

**FACTORS INFLUENCING MANAGEMENT OF ACUTE RESPIRATORY TRACT INFECTIONS
AMONG CHILDREN BELOW FIVE YEARS AT KIRA HEALTH CENTRE IV, WAKISO DISTRICT.
A CROSS-SECTIONAL STUDY.**

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ABSTRACT

Introduction

In Uganda, inappropriately managed ARI has remained the leading cause of morbidity and mortality in children under the age of five years accounting for about 9% of the ARI prevalence with 81.3% of cases occurring in urban areas. The purpose of the study was to determine factors influencing the management of acute respiratory infection among children below five years at Kiira Health Center IV, Wakiso District.

Methodology

A descriptive cross-sectional study was done at the Kiira Health Centre IV in March 2023, among 30 randomly selected carers using self-administered structured questionnaires.

Results

The study showed significant maternal factors where 18(60%) were housewives, 19(63.3%) had more than 10 residents in households, and 16(53.3%) knew herbs as treatment measures that could be used to treat flu and cough. In the community factors, 17(56.7%) isolated children with respiratory infections, and 21(70%) regarded respiratory infections in children to be serious illnesses requiring medical help. However, 27(90%) recommended the use of herbs. Health facility-related factors were associated with long distances covered by the mothers 15(50%) which had cost implications. The long waiting time of 20(66.7%) before receiving treatment and the lack of prescribed medications affected the management of ARI.

Conclusion

The study concluded that the interrelated factors of maternal factors, community factors, and health facility-related factors were hindering the management of acute respiratory infections among children.

Recommendation

It is important to carry out community sensitization through village meetings and health education programs on appropriate interventions in the management of acute respiratory infections. Moreover, the patient flow system at the health center should be modified to reduce the waiting time.

Keywords: Acute Respiratory Tract, Wakiso district, Kira Health Centre IV, Management, Children below 5 years

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INTRODUCTION

Acute respiratory infections (ARIs) are heterogeneous and complex groups of diseases caused by a wide range of pathogens that affect the pharynx to alveoli of the respiratory system, (Ujunwa & Ezeonu, 2014). ARIs are associated with various etiological agents like staphylococcus aureus, Haemophilus influenza, human parainfluenza viruses, and varicella virus (Alluqmani et al, 2017). Most ARIs are self-limiting viral illnesses that resolve with time and supportive management like hydration, immune boosting, and antibiotics. However, it is important to consult the health

professionals for appropriate guidance and management, (Paul et al., 2014).

Globally, ARI continues to affect the developing world causing more than 3 million deaths accounting for 15.5% of total childhood deaths since mothers rely on their personal experiences to manage them (Mutalik & Raje, 2017). Many parents use potentially harmful herbals and remedies with wrong conceptions and also lack adequate knowledge about the correct method of administering antibiotics in the medical care of young children thus affecting the effective management (Alluqmani et al, 2017). In Asia for example, in Indonesia, the incidence of ARI in children standard at 20.54% with most of them having

recurring infections due to poor home management practices (Salim et al., 2021). Furthermore, in Pakistan, over-the-counter (OTC) drugs are frequently administered by parents to their children as ARI causes discomfort and distress to children yet the costs of medical consultations are expensive (Bham et al., 2016).

Sub-Saharan Africa constitutes 50% of the globally under-five deaths due to ARI because of delayed healthcare-seeking behaviors for affected children among caretakers (Gebertsadik et al, 2015). The diagnosis of ARI in the region mainly depends on clinical symptoms and signs with treatment based on the maternal economic status, culture, beliefs, affordability, and accessibility to medical care services (Saeed & Awadalla, 2020).

Kenya is among the 15 countries that account for three-quarters of mortality due to ARI-like pneumonia, with 9% of children under five suffering from recurrent ARI episodes (Mulatya & Mutuku, 2020). The uneasy symptoms of ARI influence some mothers to seek health care intervention. However, the costs of managing ARIs, distance to health facilities, and availability of services influence mothers to resort to home remedies, (Matu, 2015). In Uganda, 1 in 16 under-five mortalities are attributed to ARI (Nshimiyimana & Zhou, 2022). These deaths are due to management modalities used by mothers which are predetermined by several socio-demographic factors like the child's age, high birth order, mother's age, educational level, household wealth status, and underdeveloped health care systems (Yaya & Bishwajit, 2019). Financial limitations and self-medication result in underdosing during the management of ARIs thus leading to devastating complications like lung fibrosis (Bbosa et al., 2014).

Specific objective

- To determine the maternal factors influencing the management of acute respiratory infection among children below five years at Kira Health Centre IV, Wakiso District.
- To find out the community & health facility factors related to influencing the management of acute respiratory infection among children below five years at Kira Health Centre IV, Wakiso District.

METHODOLOGY

Study design and rationale.

A descriptive cross-sectional study design employs a quantitative approach. This involved determining factors influencing the management of ARI at the same time with the cheapest price. The design was selected because it enabled obtaining data at one point in time as well as helped understand and determine the relationship between variables. Quantitative data collection methods were used to obtain numerical values to assess information hence, allowing greater objectivity and accuracy.

Study setting and rationale.

The study was carried out at Kira Health Centre III which is located in Kira town, Kira municipality, Wakiso district. Kira municipality is bordered by Gayaza to the north, Mukono to the east, Lake Victoria to the south, Kampala to the west, and Kasangati to the northwest approximately 15 kilometers northeast of Kampala. At the Health Centre services offered include immunization, antenatal, maternity, dental, out and in-patient medical care. Economic activities in this area, people have small-scale businesses and settlements. The Health Centre receives a large number of patients with recurrent ARI, with a history of being poorly managed. Hence, will provide a suitable adequate sample size. Due to familiarity with the health center, data collection was easier.

Study population

The study comprised mothers with children suffering from ARI at Kiira Health Centre III.

Inclusion criteria

The study included caretakers who came with children suffering from ARI on the day for data collection.

Sample size determination

For most research, a sample size of more than 30 but less than 500 is suitable, according to Roscoe (1975). The study will therefore consider a sample size of 30 respondents because the UNMEB guideline considers a minimum of 30 participants.

Sampling procedure.

Simple random sampling used was to select mothers who had come for maternal child health services. On each day of data collection, 10 pieces of paper were prepared 5 bearing even numbers and 5 odd numbers. Each mother was asked to pick one paper and whoever picked a paper with an odd number was considered for the study. This was done for 6 days until the required sample was realized.

Dependent variable

The dependent variable was the management of ARI.

Independent variable

The independent variables were maternal, community, and health facility-related factors.

Research instruments

A semi-structured questionnaire with both closed and open-ended questions was used to obtain information because it is easy to use saves time and has a higher chance of obtaining valid information. This comprised three sections as per study objectives i.e. maternal factors, community factors, and health facility-related factors. The questionnaires were administered & filled as the respondents were busy queuing for services.

Data collection procedure

Permission was sought from the school administration and given an introductory letter from St Francis School of Health Sciences. The letter was presented to the health Centre which granted permission to collect at Kira Health Centre IV and then later explained the purpose and procedure of data collection to the respondents. Then the data was collected using a researcher-administered questionnaire. The questionnaires were filled by the answers given by the respondents. The process took at least 6 days with at least 5 respondents daily.

Data management

The questionnaires were checked thoroughly before leaving the data collection site, and edited for competences,

consistency, and clarification. This ensured that the questions were answered by respondents and to collect necessary and accurate information. Data was collected and kept in the cupboard under the key and lock. The data entered into the computer could

only be accessed using a password.

Data analysis

All the questionnaires were collected, organized, and checked for missing gaps. Data was changed into codes and organized for analysis. Responses for close-ended questions were first summarized and given a code before tallying them for analysis. Data was entered into the computer using tables, graphs, frequencies, pie charts, percentages, figures, and bar graphs for easy analysis and presentation this is because they were convenient and easy to use. Data from open-ended questions was grouped after reviewing a sizeable portion of data to understand the content.

Ethical considerations

Following the supervisors' approval, an introductory letter was obtained from the St Francis School of Health Sciences & presented to the Health Centre. This was done to gain permission to conduct the study after it was explained. Informed consents were obtained from respondents before they were given questionnaires. Confidentiality will be maintained at all levels by using anonymous questionnaires. No names were indicated on the questionnaires.

RESULTS

Table 1 Showing demographic characteristics of respondents (n = 30)

Variable	Frequency (f)	Percentage (%)
Age (years)		
15 – 24	16	53.3
25 – 34	7	23.3
35 – 44	5	16.7
Above 44	2	6.7
Highest level of education		
Nor formal education	1	3.3
Primary	13	43.4
Secondary	15	50
Tertiary	1	3.3
Religious denomination		
Christian	18	60
Muslim	9	30
Traditionalist	3	10
Marital status		

Married	18	60
Single	5	17
Divorced	7	23

In Table 1, most of the respondents, 16(53.3%) were aged 15 – 24 years, while the least 2(6.7%) were above 44 years. Half of respondents 15(50%) had secondary education and 1(3.3%) had tertiary education

The majority of the respondents, 18(60%) were Christians, while a minority of the respondents 3(10%) were traditionalists

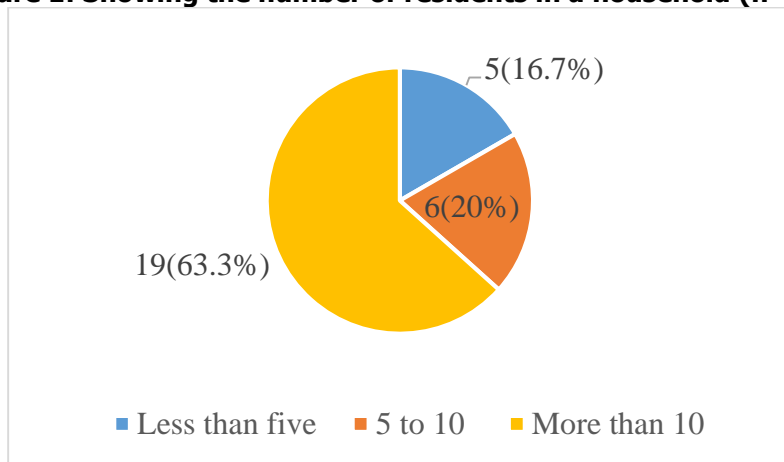
Maternal factors influencing the management of acute respiratory infection among children

Table 2 shows respondents who were employed and their monthly income (n = 30)

Variable	Frequency (f)	Percentage (%)
Occupation		
Farmers	4	13.3
Businesswoman	8	26.7
Housewife	18	60
Monthly income (Ugx)		
Less than 100,000/-	20	66.7
100,000 – 300,000/-	6	20
More than 300,000/-	4	13.3

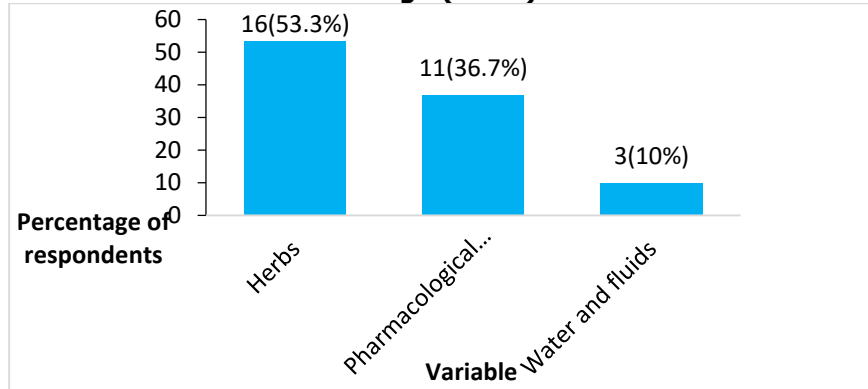
In Table 2, the majority of the respondents 18(60%) were housewives and the minority 4(13.3%) were farmers. Majority of the respondents 20(66.7%) earned less than 100,000/- per month, while the least, 4(13.3%) earned more than 300,000/-

Figure 1: Showing the number of residents in a household (n = 30)



In Figure 1, the majority of the respondents 19(63.3%) had more than 10 residents in the household while a minority 5(16.7%) had less than five residents in the household.

Figure 2: Showing awareness of treatment measures that could be used to treat flu and cough (n=30)



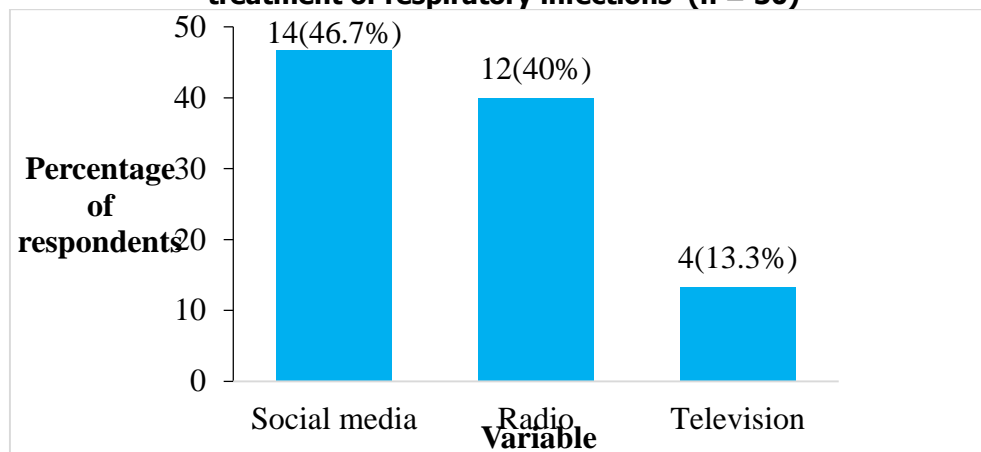
According to the bar graph in Figure 2, respondents 16(53.3%) knew herbs as treatment measures that could be used to treat flu and cough. While 11(36.7%) knew pharmacological drugs and 3(10%) knew water and fluids.

Table 3 shows the perceptions of respondents towards acute respiratory infections in children (n = 30)

Variable	Frequency (f)	Percentage (%)
Respiratory infection is a common illness among children		
Strongly agree	30	100
Agree	0	0
Strongly disagree	0	0
Disagree	0	0
Whether respiratory infections required medical consultation		
Strongly agree	10	33.3
Agree	5	16.7
Strongly disagree	0	0
Disagree	15	50

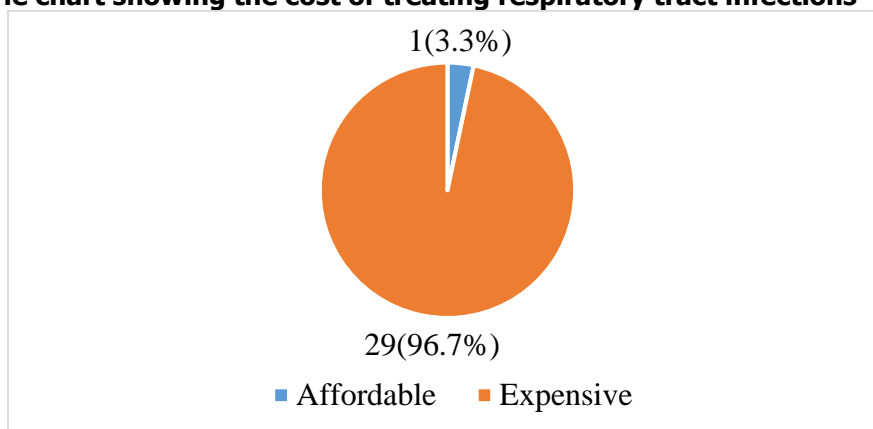
In the Table 3, all respondents 30(100%) strongly agreed that respiratory infection was a common illness among children. Half of the respondents 15(50%) disagreed that respiratory infections require medical consultation, while the least 5(16.7%) agreed.

Figure 3: Bar graph showing the media platforms that were used to obtain information on treatment of respiratory infections (n = 30)



According to the bar graph in Figure 3, most of the respondents, 14(46.7%) obtained information on treatment from social media while the least 4(13.3%) received it from television.

Figure 4: Pie chart showing the cost of treating respiratory tract infections (n = 30)



In the pie chart, Figure 4, almost all respondents 29(96.7%) regarded the cost of treating respiratory tract infections to be high. While only 1(3.3%) considered it to be affordable.

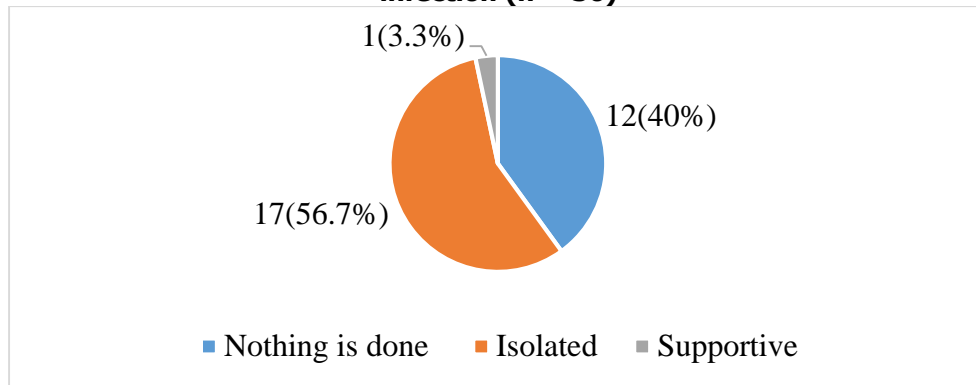
Table 4: Showing respondents' awareness of drugs used in the treatment of respiratory infections (n = 30)

Variable	Frequency (f)	Percentage (%)
Awareness about some drugs used to treat respiratory infection		
Yes	21	70
No	9	30
Examples of drugs used to treat respiratory infections		
Amoxicillin	7	23.3
Piriton	5	16.7
Dexamethasome	5	16.7
Seprin	4	13.3
Did not know	9	30
Total	30	100

In Table 4, the majority of the respondents 21(70%) knew of drugs used to treat respiratory infections while a minority 9(30%) were not aware. Among those who knew, 9(30%) did not know, 7(23.3%) mentioned amoxicillin, 5(16.7%) knew Dexamethasone, 5(16.7%) knew Piriton while the least 4(13.3%) knew Septrin.

Community factors influencing the management of acute respiratory infection among children

Figure 5: Pie chart showing community members actions towards children with respiratory infection (n = 30)



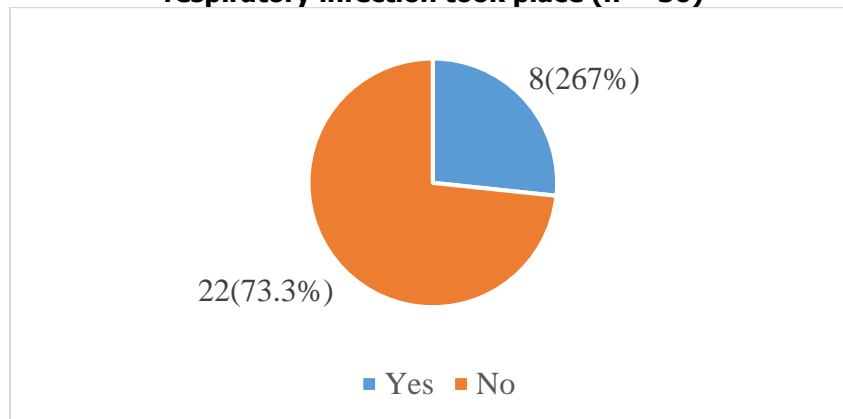
The pie chart in Figure 5, shows that most of the respondents 17(56.7%) report nothing was done to children with respiratory infections. 12(40%) reported that community members isolate children with respiratory infections while only 1(3.3%) were supportive.

Table 5: Showing community interpretation of respiratory infections in children (n = 30)

Variable	Frequency (f)	Percentage (%)
They resolve on their own without treatment	5	16.7
Common illnesses in children that do not need attention	4	13.3
Serious illnesses requiring medical help	21	70

In Table 5, the majority of the respondents, 21(70%) regarded respiratory infections in children as serious illnesses requiring medical help. While minority of the respondents, 4(13.3%) reported that respiratory infections were common illnesses in children that did not require attention.

Figure 6: Pie chart showing how regular community meetings and sensitization about respiratory infection took place (n = 30)



In the pie chart Figure 6, the majority of the respondents, 22(73.3%) did not have regular community meetings and sensitization about respiratory infections. While a minority

of respondents, 8(26.7%) had regular community meetings and sensitization about respiratory infections.

Table 6: Showing community recommended treatment of respiratory infections (n=30)

Variable	Frequency (f)	Percentage (%)
Herbs	27	90
Conventional medicine	3	10

Findings in Table 6, show that the majority of respondents, 27(90%) recommended the use of herbs while the minority 3(10%) recommended the use of conventional medicine.

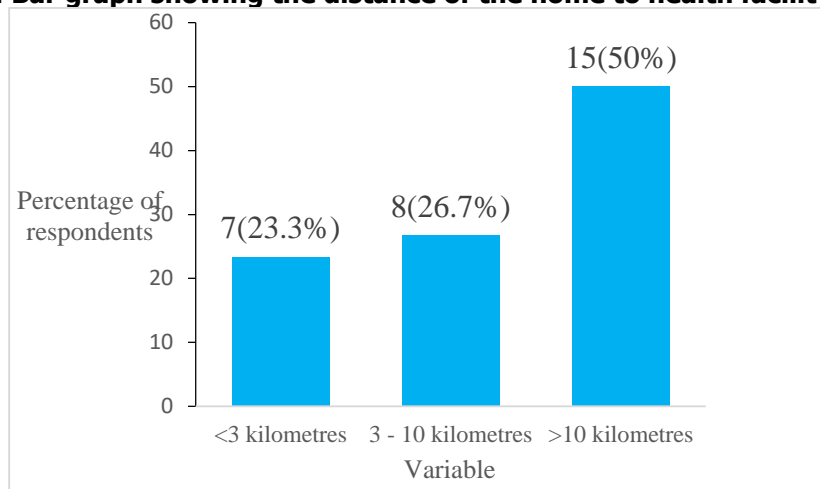
Table 7: Showing measures suggested in the community to prevent respiratory infections in children (n = 30)

Variable	Frequency (f)	Percentage (%)
Discourage crowding in children	4	13.3
Wearing of masks	2	6.7
Immunization	10	33.3
Nothing	14	46.7

Findings in Table 7, show that most of the respondents, 14(46.7%) did not suggest any measure to prevent respiratory infections, while the least, 2(6.7%) encouraged the wearing of masks.

Health facility Health-related Factors influencing management of Acute Respiratory Infection among Children

Figure 8: Bar graph showing the distance of the home to health facility (n = 30)



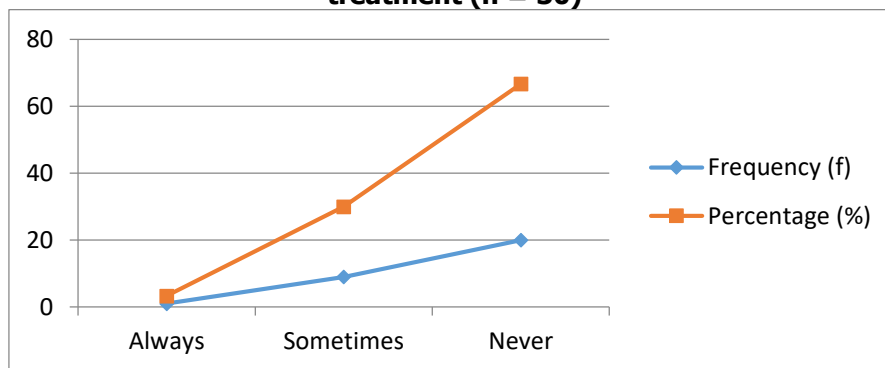
The bar graph Figure 8, shows that half 15(50%) of the study participants were living more than 10 kilometers away from the health facility. While the least, 7(23.3%) were living in a distance less than 3 kilometers.

Table 8: Showing the means of transport available to access the health facility (n = 30)

Variable	Frequency (f)	Percentage (%)
Walking	7	23.3
Private vehicle	2	6.7
Motorcycle	17	56.7
Public vehicle	4	13.3

Results in Table 8, show that most of the respondents, 17(56.7%) used motorcycles to access the health facility, 7(23.3%) walked, 4(13.3%) used public vehicles while the least 2(6.7%) used private vehicles.

Figure 9: Line graph Showing the time offered by health workers to discuss the child's treatment (n = 30)



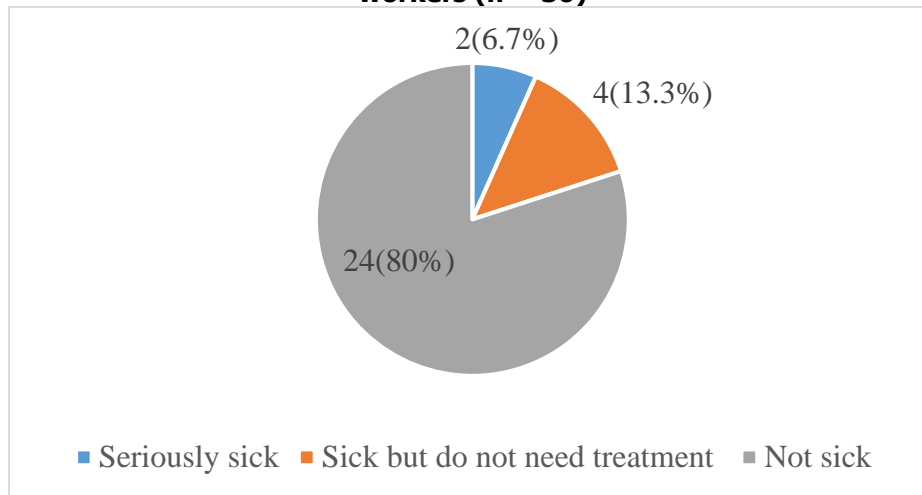
According to Table 9 majority of respondents, 20(66.7%) were never offered adequate time to discuss with health workers about child's treatment. 9(30%) were offered adequate time sometimes while only 1(3.3%) always received adequate time.

Table 10: Showing the waiting time at the health facility before receiving services (n = 30)

Variable	Frequency (f)	Percentage (%)
Less than 30 minutes	4	13.3
30 minutes – 2 hours	6	20
More than 2 hours	20	66.7

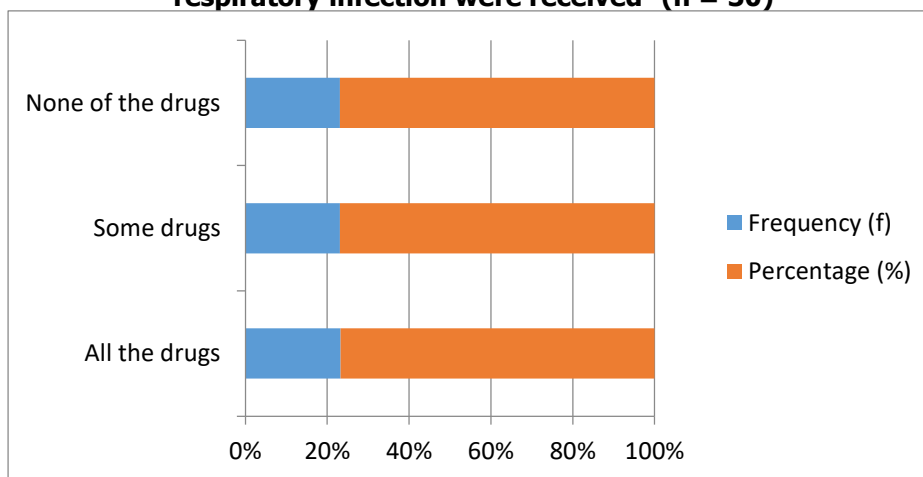
Page | 10 From Table 10, 20(66.7%) of the respondents waited for more than 2 hours before receiving treatment. 6(20%) waited 30 minutes – 2 hours, while the least 4(13.3%) waited for less than 30 minutes.

Figure 10: Pie chart showing categorization of children with respiratory infections by health workers (n = 30)



In Figure 10, the majority of the children 24(80%) were considered not sick, 4(13.3%) were sick but did not require intensive treatment while the minority 2(6.7%) were seriously sick and required intensive treatment.

Figure 11: Bar graph Showing which drugs for the treatment of children with acute respiratory infection were received (n = 30)



In Figure 11; the majority of the respondents, 23(76.7%) did not receive the drugs, 6(20%) received some drugs and 1(3.3%) received all the drugs.

DISCUSSION

Demographic characteristics of respondents

According to the study, most of the respondents 16(53.3%) were aged 15 – 24 years. This young maternal age reflected a lack of skills in child care which resulted in poor management of acute respiratory infections. The study findings were in agreement with a study by Lanyero et al, (2020) which found that 51.2% of respondents were aged 25 – 34 years and were better at managing respiratory infections among their babies effectively with antibiotics compared to the young mother. This showed that the older the mother was the more skills they had in child care hence proper management of respiratory infections.

The high level of education of mothers gives them good knowledge about the management of acute respiratory infections among children. The higher the level of education the more exposed one got information from health promotion from different sources on prevention of common illnesses. In the study, half of the respondents 15(50%) had secondary education which reflected a good level of education with more exposure to sources of information on child care. However, this was in agreement with the study by Meng et al, (2021) that if mothers had low education levels this was associated with poor access to information which resulted in poorly managed ARI. The majority 18(60%) were married and this reflected good support from the spouses in terms of the financial costs of treatment. This was in agreement with the study by Meng et al, (2021) where most of the mothers (80%) were married and this resulted in good support from their spouses when they had sick children hence reducing incidences of ARI.

Maternal factors influencing the management of acute respiratory infection among children

Majority of the respondents 18(60%) were housewives. This allowed them to get adequate time to engage in the care and management of acute respiratory infections hence better health outcomes. This was in disagreement with a study by Katureebe (2018) which found that mothers who were full-time housewives were always available to recognize early infections and gave good care to their children.

One of the predisposing factors to frequent respiratory infections was overcrowding. In the study, the majority of the respondents 19(63.3%) had more than 10 residents in the household. This high number of adults living in the same household and going out to interact with others resulted in increased chances of acquiring frequent respiratory infections which could easily be passed on to the children at home.

Further, the overcrowding hindered the proper management of acute respiratory infections since a high number of household residents frequently transmitted the infections to the children. Similarly, in the findings of Renosa et al, (2020) 67.6% of respondents who had more than ten family members living in the same household had poor management strategies for acute respiratory infections.

Most of the respondents 16(53.3%) knew herbs as the first treatment measures that could be used to treat flu and cough. This could have been due to the readily available herbal medicines or this could also have been associated with the low cost. Nevertheless, such remedies did not eradicate bacterial-associated respiratory infections which led to poor management outcomes. However, the use of herbal medicine had no association with the level of education or one's occupation. The findings were contrary to the study by Biezen et al, (2017) where the mothers used other methods of managing RTIs in young children by starting with the management of symptoms, which included rest, hydration, staying warm, and generally keeping the child comfortable.

Among conditions that affected children, respiratory infections were very common. All respondents 30(100%) believed that respiratory infection was a common illness among children. Because of this belief, mothers were not bothered by acute respiratory infections in their children. This leads to self-medication with inappropriate management strategies from home, hence delayed medical consultations from trained healthcare givers. Similarly, the study by Carroll et al, (2016) revealed the same beliefs among mothers where coughs and colds were regarded as common illnesses in children especially if the condition did not present with high temperature. The cough and flu alone did not draw urgent attention compared to high fevers.

There were many sources of information that mothers utilized when they had sick children. The study findings revealed that 14(46.7%) obtained most of the information on treatment of respiratory infections from social media. This showed that because most mothers in the study were educated, they had access to information on social media.

However, not all information the mothers obtained from this source was reliable and correct to effectively help them in the care of children with acute respiratory infections. This was caused by some of the information posted on social media being published by nonmedical and noninformed personnel. Similarly, the study by Sultana et al, (2019) revealed that 44.17% of mothers who had access to electronic media had utilized healthcare treatment information for the treatment of respiratory infections among their children which also delayed seeking specialized care for the children.

The ability to afford treatment was one of the factors that would have encouraged mothers to seek treatment for their

children from health workers very quickly. Almost all respondents 29(96.7%) regarded the cost of treating respiratory tract infections as being high. This was because most of the mothers were low-income earners who could not afford the complete dosage of the medication. This could have been the reason for the frequent use of local herbs. The study results concurred well with the study by Matu (2015) which also found that delay in seeking early treatment was a result of a lack of money to pay for doctors' consultations hence overwhelming self-medication.

Community factors influencing the management of acute respiratory infection among children

The findings revealed that 12(40%) of community members isolated children with respiratory infections as a measure to limit the spread of acute respiratory infections to other children thereby enabling the effective management of the condition. The findings concurred well with the findings of the study by Matu et al (2015) done in Kenya which also found that 17.2% of the community members carried out isolation measures by discouraging community members who had cough and flu from going to crowded places.

The majority of the respondents, 21(70%) regarded respiratory infections in children to be serious illnesses requiring medical help. This compelled community members to encourage mothers to seek medical help in case of acute respiratory infections. However, the findings were contrary to the study carried out by Godycki – Cwiko et al, (2014) in Poland which found that 67.2% of the community members had social beliefs that ARI was a common illness in children that never required serious treatment.

The findings showed that the majority of the respondents, 22(73.3%) did not have regular community meetings and sensitization to improve their knowledge about respiratory infections and other illnesses. This created a knowledge deficit among mothers in the management of childhood acute respiratory infections. Similarly, the findings of Cantarero–Asevalo et al, (2022) also found that communities lacked active community health workers to educate them on the appropriate management of ARI. This was reflected in the misuse of antibiotics by mothers in the treatment ARI before the consultation

Health facility Health-related Factors Influencing Management of acute respiratory infection among Children

Half 15(50%) of the study participants lived more than 10 kilometers away from the health facility. This meant that mothers had to travel long distances before they could access medical care services in the treatment of acute respiratory infections. This limitation encouraged mothers to resort to self-medication and local herbal medicine use. Similarly, the study by Titaley et al, (2020) also found that 68.1% of mothers who lived very far from the nearest health facility were challenged by the distance and resorted to self-medication.

While visiting the health facility, the findings revealed that the majority of respondents, 20(66.7%) were never offered adequate time by health workers to discuss the child's treatment. This anomaly resulted from the heavy patient load compared to the number of health workers available in the health facility. The limited time for explanation did not give the mothers the chance to seek clarification to get a clear understanding of the instructions which resulted in inappropriate management of the children. Similarly, Biezen et al, (2017) found out that healthcare system barriers such as the lack of time for health workers to discuss management options for parents regarding RTIs affected the management of children.

According to the study results 20(66.7%) of the respondents waited for more than 2 hours before receiving treatment. This contributed to some mothers leaving the health facility before receiving treatment thereby hindering proper management of children. This corresponds well with the study by Yaya et al (2021) which found similar findings where the long waiting time had also made mothers give up treatment. This promoted the use of alternative medicine in the treatment of ARI. However, in the study by Adeoti and Cavallaro (2022), there was a short waiting time which influenced the utilization of health facility treatment for ARI.

The majority of the respondents, 23(76.7%) did not receive the drugs from the health facility. This could have been related to the drug shortage at the health center. This led to the inability of low-income earners to afford treatment outside the facility which resulted in poor management of the child's infection. This corresponded well with the study by Lanyero et al, (2020) done in Gulu where 42.7% did not receive treatment at the health facility due to the unavailability hence opting to offer antibacterial self-to patients.

CONCLUSIONS

It was revealed that maternal factors such as the use of social media information in the treatment of acute respiratory infection, unaffordability of costs of treatment, use of herbal medicine, and perception that acute respiratory infections are common illnesses were associated with unsatisfactory management of acute respiratory infections.

Community isolation of sick children and the perceived seriousness of acute respiratory infections were associated with better management strategies for acute respiratory infections. However, the use of herbal medicine, the absence of regular community meetings, and sensitization. All of which were linked to poor management of acute respiratory infections.

Health facility-related factors such as long distance, long waiting time, inadequate consultation time, and irregular availability of drugs at the health facility were associated with poor management of acute respiratory infections.

RECOMMENDATIONS

Ministry of Health

The Ministry of Health should establish more healthcare facilities and recruit more staff to increase timely accessibility to acute respiratory infection treatment services. The Ministry should ensure the ready availability of drugs so that mothers can offer medication to their children.

Kiira Health Centre IV

Community-based meetings and health education programs should be carried out to teach communities about appropriate interventions in the management of acute respiratory infections. The patient flow system should be modified to reduce the waiting time and also increase consultation time at the health facility which will enhance the understanding of caregivers on child care instructions offered by health workers.

Health Care Workers

Healthcare workers should routinely conduct health education sessions to fill the gaps in information possessed by mothers as well as discourage the use of herbal medicine. Moreover, nurses should engage in community-based healthcare interventions like health education and encouragement.

Caregivers

Caregivers should seek treatment services from public health facilities to minimize on challenge of medical costs that hinder the appropriate management of acute respiratory infections.

Researchers

More studies should be conducted about the study to increase the information available about the topic

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Centre IV and the study participants for providing me with an opportunity to conduct this study at the facility.

ABBREVIATIONS AND ACRONYMS

ARI: Acute Respiratory Infections

OTC: Over The Counter

UNMEB: Uganda Nurses and Midwifery Examination Board

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Conflict of interest

No conflict of interest.

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Herbert Kayanga, a supervisor at St Francis School of Health Sciences

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