

Knowledge, Attitude and Practice of the health care workers on the rational use of antibiotics in the urban primary health care facilities of Lilongwe District in Malawi

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ABSTRACT

Introduction: The emergence and spread of bacterial resistance to antibiotics is a growing problem worldwide and it presents a significant threat to public health globally. Substantial evidence has shown that health care workers play a role in the increase of antibiotic resistance. The main aim of this study was to explore the Knowledge, Attitude, and Practice of the healthcare workers on the rational use of antibiotics in the Primary Health Care Facilities in Lilongwe District.

Materials and method(s): This was a cross-sectional quantitative study that was carried out in three primary health care facilities in Lilongwe District. All the Clinicians and Nurses in the selected health facilities were requested to participate in the study using a purposive a simple random technique. Interviewer-administered questionnaires were utilized to collect relevant information. Data on the knowledge, attitude and practice of the primary health care workers was analyzed using SPSS and was presented in graphs and tables.

Results: The study sample size was 73 participants however only 72 study participants responded to the questionnaire representing 98.6% response rate. Most of the participants (69/72) agreed that the rational use of antibiotics is giving the right antibiotic to the right patient in the right dose for the right duration; 51.4% (37/72) of the participants responded that antibiotics cure viral infections. Most of the participants, 88.9% (64/72) agreed that it is important to know the resistance rate of the bacteria and 83.3% (60/72) agreed that Prescribing antibiotics is more influenced by the availability of antibiotics than the cause of infection.

Conclusion: This study revealed that most of health care workers possess average knowledge about the rational use of antibiotics. However, their attitude and practice on the rational use of antibiotics were still poor.

Key Words: *Antibiotics, Rational, Knowledge, Practice, Prescribers.*

1. INTRODUCTION

Antimicrobial resistance is an increasing problem worldwide, impacting infection control efforts and costs of antimicrobial treatment [1]. Numerous factors contribute to the problem, including unnecessary antimicrobial prescribing by trained and untrained health workers, uncontrolled dispensing by drug vendors, poor antibiotic prophylaxis in surgery, and poor infection control practices [2]. According to the World Health Organization more than half of antibiotics are inappropriately prescribed, dispensed or sold with such practices deemed to be most prevalent in healthcare settings in the developing world where mechanisms for routine monitoring of medicines use are still in early stages of development [3,4]. Several studies have demonstrated that antimicrobials are often used inappropriately and unnecessarily giving rise to antimicrobial resistance [5,6]. Various studies undertaken previously have described the inability of the prescribing physicians in creating awareness and imparting necessary education to the patients regarding antimicrobial usage [7, 8]. One of the topmost determinants of irrational use is lack of provider knowledge, particularly regarding health care workers who are insufficiently qualified, supervised or supported [7,8]. For any innovative educational measure to be successful and for the changes to be sustained, it should have an impact on the knowledge, attitudes, and practices (KAP) of the intervention group [8]. It is in this regard that this study was undertaken among the primary health care workers in order to explore their baseline knowledge, attitude and practice concerning rational use of antibiotics as well as their self-reported practices related to antimicrobial usage in order to devise appropriate

educational interventions for them. The standard definition of the rational use of antibiotics is giving the right antibiotic to the right patient in the right dose for the right time / duration [10].

2. SPECIFIC OBJECTIVES

specific study objectives were:

1. To explore the knowledge levels of the Clinician and Nurses on the rational use of antibiotics.
2. To determine clinicians' and nurses' attitudes towards the prudent use of antibiotics.
3. To assess the practice of the clinician and Nurses on the rational use of antibiotics

3. MATERIALS AND METHODS

The main aim of the study was to explore the knowledge, attitude, and practice of the antibiotic prescribers on the rationale use of antibiotics. The study was carried out between October 2020 to November 2021. This was a, cross sectional study in which a quantitative method approach was employed. The study was conducted in the three primary health care facilities of Lilongwe District. These health facilities were Kawale Health Centre, Area 18 Health Centre, and Area 25 Health Centre. The study population included the nurses and Clinical Officers who work in primary health care facilities. The Purposive sampling method was used to select the Primary Health care facilities and simple random sampling technique was used to select the study participants, to enable each element to have an equal chance of being selected to participate in the study. An interviewer administered questionnaire was utilized to obtain data relevant to the study in a one-to-one interview.

4. RESULTS

The results of the study are presented through the tables below. The findings are in four parts which are the socio – demographic data, knowledge, attitudes, and practice of healthcare workers on the rational use of antibiotics.

4.1 The Socio demographic

The socio demographic data. was assessed by the aspects of gender and profession of the healthcare workers . The table 1 below shows that the majority of the participants were the females 73.4% (53/72) and in terms of profession most of the participants were the Nurses, 65.3% (47/72).

Table 1: Gender and profession of the participants

Variable	Number (n =72)	Percent (%)
Gender of participants		
Male	19	26.4
Female	53	73.4
Profession of the participants		
Clinical Officers	25	34.7
Nurses	47	65.3

4.2 Knowledge of the health care workers on the rational use of antibiotics

The participants' knowledge level was assessed by examining the data based on antibiotic rational use, efficacy, and microbiological resistance to antibiotics, as well as the necessity of training regarding antibiotic prescription and use as indicated in the tables 2 and 3 below.

Table 2: Rational use of antibiotics

Statement	Yes, n (%)	No; n (%)
Participants who knew the correct interpretation of rational use of antibiotics	69 (95.8)	3 (4.2)
Participants who believe that a bacterial infection can be cured by an antibiotic	69 (95.8)	3 (4.2)
Participants who believe that viral infection can be cured by an antibiotic	37(51.4)	35(48.6)

Table 3: Antibiotic resistance and efficacy

Statement	Yes, n (%)	No; n (%)
Knowledge of antibiotic resistance	63 (87.5)	9 (12.5)
Knowledge of whether frequent use of antibiotics would result in resistance	63(87.5)	9 (12.5)
Knowledge of whether efficacy of antibiotics changes with time and cost	44 (61.1)	28 (38.9)

4.2 Attitude of the participants towards the rationale use of antibiotics

Participants' attitudes towards the judicious use of antibiotics were assessed by looking at their perceptions of antibiotic use and resistance development. Most of the participants, 88.9% (64/72) thought that knowing the bacteria's resistance rate in the local setting is significant., 83.3% (60/72) participants indicated that prescribing antibiotics is more influenced by the availability of antibiotics than the cause of infection and 41.7% (30/72), of the participants agreed that Cheap antibiotics are of bad quality, (Table 4).

Table 4. Perception on antibiotic use and resistance development

Statement	Agree; n (%)	Disagree; n (%)
Is it important to know the resistance rate of the bacteria in the local setting?	64 (88.9)	8 (11.1)
Do you think that prescribing antibiotics is more influenced by the availability of antibiotics than the cause of infection?	60 (83.3)	12 (16.7)
Do you think that Patients demand of antibiotics contribute to the overuse of antibiotics in the community?	55(76.4)	17 (23.6)
Do you think that Cheap antibiotics are of bad quality?	30 (41.7)	42 (58.3)

4.4 Practice of the antibiotic prescribers on the rationale use of antibiotics

The Practice of the antibiotic prescribers was assessed by looking at antibiotic prescription, use of guidelines, and explanation of antibiotic dosages to patients . Table 5 below shows that, most of the participants, 51.4% (37/72) responded that they can prescribe antibiotics to viral infection, 61.6% (45/72) of the participants responded that they do not use antibiotic guidelines in their facility, while 54.2% (39/72), of the participants responded that they explain to the patients the dosages and side effects of the antibiotics .

Table 5: Antibiotic prescription and use guideline

Statement	No, n (%)	Yes, n (%)
Prescribers of antibiotics for viral condition	35(48.6)	37(51.4)
Use antibiotic guidelines	45 (61.6)	27(38.4)
Explanation of dosages and side effects of antibiotics to patients	33 (45.8)	39 (54.2)

5. DISCUSSION

Findings of this study showed that the majority of the participants were the nurses, 55.6% (40/72). These findings correspond to most studies done in Malawi, Pakistan, and India [8,10,11], where the majority of the participants were nurses compared to any other cadre. These findings clearly show the gap of the shortage of the clinicians in the primary health facilities who are key in the prescription of the antibiotics. It is very important to have adequate number of clinicians in the primary health facilities to ensure proper prescription of antibiotics. However, it is also very important to invest in training of nurses on the rational use of antibiotics since they play an important role in teaching the communities in all aspects of health issues including proper antibiotic use.

In this study the participants demonstrated average knowledge on the rationale use of antibiotics. Most of the participants 95.8% (69/72) agreed that the rational use of antibiotics is giving the right antibiotic to the right patient in the right dose for the right time, 95.8% (69/72) agreed that antibiotics cure bacterial infections. However, there was an interesting finding that more than half (37/72) of the participants thought that antibiotics cure viral infections such as common cold. This response is evidence that there is indeed a knowledge gap on the rational use of antibiotics in the primary health care facilities. These findings correspond to the studies done Ganesh et al and Khan et al, in India [11,12] where most of the health care workers acknowledged that there was a confusion regarding the role of antibiotics for viral infection. However, the lack of confidence by some health care workers to differentiate between the viral and bacterial infection could have also resulted in more prescribing antibiotics for viral illnesses. On microbial resistance and efficacy of the antibiotics, 87.5% (63/72), of the study participants acknowledged that they have ever heard about bacterial resistance to antibiotics and 87.5% (63/72) of the participants responded that the frequent use of antibiotics would decrease the efficacy of treatment when using the antibiotic again. However, the majority of the study participants 61.1% (44/72), answered that the efficacy of the antibiotics is better if the antibiotics are newer and costly. This response has a negative effect on the use of antibiotics since they indicate that the newer and costly antibiotics will be unnecessarily used. This will inadvertently lead to increase in bacterial resistance to antibiotics. These findings agree with other studies such as those of karma et al, Mahajan et al, and Pallavi et al, [13,14,15], where most health care workers agreed that the efficacy of the antibiotics is better if the antibiotics are newer and costly

This study revealed that health care workers attitude towards the rationale use of antibiotics was not good. These findings correspond to the findings in studies done in Nigeria, China, Jordan [7,16,17] which revealed that antibiotic prescribers had an average attitude towards the rational use of antibiotics. The majority of the participants, 88.9% (64/72) agreed that it is important to know the resistance rate of the bacteria. However, this can only be done by the support of microbiology laboratory which is not done in the primary health care facilities. These finding agrees to many studies such as those of Sharma et al and Shaik et al, [18,19] where the indicated that it is important to know the resistance rate of bacteria in the local settings since it assists the physicians to prescribe the necessary antibiotics. As it has been argued by Vadivoo et al and Shehadeh et al., [20,16], indiscriminate and irrational use of antibiotics has significantly contributed to antibiotic resistance, Adogu et al., [7] added that the potential dangers associated with inappropriate use of antibiotics are the dissemination of resistant microorganism. Irrational use

of antibiotics has contributed to the emergence and selection of resistant bacteria. Most of the participants, 83.3% (60/72) agreed that prescribing antibiotics is more influenced by the availability of antibiotics than the cause of infection. This is an indication that the health care workers can prescribe the antibiotics anyhow leading to the irrational use of antibiotics which can fuel the resistance to antibiotics. These findings correspond with the findings of a study conducted in south Africa and India (9,18), where the majority of the participants felt that prescription of antibiotics was influenced by the availability of antibiotics than the cause of infection. Demand and pressure from the patients were reported to be one of the predominant factors driving the irrational prescribing of antibiotics which is consistent with the findings from low and middle-income. In this study, 76.4% (55/72) of the participants agreed that Patients demand of antibiotics contribute to the overuse of antibiotics in the community. These findings correspond to the findings of a survey of pediatricians and patient's care givers in Venezuela which discovered that approximately 87% of the physicians felt pressured by patients in prescribing antibiotics; half of the patients said that they had demanded antibiotics and one-quarter admitted that they had attained a prescription,[5].

This study showed that the practice on the rational use among antibiotic among the primary health care workers was not consistent. Almost half of the study the participants, 51.4% (37/72) responded that can prescribe antibiotics to viral infections. These finding demonstrates that antibiotic prescriptions are irrational because there is no indication that antibiotics should be administered in such circumstances, potentially accelerating the development of microbial resistance to antibiotics. These finding corresponds to the finding of the study done in China and south Africa [16,9] in which, most of the of the participants were prescribing antibiotics to viral infection. Further to this it was discovered that the majority of the health care workers, 61.6% (45/72) were not using antibiotic guidelines in their facilities. One explanation for the non-use of the guidelines was the non-availability of the guidelines in their departments as the health facilities had only one copy. These findings were similar the studies conducted in Jordan and India [12,16], where most of the respondents were not using the antibiotic prescription guidelines. These findings also conform to findings of studies in Nigeria which revealed that that the practice on the rational use among prescribers was still a problem and most of the antibiotic prescribers were not following the required Antibiotic guidelines when prescribing [7].The researchers concluded that the high level of knowledge of the prescribers did not translate into practicing rational use of antibiotics which implies that there are other factors such as non-conformity to guidelines which makes the prescribers not to live their knowledge. The practice of not using the guidelines is a threat to public and a serious drive to antibiotic resistance. Most of the participants 45.8% (33/72), responded that they do not explain to patients need to comply with the antibiotic treatment. These findings correspond to the findings of the studies done by Vadivoo et al and Shehadeh, et al., (20,17) in which the health care workers were not consistently explaining the dosages and side effects of antibiotics and the need to comply with the antibiotic treatment to patients.

6. CONCLUSION AND RECOMMENDATIONS

This study revealed that most of the primary health care workers possessed average knowledge about the rationale use of the antibiotics. Their attitude was satisfactory, however, their practice of the rationale use of antibiotic was still poor. Educational and awareness intervention is utmost essential to improve their KAP regarding rational use of antibiotics.

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