly sought when the condition of the children worsen [11]. Similar findings were reported in studies conducted in Nigeria, Uganda, Kenya, Ghana, Pakistan, Bangladesh and Tanzania where over 50% of mothers delayed seeking care as they preferred giving drugs from drug sellers and home remedies to their children [11]. While these drugs and home remedies are seen to be cheap and easily accessible, their use have been associated with delayed care seeking as caregivers always wait for the remedy to take effect before seeking care [11].

### 2.4. Theoretical framework

The Health Belief Model (HBM) is a psychosocial model which was originally developed in the 1950s by social psychologists, Irwin Rosenstock, and later by Becker. It was later revised by Victoria Champion. The HBM was adopted for use in this study because it has been proven to be efficient in studying preventive behaviours' [12]. The model is based on the theory that a person's willingness to change their health behaviours primarily comes from their health perceptions [12]. The initial HBM consisted of four main parameters which was later revised by Victoria Champion by add two more constructs. Therefore, the components of this model are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy.

Applying the HBM to this study can help to explain some factors that influence the health decisions or actions taken by mothers in their management of pneumonia in their children. The constructs of the model can assist the researcher in designing the health education interventions that could influence mothers' readiness to take some positive health measures, health care seeking behaviours and preventive actions such as vaccination against pneumonia. This is by emphasizing the benefits of compliance and by removing barriers that might prevent compliance.

- **Perceived severity:** This arises from an individual's belief about the effects that the disease will have or the negative impacts it will have on the child's life in general. Thus, the mother must perceive that the child's condition is severe and if proper measures are not sought promptly the child could die from pneumonia. She must see the harm and danger in not seeking health care early or by engaging in ineffectual management practices.
- **Perceived susceptibility:** The greater a mother's perceived susceptibility to a potentially dangerous situation or condition is, the greater the likelihood that she will engage in practices to reduce the risk. Thus, the greater the mother perceive that her child is at risk of having pneumonia, the greater the likelihood she will engage in preventive practices and positive health behaviors.
- **Perceived benefits:** It is an individual's belief that taking the recommended action (i.e. seeking care at the health centre) will save or prevent the child from dying from pneumonia infection. Therefore, a mother is more likely to take her child to seek healthcare early, discontinue some of the home management practices and initiate appropriate preventive actions if she believes it will reduce the likelihood of developing pneumonia and avoid death of the child.
- **Perceived barriers:** These are a mother's assessment of the factors that inhibit her from undertaking the recommended health action (seeking care early in pneumonia infection).
- **Self-efficacy:** Oftentimes, people do not try new things unless they believe they can do it. Thus, a mother must believe in her capabilities to engage in those positive health behaviours and preventive health measures.
- **Cues to action:** These are events, significant others or situations that prompt mothers or caregivers to positively change their attitude towards the management of pneumonia.

### 3. Material and methods

#### 3.1. Research design

A descriptive cross-sectional design was deployed to assess the knowledge, attitude, and home management practices of pneumonia among mothers of children under 5 years attending paediatric clinic Osun State University Teaching Hospital, Osogbo using quantitative method in data collection.

#### 3.2. Population

The research population consisted of one hundred and seventy (170) mothers whose children were less than 5 years (20-50 months) that attended the paediatric clinic in Osun State University Teaching Hospital, Osogbo for the treatment of pneumonia in their children during the period of 1<sup>st</sup> July to 30<sup>th</sup> October, 2023 during which the data was collected on the mothers infant- welfare clinic days during that period.

#### 3.3. Sampling Technique

A simple random sampling technique was used to select the 170 respondents as the research participants.

#### 3.4. Instrumentation

A structured questionnaire was adapted and used for data collection in this study. The key questionnaire items included, viz: demographic variable, knowledge, attitude, and practices of home management of pneumonia among mothers of under five children. It was interviewer-administered.

After the completed questionnaires were retrieved from the respondents, the raw data was cross-checked for completeness and subjected to data cleaning. It was then entered into the Statistical Package for Social Sciences (SPSS) version 26 for analysis. The results of analysis were presented by using percentages, tables, graphs, frequencies distribution, and charts. The hypothesis was tested at 0.05 level of significance and Chi-square statistics.

#### 3.5. Procedure for data collection

The data collection was conducted during the period of July to October, 2023 by trained Research Assistants (a pair of one female and one male students of nursing who had previously been trained on the goal, objectives and methodology of the study, the study instruments and standard steps and ethics of administering the questionnaire).

On each child clinic day, a simple random technique was used to select every second mother in the row of patients waiting to consult the doctor at the clinic until the sample size was reached.

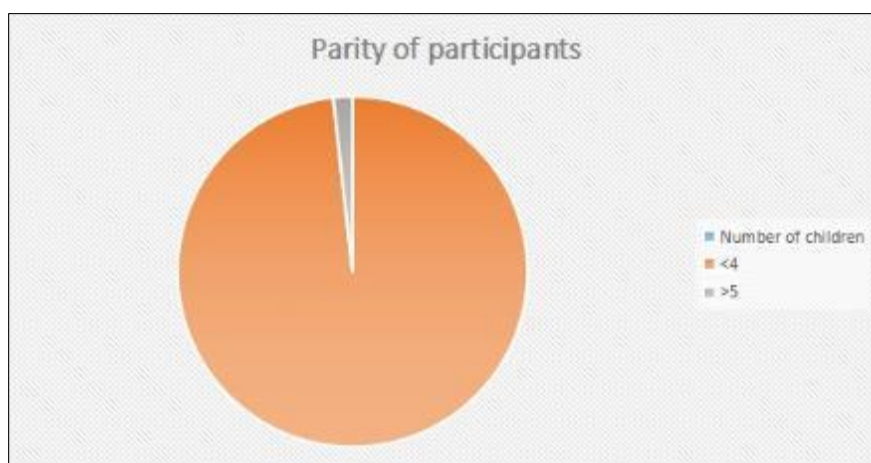
### 4. Results

**Table 1** Socio-demographic characteristics of respondents (n=170)

Variables	Frequency(n=170)	Percent (%)
Age (in years)		
less than 20	23	13.5
20-29	108	63.5
30-39	37	21.8
40-49	2	1.2
	Mean age of participants=26 years; SD= 6.3	
Marital status		
Married	76	44.7
Single	40	23.5
Divorced	54	31.8

Level of education		
Primary level	33	19.4
Secondary level	12	7.1
Tertiary/university level	90	52.9
No formal education	35	20.6
Religion		
Christian	71	41.8
Islam	99	58.2
Occupation		
Civil servant	30	17.6
Self employed	89	52.4
House wife	51	30.0
Sex of the child		
Female	106	62.4
Male	64	37.6
Income		
Below 70,000	136	80.0
Above 70, 000	34	20.0

Table 1 present the sociodemographic characteristics of the respondents. It shows that 63.5% are between the ages of 20-29yrs of age and 1.2% are between the ages of 40-49yrs. *Mean age of participants=26years; SD=6.3; about 44.7% are married and 23.5% are single. 52.9% attained tertiary/university level of education and 7.1% have secondary education. About 41.8% practiced Christianity religion while 58.2% practiced Islam. Regarding occupation, 52.4% are self-employed; 17.6% are civil servants. The table also shows that 62.4% have female sex as children and 37.6% have male sex as children. About 80.0 % earns below 70, 000 naira and 20% earns above 70,000 Naira.*



**Figure 1** Parity of Respondents

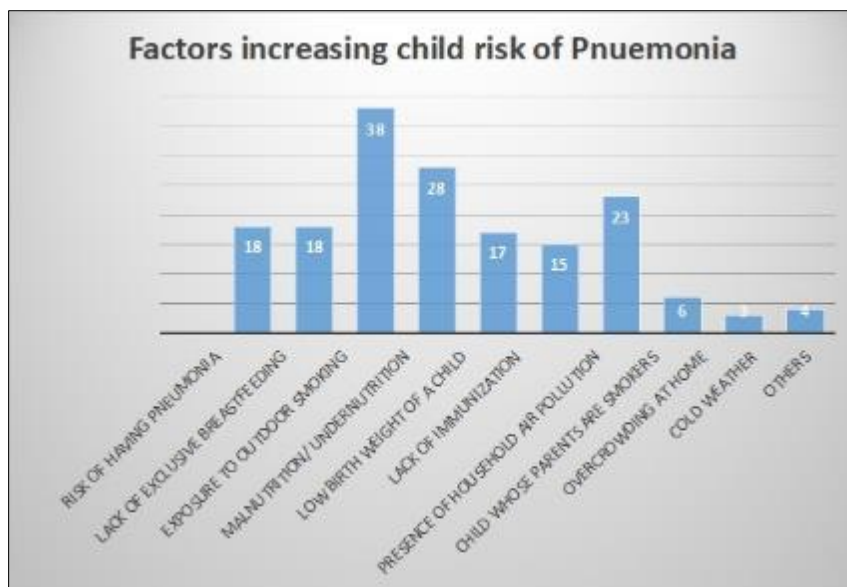
#### 4.1. Research question one

What is the level of knowledge of home management for pneumonia among mothers of children under 5 years attending paediatric clinic at the Osun State University Teaching Hospital?

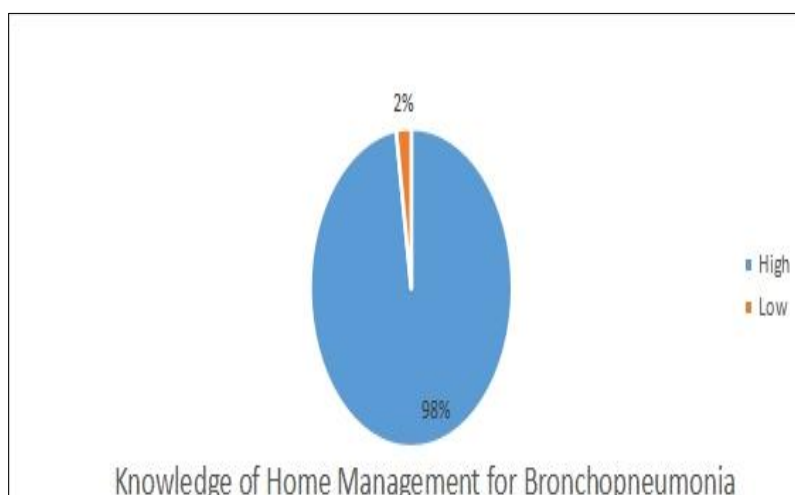
**Table 2** Level of Knowledge of Home Management for Pneumonia

Knowledge statement	Frequency (n=170)	Percentage (%)
Heard about Pneumonia		
Yes	166	97.6
No	4	2.4
Knowledge of pneumonia as the leading cause of deaths among children		
Yes	26	15.3
No	144	84.7
Pneumonia as a contagious disease		
Yes	97	57.1
No	73	42.9
Signs and symptoms		
characterized by rapid and difficult breathing	7	4.1
Wheezing	35	20.6
Fever	41	24.1
Loss of appetite/inability of the child to eat food	44	25.9
Coughing and vomiting	33	19.4
Chills (child feel cold & shivering)	10	5.9
Knowledge of pneumonia		
Bacteria/viral (germs and microorganism)	28	16.5
Exposure of child to cold	86	50.6
Air pollution	56	32.9
Source of information about pneumonia		
Television/radio	22	12.9
Health facility/health workers	48	28.2
Internet	45	26.5
Family friends	45	26.5
Others	10	5.9

Table 2 present the level of Knowledge of Home Management for Pneumonia among respondents. It shows that 97.6% have heard about pneumonia previously while a few 2.4% had not. About 15.3% are knowledgeable that pneumonia is the leading cause of deaths among children and 84.7% are not knowledgeable about this. About 57.1% are knowledgeable that pneumonia is a contagious disease and 42.9% did not. About an average 50.6% are knowledgeable that pneumonia is an exposure of child to cold and few 16.5% are knowledgeable that pneumonia is caused by bacteria/viral (germs and microorganism).



**Figure 2** Factors that increase child’s risk of having pneumonia.



**Figure 3** Knowledge of home management for pneumonia.

**4.2. Research question two**

What is the attitude of the mothers towards home management of pneumonia among mothers of children under 5 years attending paediatric clinic in Osun State University Teaching Hospital?

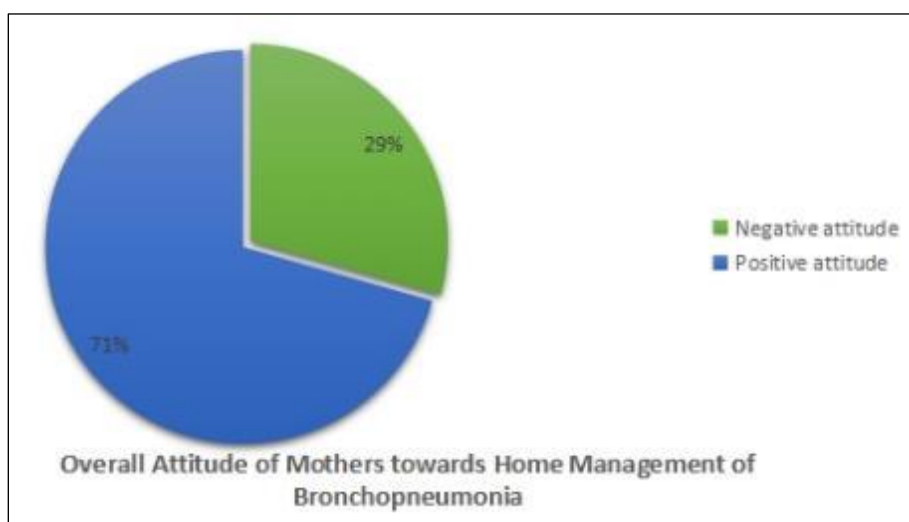
**Table 3** Attitude of Mothers towards Home Management of Pneumonia

Attitudinal statements	Strongly disagree	Disagree	Agree	Strongly agree	Undecided
Pneumonia can lead to death in a child	7 (4.1%)	8 (4.7%)	89 (52.4%)	34 (20.0%)	32 (18.8%)
Going to health Centre is necessary whenever child develops pneumonia	4 (2.4%)	7 (4.1%)	77 (45.3%)	65 (38.2%)	17 (10.0%)
Antibiotics usage is required each time pneumonia is diagnosed	18 (10.6%)	49 (28.8%)	35 (20.6%)	8 (4.7%)	60 (35.3%)



Children with pneumonia can be treated with over-the-counter drugs	24 (14.1%)	43 (25.3%)	41 (24.1%)	5 (2.9%)	57 (33.5%)
Maintaining good hygiene prevent occurrence of pneumonia	11 (6.5%)	24 (14.1%)	88 (51.8%)	19 (11.2%)	28 (16.5%)
Limited child exposure to cold prevent occurrences of pneumonia	5 (2.9%)	30 (17.6%)	44 (25.9%)	25 (14.7%)	66 (38.8%)
Use of home remedies and alternative traditional medicine are effective treatment of pneumonia	35 (20.6%)	51 (30.0%)	30 (17.6%)	4 (2.4%)	50 (29.4%)
Immunization of one's child against pneumonia is compulsory in Nigeria	27 (15.9%)	58 (34.1%)	25 (14.7%)	9 (5.3%)	51 (30.0%)
Overall attitude	Negative attitude		Positive attitude		
	50 (29.4%)		120 (70.6%)		

Table 3 present the Attitude of Mothers towards Home Management of Pneumonia. It shows that 52.4% agree that pneumonia can lead to death in a child and 4.1% strongly disagree to it. While 51.8% agree that maintaining good hygiene prevent occurrence of pneumonia and 6.5% strongly disagree to the statement. A few 30.0% are undecided that use of home remedies and alternative traditional medicine are effective treatment of pneumonia and 2.4% strongly agree to the statement.



**Figure 4** Overall attitude of mothers towards home management of pneumonia.

### 4.3. Research question three

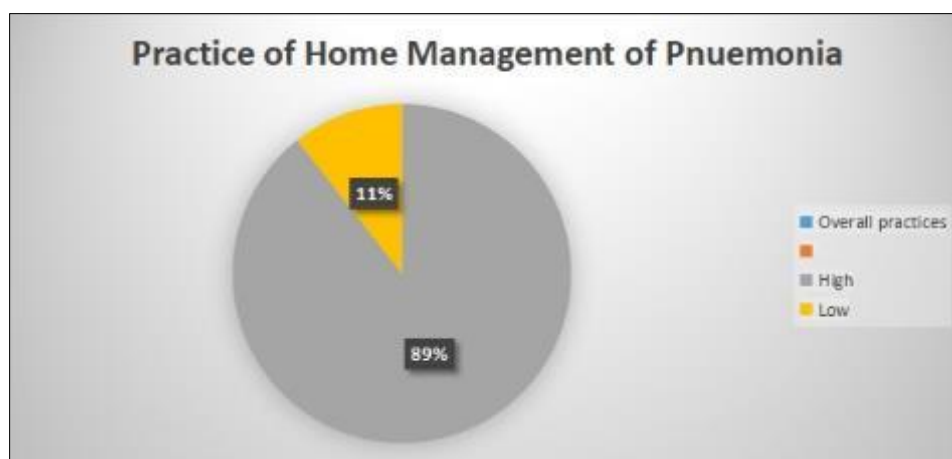
What are the practices of home management for pneumonia among mothers of children under 5 years attending paediatric clinic in Osun State University Teaching Hospital?

**Table 4** Practices of Home Management of Pneumonia

Practices	Yes	No
Practice breast feed for complete six months	135 (79.4%)	35 (20.6%)
Child exposure to smoke	13 (7.6%)	157 (92.4%)
Child immunized with measles and pneumococcal vaccine	109 (64.1%)	61 (35.9%)
Do nothing and wait until it resolves	24 (14.1%)	146 (85.9%)

Immediate transport to health centres/hospitals for consultation	48 (28.2%)	122 (71.8%)
Ask family and friends about what to be done	47 (27.6%)	123 (72.4%)
Practice self-medication	66 (38.8%)	104 (61.2%)
Home remedies usage	92 (54.1%)	78 (45.9%)
Massage the child's body with wet warm cloth	99 (58.2%)	71 (41.8%)
Clothe the child with more clothes to prevent more cold	58 (34.1%)	112 (65.9%)
Offer child warm drink/ warm salty water and lemon juice	73 (42.9%)	97 (57.1%)
Give liquid feeds such as porridge	27 (15.9%)	143 (84.1%)
Reduce amount of solid food or stop giving solid food to prevent coughing, vomiting and breathing difficulty	169 (99.4%)	1 (0.6%)
Overall practices	High	Low
	152 (89.4%)	18 (10.6%)

Table 4 present the practices of home management of pneumonia. It shows that 79.4% practice breast feed for complete six months and 20.6% do not. About 92.4% do not expose their child to smoke while 7.6% does. 64.1% practice child immunized with measles and pneumococcal vaccine and 35.9% do not. 54.1% practiced home remedies for pneumonia and 45.9% do not. Moe than half, 58.2% practice massage the child's body with wet warm cloth and 41.8% do not. Most participants (99.4%), reduce amount of solid food or stop giving solid food to prevent coughing, vomiting and breathing difficulty and 0.6% do not.



**Figure 5** Overall practices of Home Management of Pneumonia.

#### 4.4. Test of hypothesis

Hypothesis one:  $H_0$ =There is no significant relationship between the educational level of the respondent and the home management of pneumonia.

**Table 5** Relationship between educational level of Mothers and the Home Management of Pneumonia

Level of education	Knowledge of home management of pneumonia		Statistics	Decision
	High	Low		
Primary level	32(19.3)	1(25.0)	X <sup>2</sup> =2.680 <sup>a</sup> DF = 3 *P = 0.044	Significant
Secondary level	12(7.2)	0(0.0)		
Tertiary/university level	89(53.6)	1(25.0)		
No formal education	33(19.9)	2(50.0)		

\*P value < 0.05;  $\chi^2$ : Chi square test

Table 5 shows the test of relationship between educational level of the respondent and the home management of pneumonia using Chi square test. With p value  $\leq 0.05$ , it can be deduced that there is a significant relationship between educational level of the respondent and the knowledge of home management of pneumonia. The null hypothesis is therefore rejected and conclude by accepting the alternative hypothesis that there is a significant relationship between educational level of the respondent and the home management of pneumonia among mothers of children under 5 years attending Paediatrics clinic in Osun State University Teaching Hospital.

Hypothesis two: H<sub>02</sub> There is no significant relationship between the age of the respondent and their knowledge of home management of pneumonia.

**Table 6** Relationship between the age of Mothers and Knowledge of Home Management of Pneumonia

Age	Knowledge of home management of pneumonia		Statistics	Decision
	High	Low		
less than 20	23(13.9)	0(0.0)	X <sup>2</sup> =6.894 <sup>a</sup> DF = 3 P = 0.075	Not Significant
20-29	107(64.4)	1(25.0)		
30-39	34(20.5)	3(75.0)		
40-49	2(1.2)	0(0.0)		

\*P value > 0.05;  $\chi^2$ : Chi square test

Table 6 shows the test of relationship between the age of the respondent and their knowledge of home management of pneumonia using Chi square test. With p value  $\geq 0.05$ , it can be deduced that there is no significant relationship between the age of the respondent and their knowledge of home management of pneumonia. The null hypothesis is therefore accepted.

## 5. Discussion

Findings revealed high knowledge of home management of pneumonia among mothers. This finding agrees with Chheng (2021) study which found that majority of caregivers had good knowledge regarding pneumonia. This study results also aligns in similarity with Amuka et al. (2020) that reported that caregivers' awareness about childhood pneumonia was good. However, the good knowledge level demonstrated by mothers in this study might be attributed to their educational status as majority of them had tertiary level of education which might have significantly influenced their knowledge regarding pneumonia in their children. Another possible reason for the high knowledge nonetheless might be attributed to wealth of experience accumulated in taking care of previous children since majority of them had between 1-4 children.

Results from this study showed a positive care-seeking attitude among respondents. This finding disagrees with Chheng & Thanattheerakul (2021) which reported a negative attitude towards illness management in childhood pneumonia among mothers. Majority disagreed to the statement that home remedies and traditional medicines are effective treatment of pneumonia.

Finally, this study found that majority of the respondents had good practices of home management of pneumonia. This finding corroborates the result published by Chheng & Thanattheerakul (2021) which showed that 69.9% of caregivers had a good practice. However, this study finding is in discordance with Amuka & Onguru (2020) study which found a poor practice among caregivers.

A surprising result from this study was that majority settled not to practice self-medication despite agreeing to home remedies usage and majority earning below minimum wage of #70,000 per month. It is curious and contradictory that our study revealed that although many respondents (61.2%?) stated that they do not practice self-medication despite agreeing to using home remedies for child pneumonia.

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## 6. Conclusion

The mothers of children five years and below in this study had relatively adequate knowledge about the signs and symptoms of pneumonia, the risk factors and treatment measures, a reflection of high practices and good attitude demonstrated by them. Continuing education caregiver health education and supportive reinforcement mechanisms are necessary to sustain the high knowledge and positive attitude revealed in this study.

### *Recommendations*

Based on the study findings the following recommendations were proposed:

- Targeted interventions to equip mothers with adequate skills and knowledge about childhood pneumonia, prevention, early signs and symptoms as well as first line management actions including seeking prompt care at the health centre.
- Encourage parents to vaccinate their children according to recommended guidelines. Vaccinations have effectively reduced the incidence and severity of pneumonia in populations of children.

### *Study limitations*

Time and resource constraints did not allow for a complementary qualitative study component to reinforce the quantitative study findings. Thus, the results did not report the lived experiences and intuitive insights of mothers of under five children with pneumonia. Future studies with a mixed-methods approach is anticipated.

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## Compliance with ethical standards

### *Acknowledgments*

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### *Disclosure of conflict of interest*

All authors contributed positively to the writing of this manuscript and there's no conflict interest as agreed to the content of this research.

### *Statement of ethical approval*

Ethical approval was sought for and gotten from Adeleke University Ethical Research Committee (AUERC) and from the Research Ethical Committee Uniosun Teaching Hospital, Osogbo, Osun State.

### *Statement of informed consent*

Informed consent was obtained from all individual respondents included in the study.

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