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Factors associated with pneumonia in children under 5 years old at the Department of Pediatrics Kampala International University Hospital (KIUTH) in Bushenyi, Uganda

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ABSTRACT

This study aimed to identify factors associated with pneumonia in children under 5 years old at the Department of Pediatrics, Kampala International University Hospital. This is a quantitative cross-sectional study. Simple random sampling was used to select study participants, and data were collected using a questionnaire. Data were collected and recorded using Microsoft Excel and analyzed using SPSS version 16.The analyzed data were then presented in tabular form. According to my research, more than half (52%) of study participants had poor knowledge about pneumonia and its risk factors, while 48% had good knowledge. The majority (35.00%) think that pneumonia is dangerous while 25.00%, 21.00% and 19.00% think that pneumonia is very dangerous, not dangerous and don't know.81.00% think it is necessary and 19.00% think it is not necessary. It is necessary to take children with pneumonia to a medical facility. The majority (75.00%) had a good attitude towards doctors' prescriptions, while 25.00% had a bad attitude. More than half (53.00%) said they had heard of the pneumonia vaccine. The majority (57.00%) said they would take their child to a health facility within 24 hours, while 43.00% would take their child to a health facility within 24 hours. 60% of the respondents would give medication before admission while 19.00%, 12.00% and 9.00% would breastfeed, do nothing and give their baby liquid food/water respectively. The majority (81.00%) said they would first take their child to the nearest medical center, while 12.00% and 7.00% would take their child to see religious leaders and traditional practitioners. More than half of the mothers in the study had little knowledge about pneumonia and its risk factors, and the majority considered pneumonia dangerous. Most take their children for formal medical examinations and most have a good attitude towards medical professionals' prescriptions. Poor health-seeking behaviors existed among study participants. The majority arrived at a medical facility after 24 hours and self-treated before seeking formal medical advice.
Keywords: Pneumonia, Pneumonia vaccine, Children under five years of age, Healthcare systems, Deaths.

INTRODUCTION

Despite dramatic advances in human health, under-5 mortality remains alarmingly high [1]. UNICEF in statistics on child mortality have shown that every year, almost 10.5 million children die before their fifth birthday; i.e., 30,000 children every day! Half of the deaths in under 5 children can be directly attributed to just 5 diseases- pneumonia, diarrhoea, malaria, measles and AIDS [2]. Pneumonia kills more children than AIDS, malaria and measles combined and although effective interventions exist to prevent and treat pneumonia the coverage of these interventions remains too low [3]. Pneumonia control is therefore a priority and is essential in achieving Millennium Development Goal Four, which calls for a reduction by two-thirds in the under-five mortality rate by 2015 [4]. Pneumonia was a leading cause of mortality among children under five years of age, and it is also one of the biggest barriers to attaining the fifth birthday by causing 1.6 million deaths per year [5]. It is further reported that the condition causes 15% of deaths among under- five children globally, with 2% being new-borns [6]. Pneumonia accounts for 18% of the deaths among children globally, especially in impoverished countries with reduced access to healthcare systems [7]. Nevertheless, pneumonia can be prevented if caretakers are empowered with knowledge to recognise the danger signs and symptoms and seek appropriate treatment on time [8].

There are many possible causes of pneumonia; however, the most common are bacteria and viruses. In developing countries, Streptococcus pneumoniae causes the highest number of bacterial Pneumonia among under-five children followed by Respiratory Syncytial Virus (RSV), which accounts for the highest number of viral Pneumonia among children under two years of age [9]. Conversely, bacteria are the leading cause of pneumonia in the adult [10]. People at risk for pneumonia are children under five years, people aged above 65 years, and people with preexisting health problems [11]. Various factors influence the high levels of morbidity and mortality among under-five children. These can be related to different aspects such as maternal, child, environmental, indoor pollution, and healthcare access among others [12]. Comorbid diseases, exclusive breastfeeding, duration as well as the nutritional status of a child are also reported to influence Pneumonia [13]. The International Consultation on Control of Acute Respiratory Infections, December 1991, reported that there are links between environmental risk factors [such as; smoke, outdoor air pollution, indoor pollution, passive smoking, overcrowding] and risk factors in the child [that is low birth weight, malnutrition, measles, breastfeeding and vitamin A deficiency] with acute respiratory infections. Many of these risk factors are amenable to corrective measures. Therefore, knowledge of these risk factors related to the acquisition of Acute Lower Respiratory Infections will help in its prevention [5]. Many interventions have been put in place and shown to be successful in bringing down the mortality as a result of Pneumonia [14]. According to the World Health Organization, these interventions include, but are not limited to vaccination, pneumonia case management at health facilities, improvement of nutrition and prevention of low birth weight, exclusive breastfeeding for the first six months of life, indoor air pollution prevention, healthy environment provision, as well as prevention and management of HIV infections [15]. Vaccines against measles and pertussis in national immunisation programs have shown to reduce sickness and deaths due to pneumonia among under-five children substantially [16]. Finally, it is recommended that HIV infected children should be subjected toCotrimoxazole prophylaxis and zinc supplementation for children with diarrhoea, as well as handwashing [6].

Pneumonia remains the leading infectious cause of death among children under five, killing nearly 2,600 children a day. Pneumonia accounts for 15 per cent of all under-five deaths and killed about 940,000 children in 2013 [17]. It kills more children than any other illness (accounting for 19% of all under-five deaths), more than AIDS, malaria and measles combined which accounts for 8%, 4% and 3% of all under-five deaths respectively [18]. Each year, more than 2 million children under five die of pneumonia in the developing world, compared to an estimated 800,000 children who die from malaria and around 300,000 children under five who die from AIDS, yet little attention is paid to this disease [18]. Childhood pneumonia is a major public health issue in Kenya. In Uganda, pneumonia was the fourth leading cause of death in children under five years of age in 2017–18 [14]. Nevertheless, pneumonia can be prevented if caretakers are empowered with knowledge to recognise the danger signs and symptoms and seek appropriate treatment on time [19]. Inappropriate and harmful health practices such as over-the-counter medication are detrimental by drawing mothers into a false sense of security and delaying appropriate health seeking with timely management. Poor nutritional practices and cultural practices by mothers due to their literacy level may also be fatal [20]. There is no documented study on knowledge, attitudes and practices of mothers in relation to childhood pneumonia that has been carried out at KIUTH, yet this information is critical in effective health care delivery. The findings of this study are intended to provide information on how caregivers perceive and respond to pneumonia as well as the main factors that affect care-seeking for children with signs of pneumonia. The information will enable health authorities to develop health education programmes aimed at persuading mothers to seek medical help for children with pneumonia in order to reduce mortality.

METHODOLOGY

Study design

A quantitative cross-section study approach was conducted in order to assess the factors associated with pneumonia among children under five years in the paediatric ward at Kampala International University Teaching Hospital in Ishaka, Uganda.

Area of Study

The study was conducted at Kampala International University in Ishaka town, Bushenyi-Ishaka municipality, in Bushenyi district. Ishaka is located in Igara County, in Bushenyi District, approximately 62 kilometers, by road, west of Mbarara, the largest city in the sub-region. This is about 6 kilometers, west of Bushenyi, the location of the district headquarters. The coordinatesof Ishaka are 0°32'42.0"S, 30°08'18.0"E (Latitude: -0.545006; Longitude:30.138343). Together with the neighbouring town of Bushenyi, it forms the Bushenyi-Ishaka Metropolitan Area. It is thelargest metropolis in the district. In 2014, the national population census put the population of Bushenyi, including Ishaka, at 41,063.

Study population

The study was conducted among caretakers of children under five years in the peadiatric ward at Kampala International University Teaching Hospital.

Inclusion criteria

It included all caretakers of children under five years in the paediatric ward at Kampala International University Teaching Hospital in Ishaka, Uganda that will be available at the time ofcollecting data and willing to participate in the study.

Exclusion criteria

Those who declined to participate in the study.

Sample size determination

The sample size was determined using Kish Leslie's formula (1965) as shown below;

$$n= \frac{\left(\frac{Z\alpha}{2}\right)^2 p(1-p)}{e^2}$$

Where;
n is the desired minimum sample size,
Z is the value at α= 0.05 which is 1.96,
e =margin of error which is proposed to be 0.1,
p is the proportion of caretakers of children under five years in the paediatric ward at Kampala International University Teaching Hospital.

Sampling procedure

A simple random sampling technique was used to choose respondents to participate in the study, from whom data will be collected.

Dependent variables.

Prevalence of pneumonia among children under five years in the peadiatric ward at Kampala International University Teaching Hospital.

Independent variable.

The independent variables include the knowledge and attitudes.

Data collection

Data was collected using an interviewer-administered questionnaire. The researcher met with the targeted respondents who took part in the study, after obtaining permission for data collection from respondents. Each participant was required to give informed consent before enrolling in the study. The researcher assisted the respondents in filling out the questionnaires by explaining to the respondents for clarification. The properly filled questionnaires were then collected and then data was taken for analysis. The researcher used a structured questionnaire and participants were asked similar questions and from options, they picked the best alternative. A pen and paper were used to record the necessary information.

Data entry and cleaning.

The data in the questionnaire was checked for completeness, cleaned and sorted to eliminate obvious inaccuracies and omissions. The data was then coded and entered into a computer.

Data analysis

The qualitative data collected was statistically analyzed and documented using Microsoft Excel and Word version 2019 which was then analyzed using SPSS v.16. The analyzed data was then presented in the form of tables and graphs as a basis for discussion and conclusion among others.

Quality control

To ensure quality control the researcher conducted a pre-test using 8 questionnaires in the target population and data was collected before the actual study to help in the reconstruction of the questionnaire where necessary.

RESULTS

Socio-Demographic Characteristics of Caretakers (Mothers)

In the study, the majority of the mothers were aged 26-34(43.00%), married (73.00%), attained secondary education (35.00%) and farmers (32.00%). The majority of their spouses were farmers (33.00%).

Table 1: Caretaker's socio-demographic characteristics.

Characteristic	Category	Frequency(N)	Percentage (%)
Mother's Age	18-25	28	28.00
	26-34	43	43.00
	35 And above	29	29.00
Marital Status	Married	73	73.00
	Widow	5	5.00
	Divorced	9	9.00
	Single	13	13.00
Level Of Education	No Formal Education	5	5.00
	Primary	33	33.00
	Secondary	35	35.00
	Tertiary	27	27.00
Occupation	Unemployed	21	21.00
	Formal Employment	19	19.00
	Farmer	32	32.00
	Business	28	28.00
Spouse's	Unemployed	14	14.00
Occupation	Formal Employment	24	24.00
	Farmer	33	33.00
	Business	29	29.00

Knowledge of Pneumonia and Its Risk Factors

More than half (52%) of the study participants had poor knowledge about pneumonia and its riskfactors according to my study while 48% had good knowledge as shown in table 2 below.

Table 2: Knowledge of pneumonia and its risk factors.

Knowledge Category	Frequency(N)	Percentage (%)
Poor (1-5)	52	52.00
Good (>6)	48	48.00

Mother's Attitude Towards Pneumonia and Its Risk Factors

The majority (35.00%) reported that pneumonia is dangerous while 25.00%, 21.00% and 19.00% reported that pneumonia was highly dangerous, not dangerous and did not know respectively.81.00% reported that it was necessary while 19.00% reported that it was not necessary to take a child with pneumonia to the health practitioner. The majority (75.00%) had a good attitude towards prescriptions made by the health practitioner while 25.00% had a bad attitude. More than half (53.00%) reported having heard about the pneumonia vaccine as shown in table 3 below.

Table 3: Attitude towards pneumonia and its risk factors.

	Response	Frequency	Percentage
What do you Think is the Risk of Childhood Pneumonia?	Not Dangerous	21	21.00
	Dangerous	35	35.00
	Highly Dangerous	25	25.00
	Do not know	19	19.00
	Yes	81	81.00
	No	19	19.00
	Yes	75	75.00
	No	25	25.00
	Yes	53	53.00
	No	47	47.00

Mother's Health Care-Seeking Behaviour

The majority (57.00%) reported that they would take their children to the health facility after 24 hourswhile 43.00% would take within 24 hours. 60% of the respondents would give drugs prior to hospital attendance while 19.00%,12.00% and 9.00% would breastfeed, do nothing

and feed their children with liquid food/fluids respectively. The majority (81.00%) reported that they would take their children to the nearest health centre first while 12.00% and 7.00% would take them to religious leaders and traditional practitioners respectively as shown in Table 4 below.

Table 4: Health care seeking behaviour

	Category	Frequency	Percentage (%)
When Would You Visit the Doctor	Immediately (Within 24 Hours)	43	43.00
When a Child is suspected of pneumonia	After 24 Hours	57	57.00
At home, prior to hospital attendance, what would you do if you had a sick child suspected to have Pneumonia?	Giving drugs	60	60.00
	Breastfeeding	19	19.00
	Feed child with Liquid food/fluids	09	9.00
	Nothing	12	12.00
If you had a child suspected to have pneumonia, where would you take them first?	Nearest health Facility	81	81.00
	Traditional Practitioner	07	7.00
	Religious leader	12	12.00

DISCUSSION

Mother's Knowledge of Pneumonia and Its Risk Factors

According to the study, more than half (52.00%) had poor knowledge scores while 48.00% had good knowledge scores. This was consistent with a study done in Pakistan which found that more caretakers (51.7%) had poor knowledge about acute respiratory infections [21]. The finding of the current study is lower compared to a study that reported that 55.5% of the mothers had poor knowledge [22].

Mother's Attitude Towards Childhood Pneumonia and Its Risk Factors

In the current study, 35.00% of the mothers reported that pneumonia is dangerous while 25.00%,21.00% and 19.00% reported that pneumonia is highly dangerous, not dangerous and do not know respectively. The reasons for mothers‟ perception of pneumonia are complex and multifaceted. Perception may be influenced by the child's age, maternal education as well as cultural illness concepts. To my knowledge, no published study has previously measured maternal perception of childhood pneumonia. 81.00% reported that it is necessary to visit a healthcare provider when the child has pneumonia whereas 19.00% reported it was not necessary. This is higher compared to a study which revealed that 33.8% of

children with pneumonia were taken for formal medical care [23]. The decision to seek medical advice from a professional depends on the perception of health care and cultural beliefs. The majority (75.00%) had good expectations about health practitioners' prescriptions while 25.00% had bad expectations. This was slightly lower compared to the study done in Pakistan which revealed that 78.7% had good expectations about the prescription of physicians [21]. Perception of illness severity is an important factor influencing the caregiver's expectation about the health practitioner's prescription as well as previous experience with the health practitioner. In my study, the majority (53.00%) never heard of the pneumonia vaccine while 47.00% never knew about it. Knowledge about pneumonia vaccine was high compared to a study which revealed that the majority (78.9%) said there is no vaccine for pneumonia. Education about vaccination offered to mothers during routine vaccination attendance informs mothers about the type of vaccines given to them. The discrepancy is attributed to the low education of mothers during routine vaccination.

Mother's Health Care Seeking Behaviour

Healthcare seeking is congruent to knowledge about a particular health condition. In the present study, the majority (57.00%) would seek health care after 24 hours and 43.00% would seek health care immediately. The decision to delay seeking advice or treatment is difficult to elucidate. This may be influenced by the child's age, sex, maternal education, employment status, household decision-making process, gender roles as well as perceived illness severity and perceived health service quality, the majority (60.00%) reported that they would give drugs prior to visiting a health care practitioner while 19.00%, 12.00% and 9.00% reported that they would breastfeed, do nothing or feed child with liquid food/liquid. This is higher compared with a study done in Nigeria where 38.0% of the respondents said they would give antibiotics [23]. 81.00% reported that they would take the child first to the nearest health facility, whereas 12.00% and 7.00% reported that they would take to the religious leader and Traditioner practitioner respectively. This is concordant with a study done in Pakistan which showed that 81.8% thought parents should first go to a qualified doctor while 14.5% said parents should first treat at home [24]. The availability of health care services, Knowledge and perception about a particular health condition influences where to take the child first for treatment.

CONCLUSION

More than half of the mothers in the study had poor knowledge about pneumonia and its risk factors and the majority perceived that pneumonia is dangerous. The majority would take their children for formal medical treatment and the majority had a good attitude about the prescription made by the health practitioners. Bad healthcare-seeking behaviour existed among the study participants, the majority would report to the health facility after 24 hours and the majority would self-medicate before attempting formal medical advice.

Recommendation

Arrangement of workshops for community health care workers to improve the knowledge and methods of parents regarding childhood pneumonia. Provision of enough community health care workers to fill the gap.

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