

FACTORS CONTRIBUTING TO INCREASED CASES OF PNEUMONIA AMONG CHILDREN UNDER 5 YEARS OF AGE AT KASANGATI HEALTH CENTER IV WAKISO DISTRICT. A CROSS-SECTIONAL STUDY.

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ABSTRACT.

Background:

The purpose of the study was to provide the current information about the individual, community-based, and hospital-based factors contributing to the increased cases of pneumonia among children under 5 years at Kasangati Health Center in Wakiso district.

The specific objectives of the study were; to identify the individual factors contributing to the increased cases of pneumonia among children under the age of 5 years; and to find out the community-based factors contributing to the increased cases of pneumonia among children under the age of 5 years; to determine the hospital-based factors contributing the increased cases of pneumonia among children the age of 5 years.

Methodology:

The study employed a cross-sectional study design with a simple random technique as the sampling technique. Data was collected on a sample size of 50 respondents using semi-structured questionnaires with closed and open-ended questions as a data collection tool. Data was later analyzed using tally sheets computed into frequency and percentages using the Microsoft Excel computer program with illustrated figures (bar graphs and pie charts) and tables for easier interpretation.

Results:

The overall results regarding the individual factors were (54%) of the respondent's children being unvaccinated and (56%) of the respondent's children using cup feeding.

The study further revealed the community-based factors of (40%) of the respondents had poor aeration in their houses and (38%) of them still cooked indoors. The findings also showed the hospital-based factors as being (61%) of the children not being vaccinated.

Conclusion:

The researcher concluded that being unvaccinated and use of cup feeding were the individual factors, poor aeration, and cooking indoors were the community-based factors and not being immunized was the hospital-based factor.

Recommendation:

The researcher recommended that respondents should vaccinate their children, exclusively breastfeed them, have good aeration, cook outdoors, and immunize children under 5 years.

Keywords: Pneumonia, Vaccination, Acquired System, Body Mass Index, Children.

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BACKGROUND OF THE STUDY.

Pneumonia is defined as an acute inflammation of the parenchymal cells of the lungs. It can be classified based on the place of acquisition as community-acquired or hospital-

acquired, based on its causative agents or mechanism as bacterial, viral, fungal, Aspiration or ventilated associated pneumonia, based on the anatomy of lungs involved as lobar pneumonia, bronchial pneumonia, or acute interstitial

pneumonia and the basis of its clinical severity as “no pneumonia”, “pneumonia” or “severe pneumonia”.

Statistics show it's the leading cause of death in children younger than 5 years old (CDC 2016). Children with pneumonia may have a range of symptoms depending on their age and the cause of the infection (WHO,2023). Bacterial pneumonia usually causes children to become severely ill with high fever and rapid breathing. Viral infections, however, often come on gradually and may worsen over time. Some common symptoms of pneumonia in children and infants include rapid or difficult breathing, cough, fever, chills, headache, loss of appetite, and wheezing. Children under five with severe cases of pneumonia may struggle to breathe with their chests moving in or retracting during inhalation (known as “lower chest wall in drawing”). Young infants may suffer convulsions, unconsciousness, hypothermia, lethargy, and feeding problems (PFKC, 2017). Globally 1.1 million children under the age of 5 years die due to pneumonia every year accounting for about 18% of all deaths of children under 5 years old of the estimated 9 million child deaths in 2017 (Global Action Plan, 2013).

In Africa, pneumonia is one of the leading killers of children under 5 years of age (Hilden Wall et al, 2019). The burden of childhood pneumonia remains disproportionately represented in low and middle-income countries. Severe respiratory infections in childhood may be associated with an increase in long-term respiratory morbidity and an added health burden (Gray DM, 2010). In Sub-Saharan Africa, a wide range of mild to severe infectious diseases may present with fever. The most important diseases in terms of childhood mortality are pneumonia, malaria, and diarrhea.

In Uganda, ALRIs are the second major cause of morbidity after malaria and the leading cause of death among children under 5. Severe pneumonia accounts for 25-33% of admissions and contributes up to 30% of deaths in the paediatric wards of Mulago Hospital (MOH, 2019).

General objective.

- *To determine the factors contributing to increased pneumonia cases among children under 5 years at Kasangati Health Center IV Wakiso district.*

Specific objectives.

- *To identify the individual factors contributing to increased pneumonia cases among children under the age of 5 years at Kasangati Health Center IV Wakiso District.*
- *To find out the community-based factors contributing to increased pneumonia cases among children under 5 years at Kasangati Health Center Wakiso District.*
- *To assess the hospital-based factors contributing to increased cases of pneumonia among children under 5 years at Kasangati Health Center IV Wakiso District.*

METHODOLOGY.

Study design:

The study was a cross-sectional descriptive study employing both qualitative and quantitative description data collection methods.

Study population:

The study included the caretakers of children under the age of five at Kasangati Health Center iv Wakiso district.

Sample size determination:

The sample size was calculated using the burtons formula (1965). Sample size (n)= QR/O

Where;

Q = The total number of fays taken for data collection.

R = maximum number of respondents who were interviewed per day. O = maximum time taken on each respondent per day.

Values; n= QR/O Q= 10 days.

R= 5 respondents.

O= 1 hour.

Therefore;

N= QR/O

N= (10*5)/1

N= 50 respondents.

Sampling technique of the study.

The sample of the respondents was selected by using a simple random sampling technique will be prepared because it discourages bias and allows each respondent to have an equal chance of participation.

Sampling procedure of the study.

Simple random sampling of care takers at Kasangati health centre iv Wakiso district was used to identify the respondents. Here a list of all care givers who had children with pneumonia at the hospital was made and then coded with numbers from 1-50 their names put on a piece of paper then randomly selected the respondents.

Data collection method.

Here questionnaires were used.

Data collection tool.

Respondents used semi-structured questionnaires for the case of questionnaire method.

Data collection procedure.

Questionnaires

A semi-structured questionnaire with closed and open-ended questions was properly written in English language and was

used to collect the data. Respondents after giving them clear instructions and with the help of the researcher data was collected.

in tables, graphs, and pie charts, generated by Microsoft Excel.

Piloting the study.

A brief study was done before the research which helped to evaluate the working conditions and methods were us to eliminate the possible errors during the research time.

Data analysis and presentation.

The collected data was analyzed using a scientific calculator presented inform of tables for easy interpretation.

The collected data was analyzed manually by the use of papers and pens and tallying after which it will be presented

Ethical considerations of the study.

Permission was sought from the institute and the health center to collect the data required for the study. A written consent from explaining the rationale for the study, benefits and rights of respondents, and confidentiality to protect the respondents was presented to the respondent s in English or local language where applicable.

RESULTS/ STUDY FINDINGS.

Demographic data of the caretakers.

Table 1: Shows the distribution of the demographic data of the caretakers. (N=50)

Response	Frequency (f)	Percentage (%)
Age (years)		
18-24	15	30
25-34	20	40
35-44	10	20
45-50	5	10
Total	50	100
Sex		
Male	16	32
Female	34	68
Total	50	100
Education levels		
Primary	22	44
Secondary	18	36
Tertiary	10	20
Total	50	100

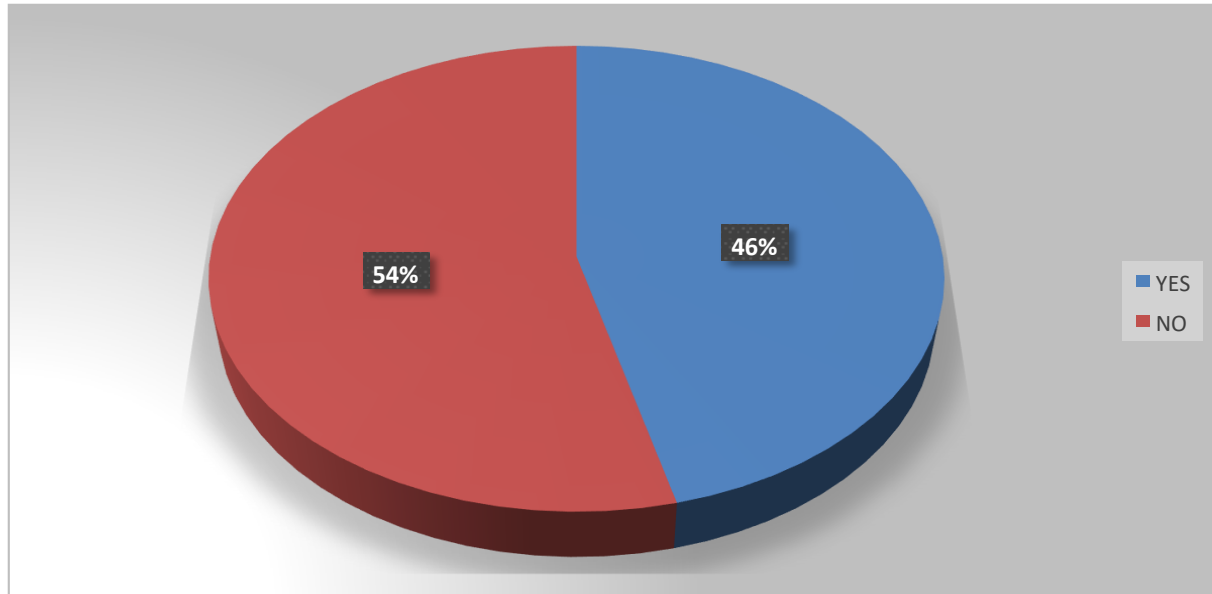
Table 1 continuation		
Occupation		
Employed	28	56
Unemployed	22	44
Total	50	100
Residence		
Village		
Gayaza A	21	42
Kasangati	6	12
Nangabo	13	26
Bulamu	10	20
Total	50	100
Parish		
Gayaza A	6	12
Bulamu	10	20
Wampeewo	34	68
Total	50	100
Tribe		
Muganda	17	34
Musoga	13	26
Mukiga	10	20
Others	10	20
Total	50	100
Religion		
Catholic	12	24
Protestant	16	32
Moslem	14	28
Others	8	16
Total	50	100

From Table 1, most (40%) of the distribution of the caretakers were within the age bracket of 25-34 years whereas the least (10%) of the distribution of the caretakers were within the age bracket of 45-50 years. As regards the sex of the caretakers, the majority (68%) of the distribution of caretakers were females while the minority (32%) of the distribution of caretakers were males.

The study further revealed that most (44%) of the distribution of caretakers' level of education was primary whereas the least (20%) of the distribution of the caretaker's level of education was tertiary. The study discovered that more than half (56%) of the distribution of caretakers were employed whereas the least (44%) of the distribution of caretakers were unemployed. From the table above, most (42%) of the distribution of caretakers resided in the village of Gayaza A while the least (12%) of the distribution of caretakers resided in the village of Kasangati. As regards the distribution of the tribe of the caretakers, most (34%) of them were Baganda whereas the least (20%) of the distribution of the caretaker's tribe was that of the Bakiga. The study revealed that most (32%) of the distribution of the caretaker's religion was protestant whereas the least (16%) of the distribution of the caretakers was others.

Individual factors contributing to increased cases of pneumonia among children under the age of 5 years at Kasangati health center iv Wakiso district.

Figure 1: Shows the distribution of the caretaker's child and whether the child was vaccinated. (N=50)



From figure 1, more than a half (46%) of the distribution of the care takers had their children unvaccinated whereas the least (54%) of the distribution of the care takers had their children vaccinated.

Figure 2: Shows the distribution of the caretaker's child whether the child was vaccinated against pneumonia. (N=23)

From figure 2, the majority (60%) of the distribution of the children were not vaccinated against pneumonia and the least (40%) of the distribution of the children were vaccinated against pneumonia.

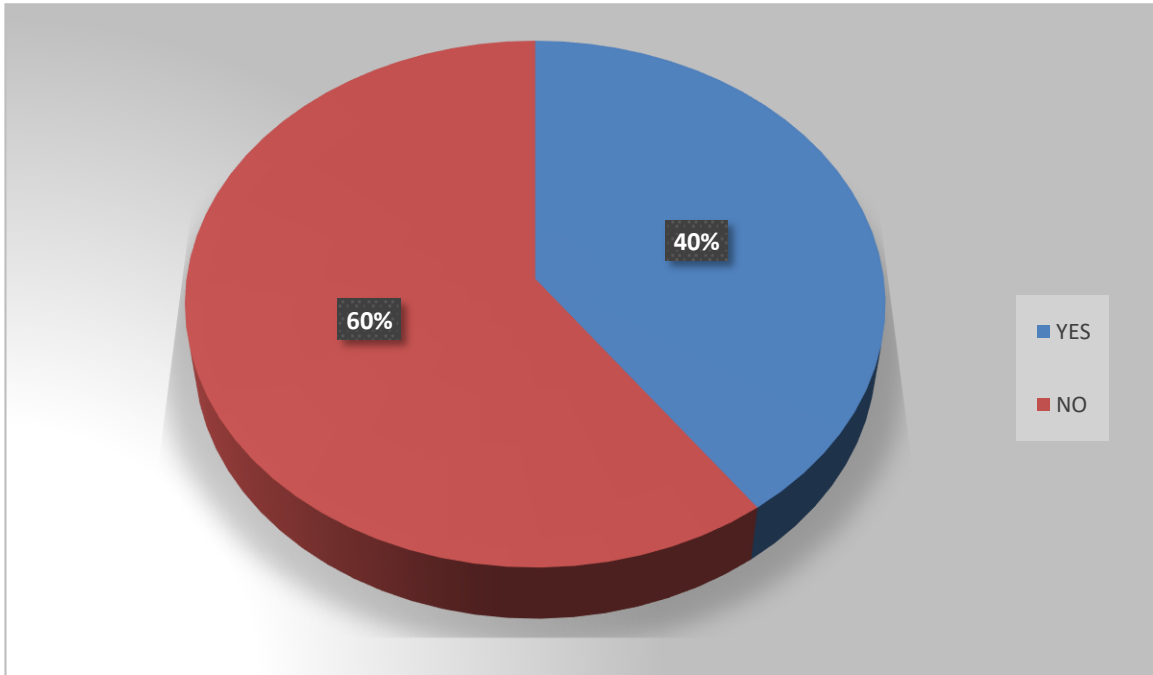
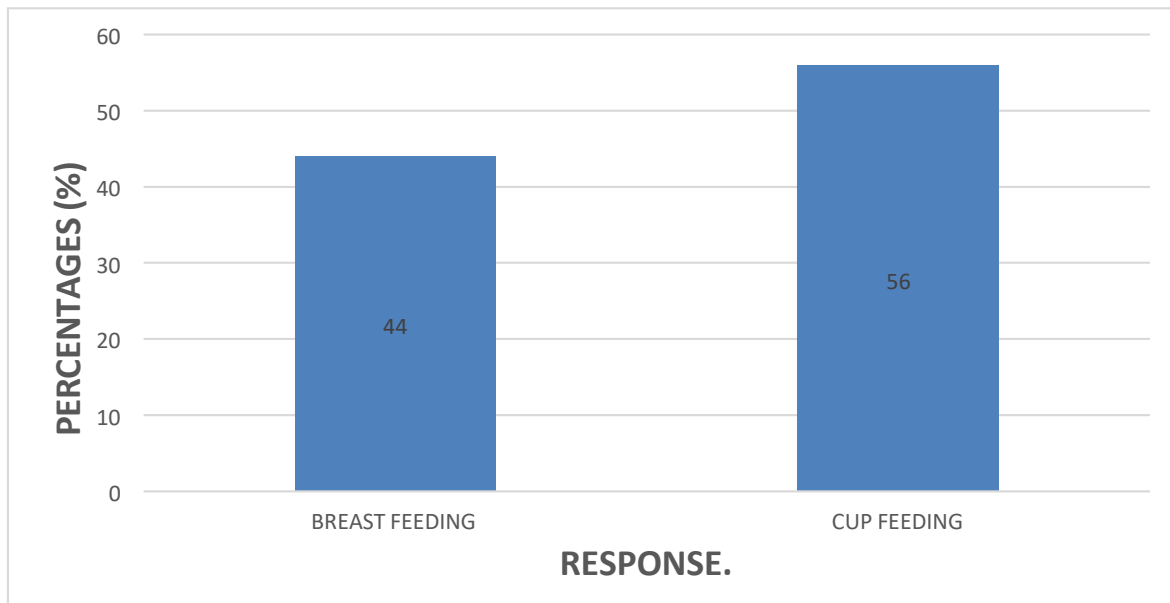


Figure 3: Shows the distribution of the kind of feeding of the caretaker's child.(N=50)



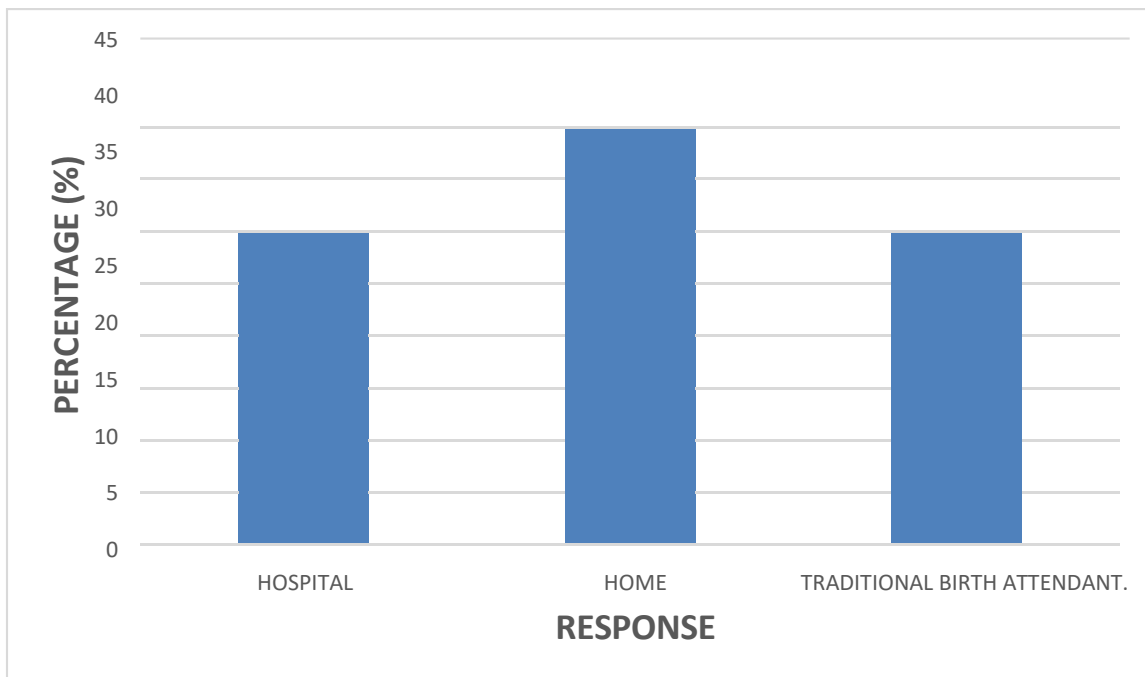
From figure 3, more than a half (52%) of the distribution of the children had cupfeeding and the least (48%) of the distribution of the children had breast feeding.

Table 2: Shows the distribution of the age at which the caretaker stopped breast feeding the child. (N=24)

Age	Frequency (f)	Percentage (%)
6 months	12	50
12 months	8	33
12months-59months	4	17
TOTAL	24	100

From table 2, a half (50%) of the distribution of the children stopped breast feeding at the age of 6 months whereas the least (17%) of the distribution of the children stopped breast feeding between the age of 12 months to 59 months.

Figure 4: Shows the distribution of the place where the caretaker delivered the child from.(N=50)



From figure 4, most (40%) of the distribution of the children were delivered from home and the least (30%)

of the distribution of the children were delivered from the hospital and the traditional birth attendants.

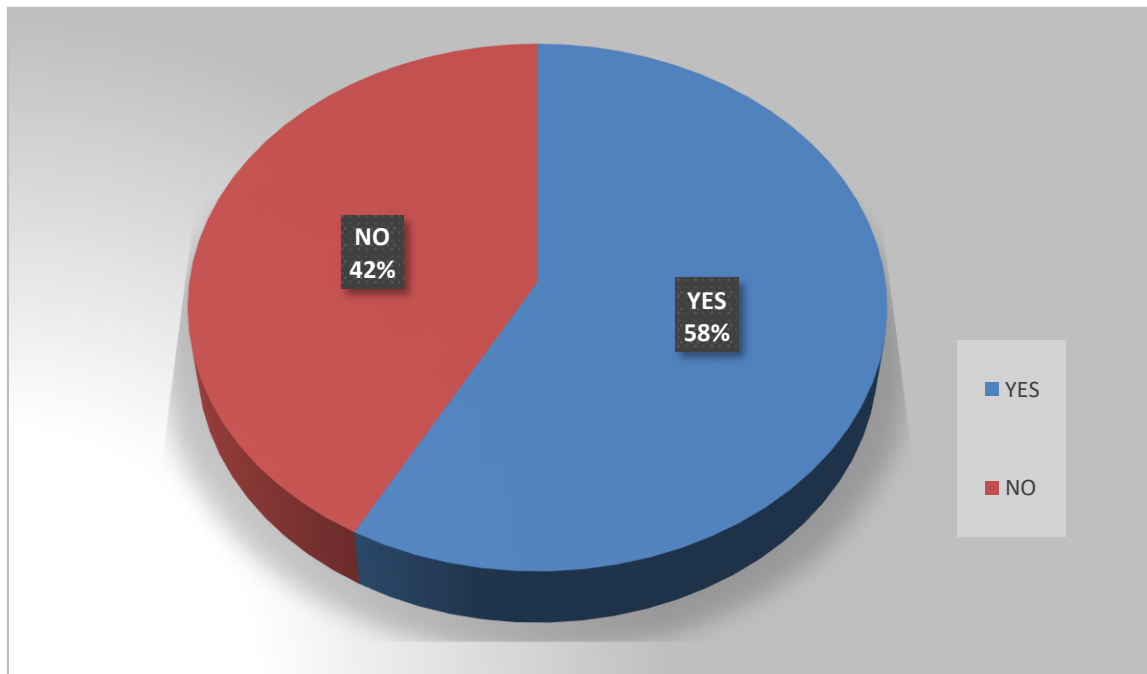
Table 3: Shows the distribution of the care that was given to the caretaker's child afterbirth. (N=50).

Type of care	Frequency (F)	Percentage (%)
Immediate	17	34
Delayed	20	40
No care	13	26
TOTAL	50	100

From table 3, most (40%) of the distribution of the children got delayed care after birth and the least (26%) of the distribution of the children got no care after birth.

Community factors contributing to increased cases of pneumonia among children under the age of five years at Kasangati health center IV Wakiso district.

Figure 5: Shows the distribution of the care takers who smoke. (N=50)



From figure 5, more than a half (58%) of the distribution of the care takers smoked whereas the least (42%) of the distribution of the care takers didn't smoke.

Table 4: Shows the distribution of caretakers who smoke inside the house.(N=58)

Response	Frequency (f)	Percentage (%)
Yes	32	64
No	26	52
Total	58	100

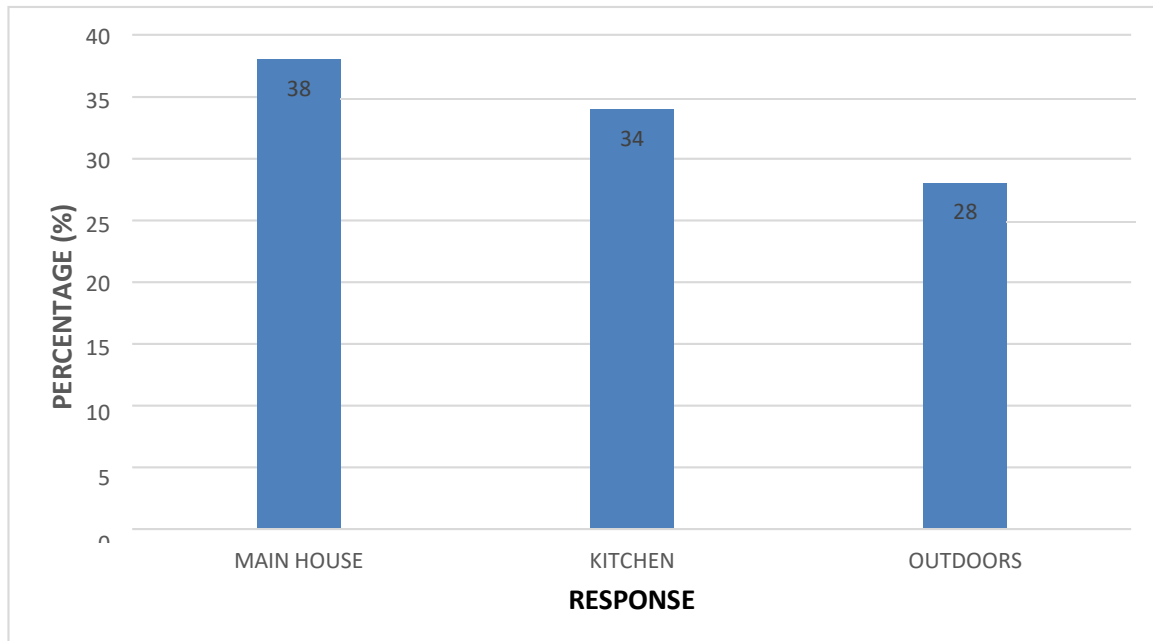
From table 4, majority (64%) of the distribution of the response of the caretaker's smoked inside the house whereas the least (52%) of the distribution of the response of the caretakers didn't smoke inside the house.

Table 5: Shows the distribution of the type of fuel used at home by the caretakers. (N=50)

Type of fuel used at home	Frequency (f)	Percentage (%)
Firewood	5	10
Charcoal	12	24
Electricity	7	14
Paraffin	11	22
Gas	11	22
Crop wastes	4	8
TOTAL	50	100

From table 5, most (24%) of the distribution of the caretakers used charcoal as the type of fuel used at home and the least (8%) of the distribution of the caretakers used crop wastes as the type of fuel used at home.

Figure 6: Shows the distribution of the cooking where it is done by the caretakers at home.(N=50)



From figure 6, most (38%) of the distribution of the cooking was done in the main house by the caretakers at home whereas the least (28%) of the distribution of the cooking was done in outdoors by the caretakers at home.

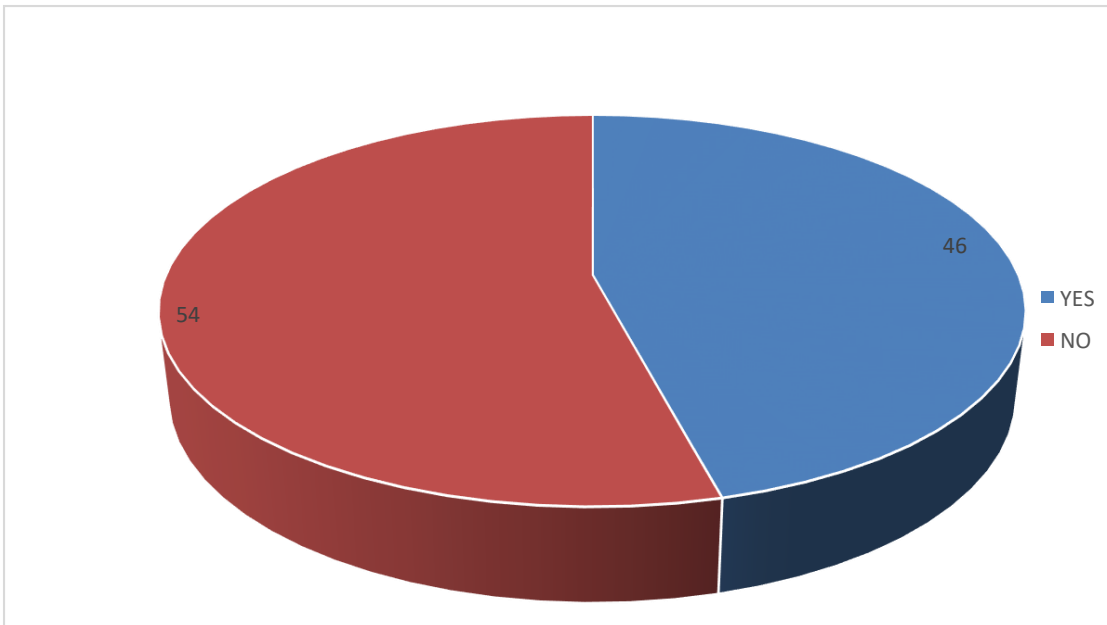
Table 6: Shows the distribution of windows in the house of the caretakers. N=50

Windows	Frequency (f)	Percentage (%)
One	14	28
Two	20	40
Three	11	22
None	5	10
TOTAL	50	100

From table 6, most (40%) of the distribution of the windows in the respondent's houses were two in number whereas the least (10%) of the distribution of the windows in the respondent's house were none.

Hospital based factors contributing to increased cases of pneumonia among children under five years at Kasangati health center IV Wakiso district.

Figure 8: Shows the distribution of the caretaker's child immunized in the hospital. (N=50)



From figure 8, more than a half (54%) of the distribution of care taker's children were immunized in the hospital whereas the least (46%) of the distribution of the care taker's children were not immunization in the hospital.

Table 7: Shows the distribution of the caretaker's child who was immunized against pneumonia. (N=46)

Response	Frequency (f)	Percentage (%)
Yes	18	39
No	28	61
TOTAL	46	100

From table 7, majority (61%) of the distribution of the response of the care takers was a "Yes" on immunization against pneumonia while the least (39%) of the distribution of the response of the caretaker's was "No" on immunization against pneumonia.

Table 8: Shows the distribution of the length spent by the caretaker's child in the hospital. (N=50)

Response	Frequency (f)	Percentage (%)
Two days	13	26
Seven days	15	30
Two weeks	22	44
TOTAL	50	100

From table 8, most (44%) of the distribution of the response about the length spent by the caretaker's child in the hospital was two weeks whereas the least (26%) of the distribution of the response about the length spent by the caretaker's child in the hospital was two days.

DISCUSSION OF FINDINGS:

Individual factors contributing to increased cases of pneumonia among children under 5 years of age.

Findings obtained from the study showed that more than half (56%) of the caretaker's children used cup feeding in comparison with a study carried out on the prevalence of pneumonia and associated factors among children aged 6-59 months in Angolela tera district north Shoa Ethiopia a community study based cross sectional (Mengstie, L.A, 2021) which had (33.8%) of the children using cup feeding.

The inconsistency of the results of the findings being higher than the study revealed that many of the caretakers had busy schedules since many of them were employed as in correlation to the demographic data which showed (56%) of them being employed and having no ample time for breastfeeding.

The study further showed that the minority (44%) of the caretakers used breastfeeding which was consistent with the results carried out on research about the prevalence of pneumonia and associated factors among children aged 6-59 months in Angolela tera district north Shoa Ethiopia showing results of (43.9%) of the caretakers who were breastfeeding their children.

Results from the study also showed that more than half (54%) of the caretakers' children were unvaccinated making the findings in the results in agreement with the study that was conducted about the prevalence of pneumonia and its associated factors among under 5 children in east Africa a

systematic review and meta-analysis (Biruk B, et al, 2020) that revealed (95%) of the children being unvaccinated.

The results of being unvaccinated were also related to the working schedules of the caretakers as regards the demographic data that revealed more than half (56%) of the caretakers were employed.

Community-based factors contributing to increased cases of pneumonia among children under 5 years.

Given the study findings, most (40%) of the caretaker's houses had poor aeration with only two windows on the house. This is about a study carried out on pneumonia among under 5 children in North west Ethiopia a community-based cross-sectional study (Zewudu et al, 2020) that showed that more than half (60%) of the children under five lived in households that had no habit of opening windows allowing ventilation.

The above findings were inconsistent reason being that most (40%) of the caretakers had low levels of education because most (44%) of them had a primary level of education in correlation to the demographic data indicating that they did not know how open windows and allowing fresh aeration and exchange of proper gases.

The findings further revealed that most (38%) of the caretakers cooked indoors. This was about the study carried out on the risk factors for pneumonia in infants and young children and the role of solid fuel for cooking: a case-control study (Mahalanabis et al, 2020) which had results of (80%) of the caretakers cooking indoors.

The above findings are related to the low levels of education as most (44%) of the caretakers had a primary level of education and so had no knowledge of the effects of indoor cooking as it would bring about pollution which is a risk factor of pneumonia.

Hospital-based factors contributing to the increased levels of pneumonia among children under 5 years.

The findings in the study showed that the majority (61%) of the respondent's children were not immunized in the hospital. The finding indicates that the majority (61%) of the children under the age of 5 years were not immunized in the hospital. This is probably due to the long distance of the respondents from the health facility from the respondent's place of residence. This is evidenced in the demographic data that showed most (42%) of the respondents having resided in Gayaza A as their place of residence. These findings agree with the research carried out on the Evaluation of risk factors for severe pneumonia in children: The pneumonia etiology research for child health study (Wonodi et al, 2019) revealed that the majority (70%) of the children under five were not immunized.

CONCLUSIONS.

This study specifically sought to identify the individual factors contributing to increased cases of pneumonia among children under 5 years at Kasangati Health Center iv Wakiso district which indicated that more than half (54%) of the children were unvaccinated and therefore ought to be vaccinated children under 5 years against pneumonia and also more than a half (56%) of the children used cup feeding in that exclusive breastfeeding was neglected.

The findings also sought to find out the community-based factors contributing to increased cases of pneumonia among children under 5 years at Kasangati Health Center iv Wakiso district indicated that most (38%) of the respondents were cooking indoors which predisposed the children to pneumonia infection and also most (40%) of the respondent's houses had poor aeration due to the reduced number of windows on the house.

The study further sought to assess the hospital-based factors contributing to the increased cases of pneumonia among children under the age of 5 years at Kasangati health center iv Wakiso district which revealed that the majority (61%) of the respondent's children were not immunized in the hospital which also predisposed the children to pneumonia infection.

RECOMMENDATIONS.

Caretakers were recommended to breastfeed their children exclusively for up to 6 months and also continue breastfeeding for up to 1 year as this will increase the child's immunity against infections which include pneumonia.

Caretakers were also recommended to vaccinate their children against pneumonia infection to reduce the child's ability to contract pneumonia hence reducing the cases of pneumonia at the health centre.

Cooking had to be done outdoors by the caretaker and also the community to prevent the likely risks of pneumonia infection contraction by the children and this will protect the children from pneumonia infection.

Proper aeration of the households had to be ensured by the caretakers as well as the community to provide fresh air to children thus preventing them from inhalation of dangerous gases that predispose them to pneumonia infections.

A hospital facility was recommended to provide immunization services at the facility to the community to ensure that children receive immunization against pneumonia and this will protect children under 5 years from pneumonia infections.

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LIST OF ABBREVIATIONS.

ALRIs: Acute lower respiratory tract infections.
ARTIs: Acute respiratory tract infections.
BDHS: Bangladesh demographic and health survey.
BMI: Body mass index
CAP: Community-acquired pneumonia.
CDC: Centre for Disease Control.
GAP: Global action plan.
Hib: Hemophilus influenza type B.
HR: Hazard ratio
ICS : Inhaled corticosteroid.
MOH : Ministry of health.
PFKC: Pneumonia is the forgotten killer of children.
UNICEF: United Nations International Children's emergency fund.
WHO: World Health Organization.
WPD: World Pneumonia Day

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