

FACTORS CONTRIBUTING TO IRRATIONAL PRESCRIPTION OF ANTIBIOTICS AMONG PRESCRIBERS IN CHILDREN BELOW 12 YEARS, KAWOLO GENERAL HOSPITAL, BUIKWE DISTRICT. A CROSS-SECTIONAL STUDY.

Derrick Bakeera, Mulodokayi Niwagiira*
School of Pharmacy, Kampala School of Health Science

ABSTRACT.

Background:

Specific objectives: To determine & identify the individual and health facility-related factors contributing to irrational prescription of antibiotics among prescribers towards children below 12 years in Kawolo General Hospital.

Methods:

A cross sectional study was done on only health workers of Kawolo General Hospital. Convenience sampling technique was used to obtain the sample of participants.

Results:

The majority of the respondents were between 30-39yrs (40%), married (60%), and nurses by profession (40%). The study findings showed that (64%) of the respondents reported having positive attitude towards irrational prescription of antibiotics, most(46%) reported working 12 hours a day, (84%) reported that there are no senior medical officers who usually approve the prescriptions, (60%) reported that junior health workers are not equipped with the knowledge about using diagnostic tools, (68%) reported that they have experienced pressure while prescribing,(92%) were not provided with the prescription guidelines, (96%) were not oriented about the use of guidelines, (72%) reported that the health facility does not engage health workers in professional training,(76%) reported that there is no supervision carried out on junior health workers.

Conclusion:

The factors contributing to irrational prescription of antibiotics among prescribers of children below 12 years include: inadequate knowledge of prescribers, pressure experienced by prescribers from patients, working for long hours, lack of continuous professional development, and failure of the hospital management to provide the prescription guidelines to prescribers.

Recommendations:

The Ministry of health should enforce the use of Uganda clinical guidelines in clinical practice so as to ensure proper diagnosis and proper treatment of prevailing diseases. The management of Kawolo general hospital should conduct strict supervision and guidance to the junior health workers.

Keywords: Antibiotics, Prescription, Children below 12 years, Buikwe District

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*Corresponding author: Derrick Bakeera**

Email: Derrickbakera1998@gmail.com

School of Pharmacy, Kampala School of Health Science

INTRODUCTION.

Irrational prescription involves the prescription of multiple medicines, drugs without correct indication, and use of more or more minor than the therapeutic doses, and the unnecessary prescription of expensive drugs (Melka et al., 2021).

Globally, more than half of all medicines are prescribed, dispensed, or sold inappropriately, and half of the patients fail to take them correctly (Fakhrunnisa et al., 2020)

However, WHO launched a global effort to halve medication-related errors in 5 years, an irrational prescription was identified as the major cause of

medication-related errors which cause at least one death every day and injure approximately 1.3 million people annually in the United States alone while in the low and middle-income countries are estimated to have similar rates of medication-related adverse events to high-income countries, the impact is about twice as much in terms of the number of years of healthy life lost (WHO, 2017).

According to World Health Organization, irrational use of antibiotics implies that only 50% of patients get medications appropriately in North West Africa, therefore 50% of the same population get medication inappropriately to their clinical conditions which affect

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public health worldwide due to drug resistance and decreased treatment outcomes (Melka et al., 2021).

Based on the study that was done in Pakistan, the results showed that 76 children out of the 100 patients were prescribed antibiotics while 24 children patients had no antibiotics in their prescriptions. Of the 76 children patients, 48 children patients had been prescribed antibiotics rationally, while 28 children had irrational antibiotics prescribed. These 28 children patients had no need for antibiotics because they were suffering from viral infections and had minor infections (Hameed et al., 2016). Another study done in Ghana revealed that overuse of antibiotics for URTIs was common where penicillin and cephalosporins are the most preferred antibiotics prescribed for the management of upper respiratory tract infections in children under 5 years (Sumaila & Tabong, 2018).

In Uganda, Results from the study that was done in Mbarara showed that antibiotics are mainly prescribed for the treatment of viral respiratory infections and acute watery diarrhea in children, conditions mainly caused by viruses making the antibiotic prescription irrational (Okello et al., 2020).

The study aims to assess the factors contributing to the irrational prescription of antibiotics among prescribers in children below 12 years in Kawolo General Hospital, Buikwe district.

Study Objectives.

- To find out the individual factors contributing to irrational prescription of antibiotics among prescribers in children below 12 years in Kawolo General Hospital, Buikwe district.
- To determine the health-related factors contributing to irrational prescription of antibiotics among prescribers in children below 12 years in Kawolo General Hospital, Buikwe district.

METHODOLOGY.

Study Design.

A descriptive cross-sectional study was used to determine the factors contributing to irrational prescription of antibiotics among prescribers of children below 12 years in Kawolo General Hospital, Buikwe district. This was preferred because it didn't require follow-up with the participants and it was carried out for a short period.

Study Area.

The study was conducted in Kawolo General Hospital located in Buikwe, Uganda, a district along Jinja Road. Kawolo General Hospital is neighbored by Meta Hospital which is 1.5 km away.

Study Population.

The study comprised all health workers in Kawolo General Hospital. The study was carried out between September 2023 to November 2023

Inclusion Criteria.

All health workers of Kawolo General Hospital who were present at the time of study.

Exclusion Criteria.

All health workers not working at Kawolo General Hospital who were absent.

Sample Size determination.

The sample size was estimated using the LoBiondo & Haber (2014) sample size formula given below was employed in the study.

$$n = \frac{N}{1+N(e)^2}$$

Where;

n= was the desired sample

N= was the target population, N=50

e =was the expected error at a standard interval of 99% and e 1%

$$n = \frac{50}{1+50(0.01)^2}$$

=50 people

Sampling technique.

A convenience sampling technique was employed. This is because it saved time and also enabled data collection without bias.

Sampling Procedure.

The samples of participants were obtained using a convenience sampling technique where participants were selected based on first come; first serve until the 50th person.

Data Collection Tool.

A questionnaire was used to collect data. It consisted of both open and close-ended questions with three sections A, B, and C.

Data collection procedure.

An introduction letter of the study was obtained from the Kampala School of Health Sciences and then presented it to the Medical Superintendent of Kawolo General Hospital for authorization. After being given permission to carry out the study, a consent form was issued to the participants and questionnaires were used to obtain data during the study.

Study variables.

The dependent variable was irrational prescriptions of antibiotics. The independent variable was individual and health facility-related factors.

Quality Control.

The quality of the research was ensured by training the research assistant about the subject matter. A pilot study

was done at Buikwe Health Center III with 10 participants to assess the viability of the questions in the questionnaire.

Data Analysis and presentation.

Data was summarized on a piece of paper using a pen, tallied, analyzed using the Microsoft Excel program and presented in the form of tables, bar graphs and pie-charts.

Ethical Consideration.

The permission to carry out the research was given by the Kampala school of Health Sciences. Consent from the participants was obtained and confidentiality of the information was ensured.

RESEARCH FINDINGS.

Demographics.

Table 1: Shows distribution of respondents according to their demographic data (N=50)

Variable	Frequency (f)	Percentage (%)
Age		
20-29	05	10
30-39	25	50
40-49	15	30
50 and above	05	10
Total	50	100
Level of profession		
Nurses	20	40
Midwives	15	30
Clinical officers	10	20
Medical officers	05	10
Total	50	100
Religion		
Catholics	15	30
Protestants	05	10
Muslims	10	20
Born again	20	40
Total	50	100
Marital status		
Single	10	20
Married	30	60
Divorced	05	10
Widowed	05	10
Total	50	100

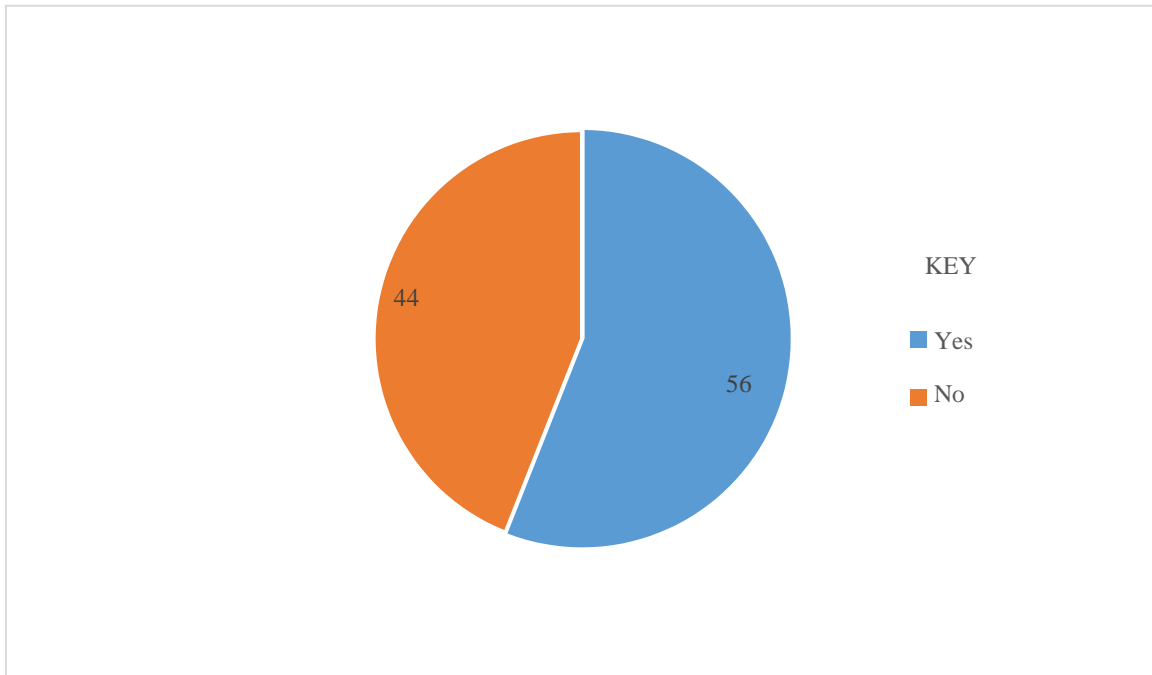
Table 1 shows that, most (50%) of the respondents were within the age bracket of 30-39 years where as the least (10%) were within the age bracket of 50 and above. In terms of the levels of profession, most (40%) were nurses

whereas the least (10%) were medical officers. The results also showed that most (40%) of the respondents were Born Agains' by religion while the least (10%) were protestants. And finally, the majority (60%) of the

respondents were married whereas the least (10%) were widowed

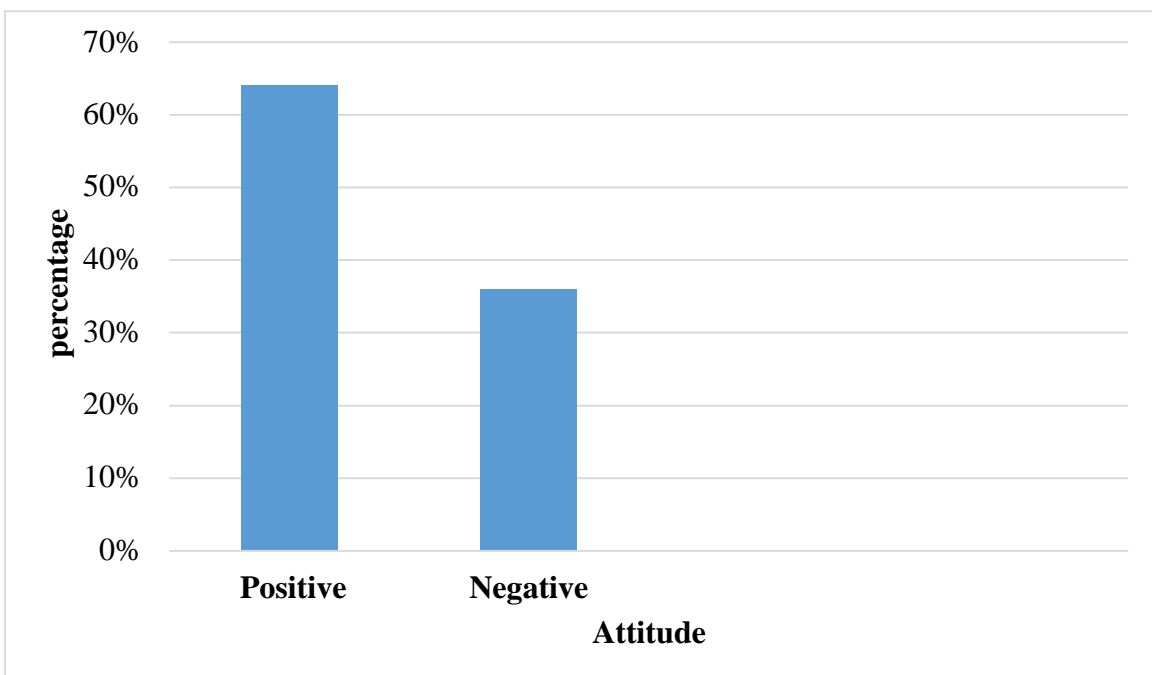
Individual factors contributing to irrational prescription of antibiotics among prescribers in children below 12 years in Kawolo General Hospital, Buikwe district.

Figure 1: Shows respondents' distribution according to whether they have heard about irrational prescription. (N=50)



From Figure 1, most (56%) of the respondents reported that they had heard about irrational prescriptions while the least (44%) of the respondents reported that they had not heard about irrational prescription.

Figure 2: Shows respondents' distribution according to their attitude towards irrational prescription of antibiotics. (N=50)



From Figure 2, the majority (64%) of the respondents reported having a positive attitude toward the irrational prescription of antibiotics whereas a minority (36%) of the

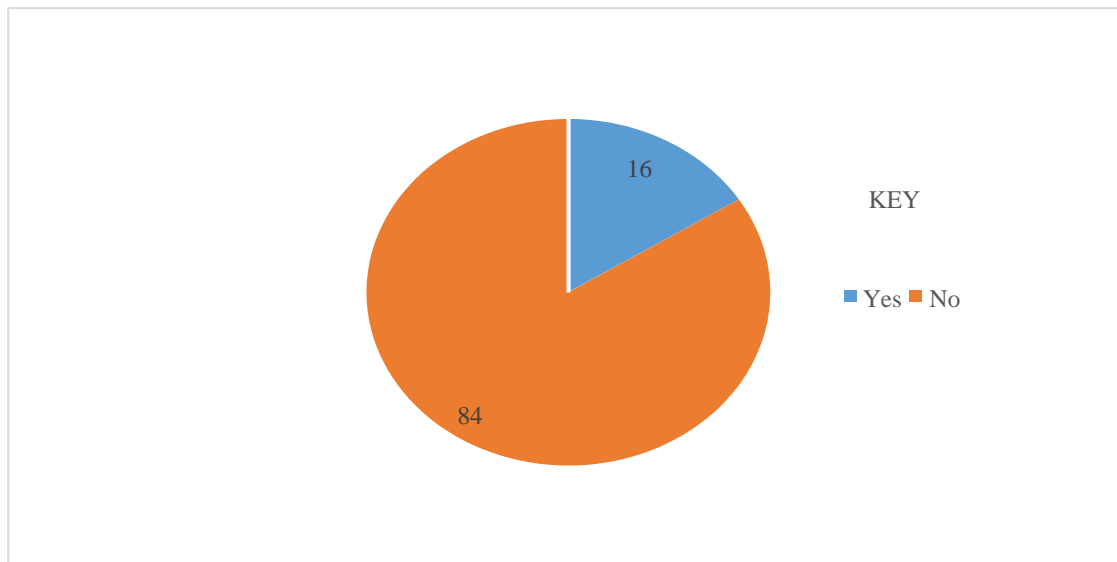
respondents reported having a negative attitude towards the irrational prescription of antibiotics.

Table 2: Shows respondents' distribution according to how many hours most workers are entitled to. (N=50)

Time	Frequency(f)	Percentage (%)
8 hours	19	38
12 hours	23	46
24 hours	08	16
Total	50	100

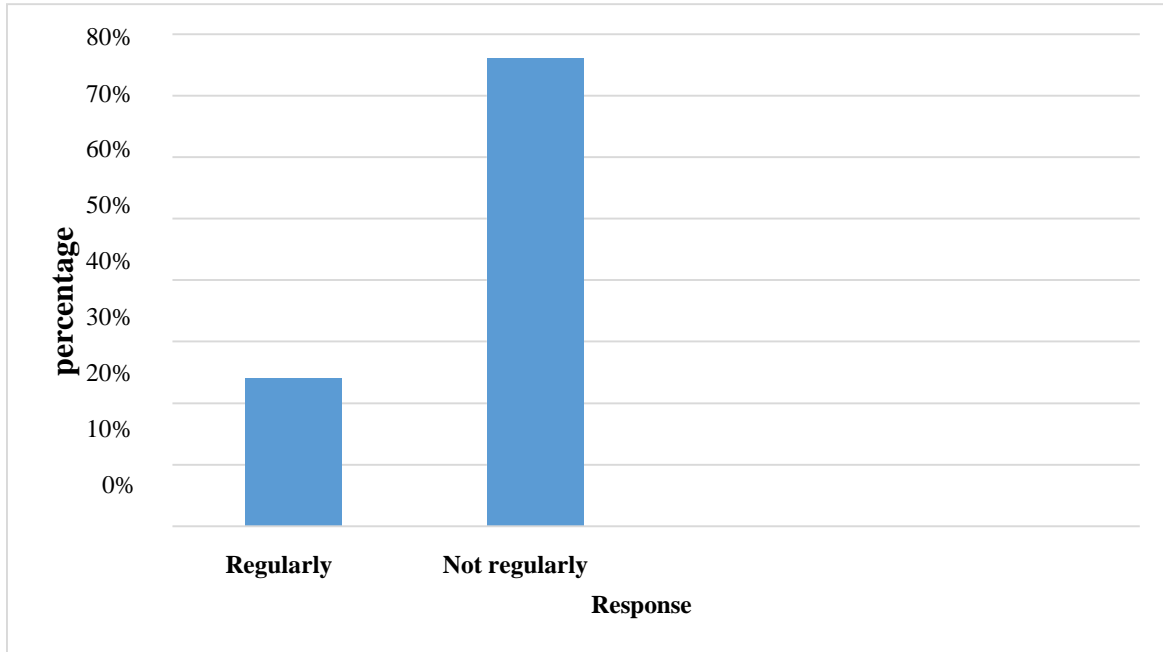
From Table 2, most (46%) of the respondents reported that most workers are entitled to 12 hours whereas least (16%) of the respondents reported that most workers are entitled to 24 hours.

Figure 3: Shows respondents' distribution according to whether there are senior medical officers who usually approve the prescription which are made. (N=50)



From Figure 3, the majority (84%) of the respondents reported there are no senior medical officers who usually approve the prescription that is made while a minority (16%) of the respondents reported that there are senior medical officers who usually approve the prescription.

Figure 4: Shows distribution of respondents according to how often they use the prescription guidelines before prescribing. (N=50)



From Figure 4, a majority (76%) of the respondents reported that they do not use the prescription guidelines before prescribing whereas the minority (24%) of the

respondents reported that they use prescription guidelines before prescribing.

Table 3: Shows the distribution of respondents according to whether the junior healthworkers are equipped with knowledge about using diagnostic tools before prescribing. (N=50)

Response	Frequency (f)	Percentage (%)
Equipped	20	40
Not equipped	30	60
Total	50	100

Table 3 shows that a majority of the respondents (60%) reported that the junior health workers are not equipped with the knowledge about using diagnostic tools while the minority of the

respondents (40%) reported that junior health workers are equipped with knowledge about using diagnostic tools before prescribing.

Table 4: Shows the distribution of respondents according to whether they have experienced pressure from the patients' family members while prescribing. (N=50)

Response	Frequency (f)	Percentage (%)
Yes	34	68
No	16	32
Total	50	100

Given Table 4, the majority (68%) of the respondents reported that they have experienced pressure while prescribing whereas a minority (32%) of the respondents

reported that they have not experienced pressure from patients' family members while prescribing.

Figure 5: Shows the distribution of respondents according to how they received pressure from the patients' family members. (N=50)

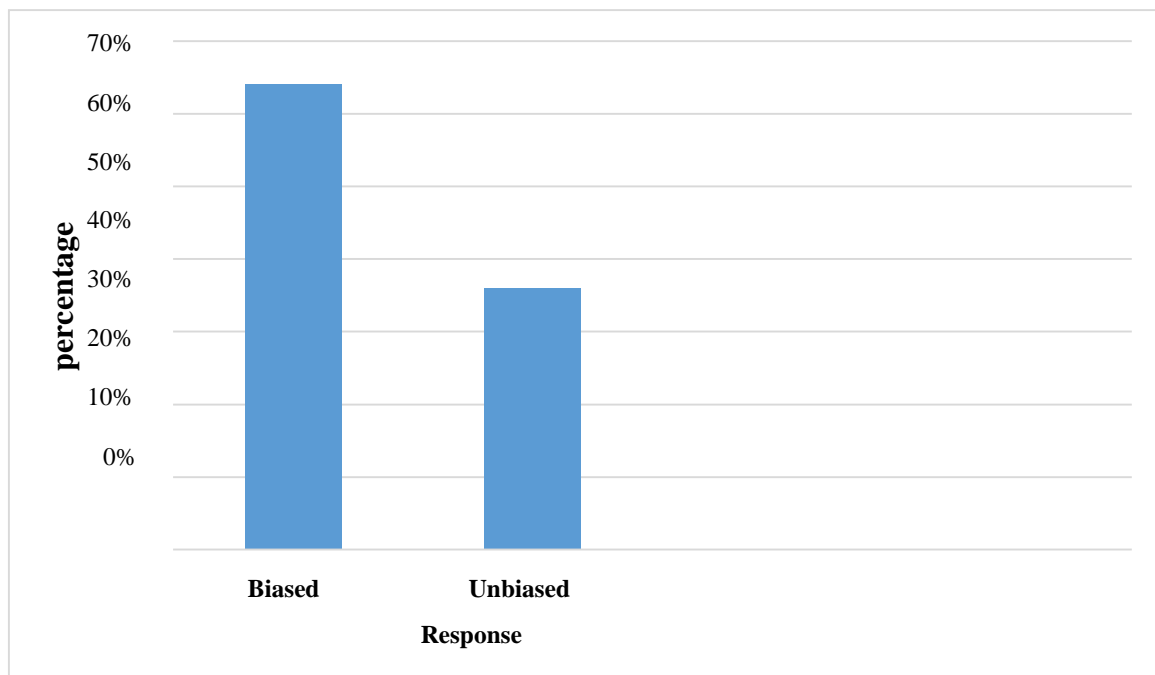


Figure 5 shows the majority (64%) of the respondents reported that the patient's family members are always biased while the minority (36%) of the respondents reported that the patient's family members are not always biased.

Health facility related factors contributing to irrational prescription of antibiotics among prescribers in children below 12 years in Kawolo General Hospital, Buikwe district.

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Figure 6: Shows distribution of respondents according to whether there is any case that has been reported about irrational prescription of antibiotics at the health facility (N=50)

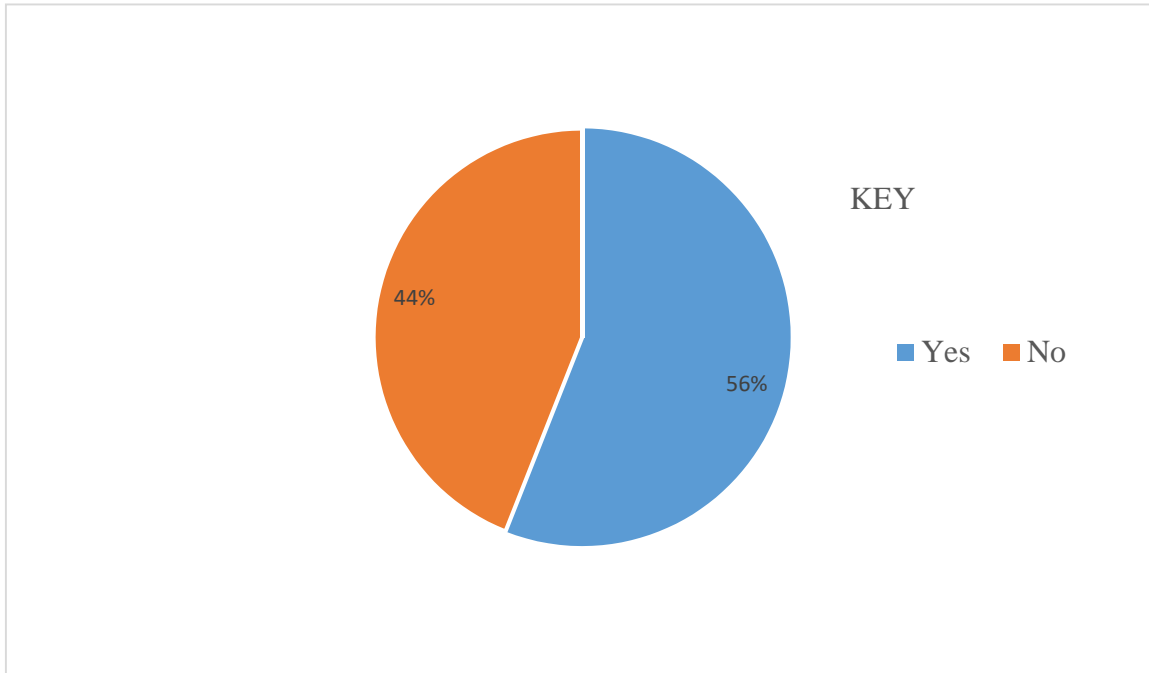


Figure 6 illustrates that most (56%) of the respondents reported that some cases have been reported about irrational prescription of antibiotics while the least of the respondents

(44%) reported that no case has been reported about irrational prescription of antibiotics at the health facility.

Table 5: Shows the distribution of respondents according to if all the health workers at the health facility are qualified. (N=50)

Response	Frequency (f)	Percentage (%)
Agree	42	84
Disagree	08	16
Total	50	100

Table 5 shows the majority of the respondents (84%) reported that all health workers at the health facility are qualified while a minority of the respondents (16%)

reported that not all health workers at the health facility are qualified.

Table 6: Shows distribution of respondents according to whether prescription guidelines are provided to the prescribers. (N=50)

Response	Frequency (f)	Percentage (%)
Yes	04	08
No	46	92
Total	50	100

Given the findings in Table 6, the majority of the respondents (92%) reported that they are not provided with the prescription guidelines while the minority (08%) reported that they are usually provided with the prescription guidelines.

Figure 7: Shows the distribution of respondents according to whether they have been oriented about the use of guidelines. (N=50)

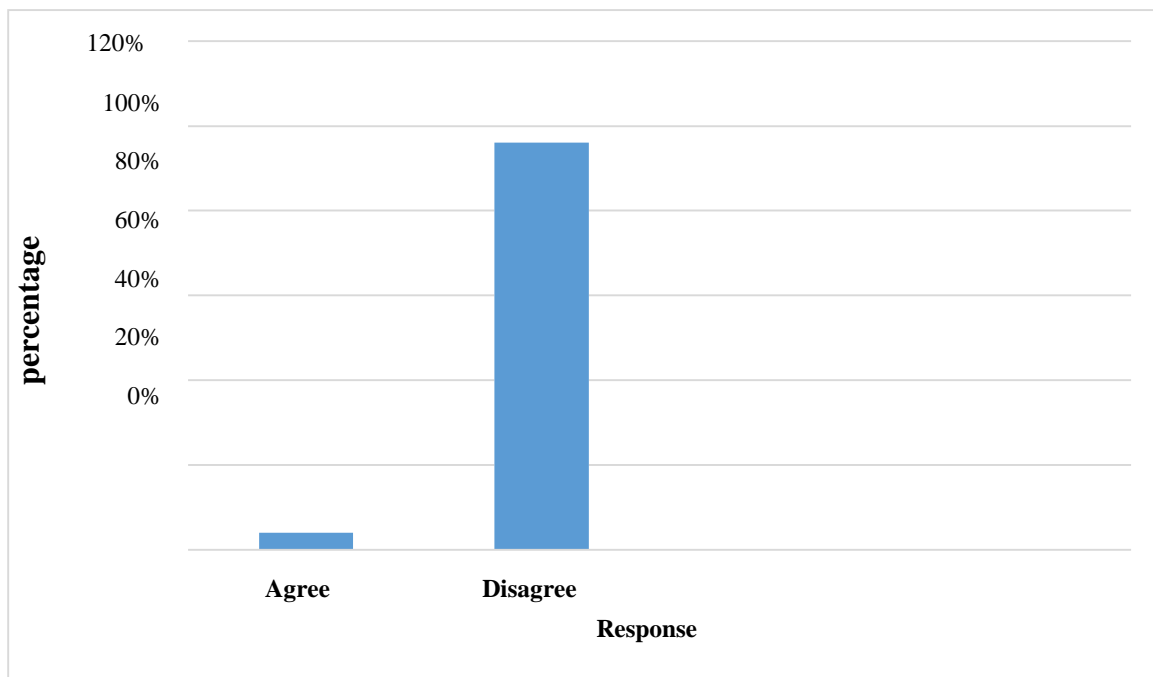


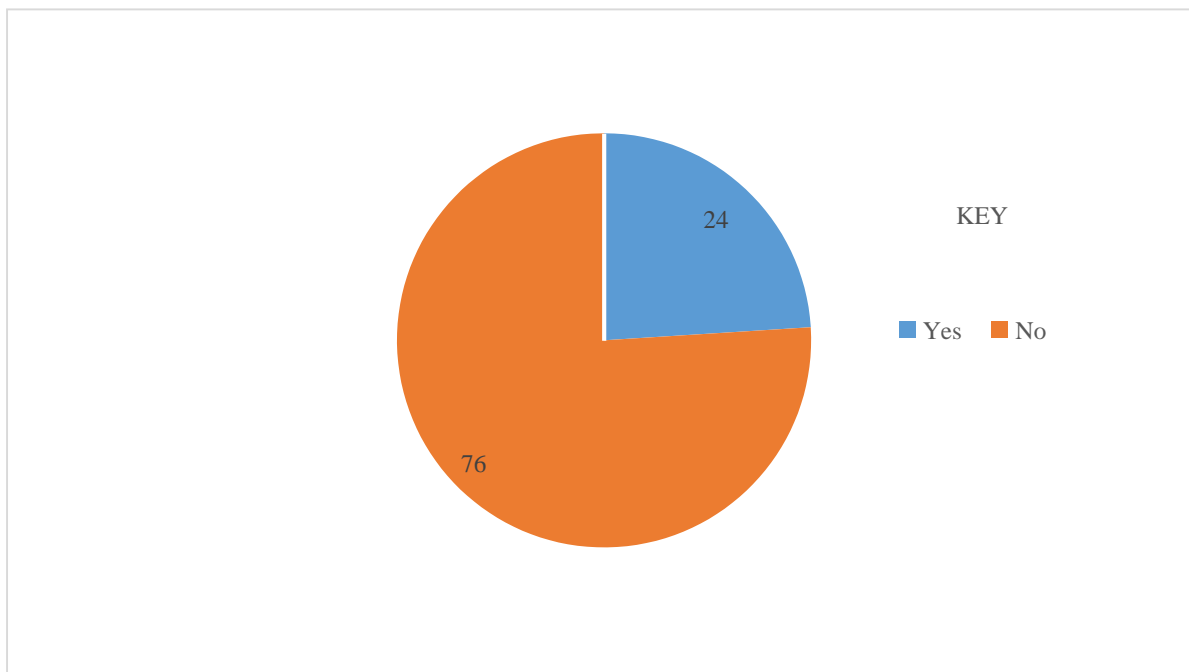
Figure 7 illustrates the majority of the respondents (96%) reported that they have never been oriented about the use of guidelines while a minority (4%) of the respondents reported that they were oriented about the use of guidelines.

Table 7: Show the distribution of respondents according to whether the health facility engages the health workers in professional training. (N=50)

Response	Frequency (f)	Percentage (%)
Never	36	72
Some times	08	16
Always	06	12
Total	50	100

From Table 7, the majority of the respondents (72%) reported that the health facility does not engage health workers in professional training while the minority (06%) reported that the health facility always engages the health workers in professional training to enhance their knowledge.

Figure 8: Shows the distribution of the respondents according to whether there is supervision carried out on junior health workers while executing their duties in the facility. (N=50)



As given in Figure 8, the majority of the respondents (76%) reported that there is no supervision carried out on junior health workers while a minority of the respondents reported that there is always supervision of the junior health workers while executing their duties.

DISCUSSION.

Individual factors contributing to irrational prescription among prescribers of children below 12 years Kawolo General Hospital, Buikwe district.

From the study findings, most (46%) of the respondents reported that health workers are entitled to 12 hours of work. This has increased the rate of irrational prescription of antibiotics since health workers get tired and find it hard to select the right antibiotics for the right diagnosis. Also, the majority of the respondents (84%) reported that there are no senior medical officers who usually approve the prescriptions that are made especially by the internship prescribers. This was in agreement with a study done on antibiotic prescription patterns by Prah et al (2017) which found that lack or insufficient practice of evidence-based medicine led to the irrational prescription of antibiotics. More so, the majority (76%) of the respondents reported that they were not provided with the prescription guidelines before prescribing. This is in line with the study done on the impact of guidelines on the antibiotic prescribing approach by Quadranti et al. (2020) which revealed that 65.4% of the prescribers did not depend on the clinical guidelines.

In addition, the majority of the respondents (60%) reported that junior health workers are not equipped with the knowledge about using diagnostic tools. This was in agreement with a study on irrational use of drugs which showed that irrational prescription of drugs in different countries was due to the lack of proper knowledge from prescribers (CDC, 2019).

Finally, the majority (68%) of the respondents reported that they usually receive pressure from the patient's family members while prescribing. This is in line with a study done on factors influencing the inappropriate use of antibiotics by Nepal et al (2020) which found that 74% of the patients were prescribed antibiotics with non-clinical factors and this was attributed to patients' pressure on the prescribers.

Health facility-related factors contributing to irrational prescription among prescribers of children below 12 years Kawolo General Hospital, Buikwe district.

Given the findings, the majority of the respondents (84%) reported that all health workers at the health facility are qualified and have undergone clinical training, however, they are still lacking in clinical practice.

From the results, the majority (92%) of the respondents reported that they are not provided with the prescription guidelines and neither are they oriented about the use. This is attributed to poor management by the hospital administrators and a lack of seriousness in clinical practice.

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In addition, the majority (72%) of the respondents reported that the health facility does not engage them in professional training. This was in agreement with a study carried out on Drivers of irrational use of antibiotics by Machowska & Lundborg (2018) which showed that inadequate continuous professional development of health workers throughout clinical practice contributed to inappropriate antibiotic prescribing.

Lastly, the majority (76%) of the respondents reported that there is no supervision of junior health workers while executing their duties. This has contributed to irrational prescription of antibiotics since they have inadequate experience in clinical practice and this results in antibiotic resistance.

CONCLUSION.

The factors contributing to the irrational prescription of antibiotics among prescribers in children under 12 years included: Inadequate knowledge of prescribers about the patterns of prescribing antibiotics, pressure experienced by prescribers from the patients, working for long hours, Lack of continuous professional development programs, full employment of junior prescribers in clinical rooms without proper supervision., failure of the hospital management to provide the prescription guidelines to prescribers for reference. Absence of senior medical officers to approve the prescriptions before being given to patients

RECOMMENDATION.

It was recommended that the Ministry of Health should enforce the use of the Uganda clinical guidelines in clinical practice to ensure proper diagnosis and treatment of prevailing diseases. The management of Kawolo General Hospital should empower the senior medical officers to conduct strict supervision and guidance to the junior health workers while executing their duties. However, the research study was conducted in only one health facility, therefore its encouraged that studies be done in other health facilities to close the gap.

LIST OF ABBREVIATIONS.

URTI: Upper Respiratory Tract Infection

WHO: World Health Organization

SOURCE OF FUNDING.

There was no source of funding

CONFLICT OF INTEREST.

There was no conflict of interest

AUTHOR BIOGRAPHY.

Derrick Bakeera, a diploma pharmacy student at Kampala School of Health Sciences

Dr Mulodokayi Niwagiira, a supervisor at Kampala School of Health Sciences.


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