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Full Length Research Article

KNOWLEDGE, PERCEPTION AND PRACTICE OF ANTIMICROBIAL STEWARDSHIP AMONG DOCTORS IN PUBLIC SECONDARY HEALTHCARE FACILITIES IN KADUNA STATE, NIGERIA: A PILOT SURVEY

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ABSTRACT
Infectious diseases remain a major cause of morbidity and mortality especially in Africa, Nigeria inclusive. Antimicrobials are used to treat microbes; hence their rational use is very crucial. This study assessed knowledge, perception and practice of antimicrobial stewardship (AMS) among doctors in public secondary healthcare facilities in Kaduna State. A cross-sectional descriptive study was conducted from March to May 2020 among doctors using a self-administered questionnaire. A total of sixty doctors were selected using a multi-stage sampling technique. Data was analyzed using SPSS version 23 and results were presented using tables and charts. Chi square and Fisher's exact tests were used to test for association between categorical variables where appropriate. The level of statistical significance was set at p-value of <0.05. The median age of the participants was 33.5 years. Over half (52.6%) of the respondents were unaware of the term AMS; 29.8% had good knowledge of AMS and 87.7% had positive perception towards AMS. Three out of ten (30.0%) respondents had good practice of AMS. There were no statistically significant associations between age, sex, educational qualification and department of the respondents and the practice of AMS. The respondents' knowledge of AMS was poor and majority had positive perception, but the practice among them was poor. There is need for training and retraining of doctors on AMS by the State Ministry of Health and their professional associations in order to enhance knowledge and practice on AMS.

Keywords: Antimicrobials, Antimicrobial stewardship, Doctors, Healthcare facilities, Kaduna.

INTRODUCTION

Antimicrobials have the ability to improve quality of life, and have been proven to be life- saving in several severe infective conditions (Sameer *et al*., 2015). However, when not used rationally it can lead to antimicrobial resistance (AMR), that is a problem of global importance. The threat posed by AMR has been equated to climatic change, and it is of grave public health concern globally. An estimate of about 10 million people will die of AMR annually by 2050 if current trends continue; 40% of these deaths will occur in Africa (O'Neill, 2016). Currently, over 700,000 deaths occurring worldwide, including 214,000 neonatal sepsis deaths are attributable to resistant bacteria pathogens (Salihu-Dadari *et al*., 2019).

A representative data on the extent of AMR in low-and middle-income countries are relatively scarce (Holmes *et al*., 2016). High levels of resistance are increasingly being reported worldwide (Holmes *et al*., 2016). Misuse and overuse of antibiotics in humans and animals is one of the main drivers of AMR (Cox *et al*., 2017).

In European Union, the overall societal costs of antibiotic resistance (a subset of AMR) and complications arising from it were estimated to be €1.5-9 billion per year and an estimated mortality of 25,000 people annually (Anyanwu and Kolade, 2017). In United States, about 26,000 people die of multidrug-resistant bacterial infections each year, while 96,000 deaths are attributed to multidrug resistance in Southern Asia (Khan *et al*., 2016). Most of the direct and indirect impact of AMR will fall on low and middle-income countries (WHO, 2015).

Antimicrobial stewardship (AMS) is the optimal selection, dosage, and duration of antimicrobial treatment that results in the best clinical outcome for the treatment or prevention of infection, with minimal toxicity to the patient and minimal impact on subsequent resistance. It involves appropriate selection, dosing, route of administration, and duration of antimicrobial therapy (i.e., the prudent use of antimicrobials-5Ds) (Singh and Singh, 2017).

In developing nations, including Nigeria, the impact of AMR is worse, and unfortunately, the cost of treatment of resistant infections and associated deaths are unaccounted for (Huynh et al., 2015). Inappropriate use of antimicrobials is widespread in human hospitals, especially in developing countries such as Nigeria, and up to 50% of antibiotic treatments prescribed have been estimated to be incorrect (Cox *et al*., 2017). The practice of AMS in Kaduna State has not been well researched 11(Umar *et al*., 2018). Therefore, this study assessed the level of knowledge, perception and practice of AMS among doctors in public secondary healthcare facilities in Kaduna State.

MATERIALS AND METHODS

Study Area

Kaduna State is in the north western geopolitical zone of Nigeria. The State is located between latitude 10°31" N and longitude 7°26' 25" E, and is bordered by Katsina, Zamfara, Kano, Niger, Bauchi, Plateau States and Abuja. The state is divided into three Senatorial

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zones and has 23 Local Government Areas (LGAs), 255 wards and a projected population of 9,735,051 in 2022 (Salihu-Dadari, 2019). Subsistence agriculture is the dominant occupation of the people in the state. There is a wide diversity in culture and lifestyle between the predominantly Moslem Hausa northern population and the southern Christian population of a variety of ethnic groups. Kaduna State has six tertiary hospitals, 28 secondary hospitals, 1702 primary health care facilities (PHCs) and an estimated 656 private facilities (Salihu-Dadari, 2019).

Study Design, Sample size estimation and Sampling Technique

The study was a descriptive cross-sectional in nature conducted between March and May 2020 among doctors working in public secondary health facilities in Kaduna State**.** The inclusion criterion was doctors working in secondary health facilities for at least 6 months. However, locum doctors or those on study leave/fellowship during the study were excluded.

The minimum sample size was determined using the formula $n=Z\alpha^2pq/d^2$ (Araoye, 2004) where Z is the normal standard deviate set at 1.96, with a confidence level specified at 95% and a tolerable margin of error (d) at 5%, considering non-response rate and prevalence of antimicrobial stewardship (p) of 3.75% (Raymond *et al*., 2019). The complementary probability (q) is 1-p. The calculated sample size for the study was 60. The respondents were selected through a multi-stage sampling technique.

Stage 1: Selection of three secondary healthcare facilities from the list of health facilities in each of the three senatorial zones of the state by simple random sampling technique through balloting.

Stage 2: Selection of doctors that met the inclusion criterion from the selected hospitals by simple random sampling technique using systematic sampling to obtain the required sample size.

Data Collection Tools and Measurement

The data was collected using a pretested, structured self-administered questionnaire with questions organized in sections to reflect the objectives of the study. Data were collected by trained research assistants and the principal investigator supervised the data collection procedures. Data collectors were trained for two days on interviewing techniques, the purpose of the study and the confidentiality of the respondents. The collected data were cross-checked on each day of data collection for consistency and completeness.

Nine questions were used to assessed knowledge of the respondents on AMR. One mark was awarded for each correct answer, while incorrect or 'don't know' responses were scored zero. The respondents scores were added up and the percentage scores obtained. The overall knowledge score was graded as follows < 65% (poor) and ≥65 (good) (Tegagn *et al*., 2017). Fifteen questions were used to assessed the respondents' perception. The responses for perception of antimicrobial stewardship were scored one mark for each correct answer, while incorrect or 'don't know' responses scored zero. The respondents scores were added up and the percentage scores obtained, then graded as follows <75% (negative) and ≥75% (positive) (Tegagn *et al*., 2017). Ten questions were used to assess practice of antimicrobial stewardship, where one mark was awarded for each correct answer, while incorrect or 'don't know' responses were scored zero. The scores were added up and the percentage scores obtained and graded as follows <70% graded as poor practice and ≥70% as good practice (Tegagn *et al*., 2017).

Data Analysis

The data collected were cleaned, entered into Statistical Package for Social Sciences (SPSS, version 23, Chicago, IL, USA). Descriptive statistics were used to examine the sample characteristics. The results were summarized and presented in tables and charts and p value was set at < 0.05 for statistical significance. The bivariate analysis was conducted to test for association between categorical variables (respondents' socio-demographic characteristics and practice of antimicrobial stewardship).

Ethical Considerations

Ethical approval was sought and obtained from the Health and Research Ethics Committee of Barau Dikko Teaching Hospital, Kaduna State (HREC Number: 20-0031). Permission was also obtained from the Medical Directors of the selected secondary healthcare facilities. Informed verbal consent was obtained from each respondent before the conduct of the study, with the assurance of confidentiality**.** Information about the study was provided to each participant and their anonymity, voluntary participation and right to withdraw at any stage was emphasized, after which informed verbal consent was obtained.

RESULTS

Fifty -seven out of the sixty questionnaire administered were properly filled and returned, giving a response rate of 95%. Our finding revealed 82.5% of the respondents were ≤40 years old, and the median age was 33.5 years. Majority of the respondents were males (73.7%) and Hausas (47.4%). Most of the respondents (91.2%) had bachelor of medicine and surgery degree as their highest educational qualification, and a mean duration of working experience as 3.9 ± 1.5years (Table 1). About 42% of the respondents were working in the general outpatient departments of the studied hospitals (Figure 1).

Almost half (47.4%) of the respondents were aware of AMS and 26.3% gave fully correct response on what AMS means. Less than a third (28%) of the respondents were aware of WHO antibiotic awareness month, but only 21.1% knew that it is usually celebrated in the month of November. Less than half of the respondents (40.4%) knew the mechanisms of AMR, among others (Table 2).

The commonest source of information about AMS was from newsletter/bulletin (17.5%) (Figure 2). At least nine out of ten (91.2%) respondents perceived that antimicrobial policy is useful in reducing AMR. More than half of the respondents (64.9%) perceived that microbiologist should be consulted when information on antibiogram is required during prescription, and culture and sensitivity test. All the respondents perceived that patient should be educated regarding rational use of antibiotics and almost nine out of ten (89.5%) respondents perceived that cost should be considered before prescribing antimicrobials. Majority (96.5%) responded that AMR is one of the biggest problems the world faces and that many infections are becoming increasingly resistance to this class of drugs (Table 3).

Approximately 60.0% of the respondents sometimes prescribe antimicrobials based on the patients' request, and 70.2% use combination of antimicrobials to widen the spectrum of activity of the drug. Only 21.1% usually sends patients sample before

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prescribing antimicrobials. About 88% educate patients on rational use and 83.0% on adverse effect of antimicrobials. Only 10.5% had a copy of antimicrobial policy of their hospital (Table 4).
The graded overall scores for knowledge, perception and practice of AMS among the respondents were 29.8%, 87.7% and 29.8% respectively (Table 5). There were no statistical significance relationships between age, sex, educational qualifications and departments of the respondents and the practice of antimicrobial stewardship (Table 6).

DISCUSSION

In this study, most of the respondents were males and within the productive age group of 20-40 years. and they had working experience of at least 5 years. These findings were similar to that reported in Akwa Ibom (Nigeria), Jamshedpur and Maharashtra (India) (Badar *et al*., 2018; ReenaJha, 2019; Akpan *et al*., 2020).

Majority of the respondents had bachelor of medicine and surgery (MBBS) degree as the highest educational qualification, similar to the study in Malaysia where 98.6% of the respondents had same educational qualification (Ren-Zhang *et al*., 2020). Most of the respondents were from the general outpatient department as opposed to the Japan and Pakistan studies were most (50.6% and 50%) respectively were from medicine department (Hayat, 2019; Yoshiaki *et al*., 2020). The general outpatient department/unit is one of the busiest clinics and usually the first point of contact. Antimicrobials are often prescribed there, thus the need for the rational use of these drugs by clinicians in order to prevent or reduce the problem of AMR in the studied hospitals.

This study showed that less than half of respondents were aware of the term antimicrobial stewardship similar to studies in India and Saudi Arabia where 44% and 47.3% of respondents respectively were aware of the term (Badar *et al*., 2018; Baraka *et al*., 2019). This is relatively lower than the findings in Nigeria, India, Malaysia, Japan and China studies which were 52%, 50.4%, 94.6%, 96.2% and 65.1% respectively (ReenaJha, 2019; Xia *et al*., 2019; Akpan *et al*., 2020; Ren-Zhang *et al*., 2020; Yoshiaki *et al*., 2020). The difference could be as a result of the study populations and study areas. In some of these studies the study population were pharmacists and the study area was tertiary health institution as against our study that was carried out among public secondary health facilities in Kaduna State.

Furthermore, only about a quarter of respondents could fully correctly defined antibiotic stewardship which was slightly lower than 47% found in the study in Akwa Ibom, Nigeria (Akpan *et al*., 2020). The difference could be as a result of the study area that was tertiary health institution in the Akwa Ibom study.

The public health implication of this is that the clinicians may not be conscious of AMS in making prescription. Similarly, only about 1/5 of the respondents could relate to the 5Ds concept in AMS which has to do with drug choice, dosage, dosing, duration of treatment and drug route that are usually considered in prescribing antibiotics/ antimicrobials. All in line with the consciousness to prevent AMS.

In this study, approximately a quarter of the respondents were aware of antibiotic awareness week with less than half given a fully correct response on the mechanisms of antibiotic resistance. These were lower than those reported in Jamshedpur and Maharashtra in India with figures of 60.8% and 53.7% respectively (ReenaJha, 2019; Badar *et al*., 2019). The reason for the low awareness compares to the studies in India could be as a result of deliberate effort by the Indian government to sensitize, train and retrain doctors on AMR and the availability of hospital AMS teams. The antibiotic awareness week can be taken advantage of by the Nigerian Medical Association (NMA) to sensitize and educate the professionals on the issue of AMS in the State.

In this study, major source of information on antimicrobial stewardship for most respondents was from the newsletter/bulletin unlike the Jamshedpur (India) (ReenaJha, 2019) and Maharashtra (India) (Badar et al., 2018) studies where the common sources were continuous medical education and workshop, while grand rounds and written guidelines were the most common in the Malaysia (Ren-Zhang *et al*., 2020) and Japan studies (Yoshiaki *et al*., 2020). Efforts should be made to enhance grand ward rounds in these secondary healthcare facilities, which is not a common practice unlike in the tertiary healthcare facilities in Nigeria (specialist hospitals, federal medical centres and Teaching hospitals). This can serve as a venue to constantly discuss and educate this professional on AMR.

This study showed high percentage of the respondents agreed that antimicrobial resistance is one of the biggest problems the world faces which was similar (95.1% and 98% respectively) to what was reported in the Saudi Arabia and Nigeria studies (Baraka *et al*., 2019; Akpan *et al*., 2020). This was higher than 65.0% found in the Ethiopia study (Tegagn *et al*., 2017). The similarities seen in these studies might be because most of the respondent are young (21-30 years) and hence more acquainted with the electronic media, therefore more likely to come across the current trend on AMR.

Perceiving AMR as a major health problem is the first step in resolving the problem. Otherwise, it will be very challenging to change the clinicians' practice towards AMR prevention. Majority of respondents perceiving that antibiotic policy is useful in reducing antibiotic resistance is similar to the findings in Delhi, Malaysia and Akwa Ibom, Nigeria studies where 86.2%, 94.6% and 97% of the respondents respectively perceived that antibiotic policy is useful in reducing antibiotic resistance (Singh and Singh, 2017; Akpan *et al*; 2020; Ren-Zhang *et al*., 2020). Almost two- third of the respondents in this study perceived that combination of antibiotics can prevent development of antibiotic resistance. This is a much lower proportion to 83.7% found in the Delhi study, but higher than (17.6%) found in the Malaysia study (Singh and Singh, 2017; Ren-Zhang *et al*., 2020). This finding suggests that the clinicians in the study population are more likely to implement AMS strategies which will aid in reducing the burden of AMR and improve the patient's outcome.

The good perception towards sending samples to the laboratory for culture before commencing patients on antibiotic(s) in this study is similar to 88.7% found in the Delhi study (Singh and Singh, 2017). This positive perception could lead to improvement in rates of antibiotic susceptibilities to targeted antibiotics and reduce adverse events from misuse of antibiotics. However, the challenges in Nigeria include the epileptic electricity, inadequate laboratory scientists and lack of equipment and reagents, among others.

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The prescribing of antibiotics to patients based on demand/request by the respondents in this study is similar to the finding in the Japan study (50.4%) (Yoshiaki *et al*., 2020). This is contrary to studies conducted in Akwa Ibom (Nigeria), Jamshedpur (India) and Maharashtra (India), and where only 4%, 6% and 3% of respondents respectively prescribe antibiotics based on patients' demand (Badar *et al*., 2017; ReenaJha, 2019; Akpan *et al*., 2020). This practice has a negative consequence of promoting development of AMR. Doctors often unnecessarily prescribe antimicrobials over concern for their relationship with patients and their patients' satisfaction with the medical care provided. However, doctors may be helped to curtail unnecessary antimicrobial use in such cases by using prepared information materials to talk with their patients (Yoshiaki *et al*., 2020).

The practice by the respondents of sending patients' samples for culture and sensitivity before commencing them on antibiotics is much less than the findings in Akwa Ibom (Nigeria), Delhi and Maharashtra (India), where 61%, 70% and 73.7% of the respondents respectively sent samples for culture and sensitivity in every case before starting antibiotics (Singh and Singh, 2017; Badar *et al*., 2019; Akpan *et al*., 2020). The availability of standardized microbiology laboratories is limited in some hospitals, so measures should be initiated to expand the network of accredited laboratories. The regular updating of the antibiogram in the hospital may be a challenge since the sensitivity patterns to the commonly cultured results could change over time.

The finding of the respondents consulting senior colleagues before prescribing higher antibiotics is similar to the studies in Nigeria and Malaysia with figures of 41% and 28.4% respectively (Akpan *et al*., 2020; Ren-Zhang *et al*., 2020), but lower than 83.7% in the India study (Singh and Singh, 2017). The difference here could be as a result of effective AMS programme and team in the Indian hospitals studied.

The good practice of patients' education by most respondents on rational use and adverse effect of prescribed antibiotics is similar to the reports of 83.7% (Delhi) (Singh and Singh, 2017), 95.6% (Jamshedpur) (ReenaJha, 2019) and 93% (Maharashtra) (Badar *et al*., 2018) in India. Patient education interventions delivered prior to illness can significantly reduce inappropriate use of antimicrobials and reverse resistance trends (Badar *et al*., 2018). Extra efforts should be made because the long waiting time in these healthcare facilities and poor referral system could be a challenge due to poor patient doctor ratio.

In this study, less than half of the respondents created awareness regarding rational antibiotic use among colleagues which was a lower proportion compared to the findings in Jamshedpur (India) and Maharashtra (India) studies where majority (86.6% and 85.6% respectively) of respondents created awareness regarding rational antibiotic use among colleagues (Badar *et al*., 2018; ReenaJha, 2019). Awareness campaigns targeting the medical professionals, prescribers and dispensers regarding the rules and laws of antimicrobial prescription and following the standard treatment guidelines should be initiated (Badar *et al*., 2018).

About one third of the respondents in this study had good knowledge of antibiotic stewardship which was higher than 3.75% reported in a study in Nnewe (Nigeria) (Raymond *et al*., 2019). This was lower than what was found in the Ethiopia, China and Zambia studies which were 68.2%, 46.8% and 51% respectively (Tegagn *et al*., 2017; Kalunga *et al*., 2019; Xia *et al*., 2019).

Majority of the respondents in this study had positive perception toward antibiotic stewardship. This was higher than 16% found in the study in Ethiopia (Tegagn *et al*., 2017). Despite the positive perception in this study, basic knowledge of antibiotic stewardship was relatively low which indicated a need for context specific interventions and capacity building to address antibiotic stewardship gaps (Kalunga *et al*., 2019).

About one- third of respondent in this study had good practice of antibiotic stewardship which is in contrast to the Ethiopia study where majority (78%) of respondent had a good practice (Tegagn *et al*., 2017). The poor practice found in this study might lead to antibiotic misuse, decrease efficacy of antibiotics, development of resistance and increase in the rate of morbidity and mortality.

The limitation in this study includes the small sample size could be responsible for the lack of association between some of the categorical variables.

Conclusion

The study showed majority of the respondents had poor knowledge of AMS despite their high awareness level on AMS. The respondents' perception towards AMS was positive, however, there is poor practice of antimicrobial stewardship. There is need to enhance their knowledge regarding antimicrobial stewardship through regular training and retraining of doctors Kaduna State Ministry of Health and Nigerian Medical Association, among others. A similar study using a larger sample size is recommended.

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Table 1: Socio-demographic characteristics of respondent (N=57)

Variables	Frequency (%)
Age (in years)	
≤30	25 (43.9)
31-40	22 (38.6)
41-50	8 (14.0)
>50	2 (3.5)
Sex	
Male	42(73.7)
Female	15(26.3)
Tribe	
Hausa	27 (47.4)
Igbo	8 (14.0)
Yoruba	5 (8.8)
Others	17 (29.8)
Religion	
Islam	30 (52.6)
Christianity	27 (47.4)
Marital Status	
Single	22 (38.6)
Married	35 (61.4)
Highest education	
MBBS	52 (91.2)
Master degree	4 (7.0)
Senior registrar	1 (1.8)
Working Experience (in years)	
≤ 5	38 (66.7)
6-10	12 (21.1)
>10	7 (12.1)

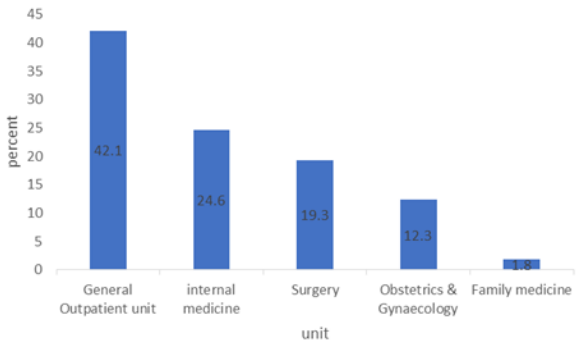

Figure 1: Respondents departments in the selected hospitals

Table 2: Respondents' Knowledge of Antimicrobial Stewardship (N=57)

Variables	Frequency (%)
Are you aware of Antimicrobial Stewardship?	
Yes	27 (47.4)
No	25 (43.9)
I don't know	5 (8.8)
What does Antimicrobial Stewardship mean?	
Fully correct response	15 (26.3)
Partially correct response	8 (14.0)
Incorrect response	34 (59.6)
What does 5Ds in Antibiotic Stewardship stands for?	
Fully correct response	12 (21.1)
Incorrect response	45 (78.9)
Are you aware of WHO Antibiotic awareness? week?	
Yes	16 (28.1)
No	32 (56.1)
I don't know	9 (15.8)
What month is it?	
Correct	12 (21.1)
Incorrect	45 (78.9)
Have you heard of ESKAPE pathogens?	
Yes	20 (35.1)
No	29 (50.9)
I don't know	8 (14.0)
What are ESKAPE pathogens?	
Fully correct response	20 (35.1)
Incorrect response	37 (64.9)
What are the mechanisms for antibiotic resistance?	
Fully correct response	23 (40.4)
Partially correct response	10 (17.5)
Incorrect response	24 (42.1)
Mention 2 other areas apart from Humans, where Antimicrobials are used?	
Fully correct response	18(31.6)
Partially correct response	18(31.6)
Incorrect response	21(36.8)

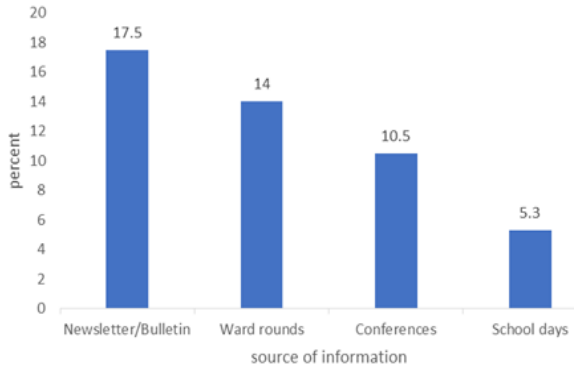

Figure 2: Sources of information about antimicrobial Stewardship

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Table 3: Respondents' Perception on Antimicrobial Stewardship (N=57)

Variables	Yes Frequency (%)
Antimicrobial policy is useful in reducing Antimicrobial Resistance (AMR)	52 (91.2)
Appropriate combination of antimicrobials can prevent development of Antimicrobial Resistance	36 (63.2)
Microbiologist should be consulted when required about antimicrobial prescription	37 (64.9)
Culture and sensitivity test should be done in all infections	37 (64.9)
Sample for culture should be sent before prescribing antimicrobials	53 (93.0)
De-escalation of drugs from higher to lower class is beneficial in reducing AMR	31(54.4)
Irrational use of antimicrobials locally will matter for global resistance development	50 (87.7)
Dispensing of antimicrobials over the counter for minor ailments by pharmacists should not be allowed	46 (80.7)
Patients should be educated regarding Rational use of antimicrobials	57 (100.0)
Cost should be considered before prescribing the treatment	51(89.5)
Preference for food labeled as antimicrobial free	36 (63.2)
People like me have a role in reducing antimicrobial resistance	47 (82.5)
Antimicrobial resistance is one of the biggest problems the world faces	55 (96.5)
Many infections are becoming increasingly resistant to treatment by antibiotics	56 (98.2)
Antimicrobial resistance is an issue in Nigeria	49 (86.0)

Table 4: Respondents' Practice of Antimicrobial Stewardship

Variables	Yes Frequency (%)
Prescribe antimicrobials to patient not based on demand	23 (39.4)
Choose appropriate combination of antimicrobials when necessary	40(70.2)
Choose appropriate dose of antimicrobials	42(73.7)
Send sample for culture & sensitivity test in every case before starting antimicrobials	12(21.1)
Educate the patients on rational antimicrobial use	50(87.7)
Educate patients on adverse effects of the prescribed antimicrobials	47(82.5)
Do not escalate to higher antibiotic treatment in spite of lower antimicrobials being sensitive	37 (64.9)
Practice consulting senior physician before prescribing higher antimicrobials	27(47.4)
I have a copy of antimicrobial policy of my hospital	6(10.5)
Create awareness regarding rational antimicrobial use among colleagues	27(47.4)

Table 5: Overall Graded Scores for Knowledge, Perception and Practice (N=57)

Variable	Frequency (%)
Knowledge	
Good	17 (29.8)
Poor	40 (70.2)
Perception	
Positive	50 (12.3)
Negative	7 (87.7)
Practice	
Good	17 (29.8)
Poor	40 (70.2)

Table 6: Relationship between age, sex and educational status of the respondents and Practice of antimicrobial stewardship

	Practice of antimicrobial stewardship		Fisher's exact test P value
	Good	Poor	
Age (in years)			
≤30	5	20	F=0.280
31- 40	8	14	P=0.261
41- 50	4	4	
>50	0	2	
Sex			
Male	14	28	F=0.513
Female	3	12	P=0.333
Educational qualification			
MBBS	15	37	F=0.703
Master degree	2	2	P=0.542
Senior registrar	0	1	
Hospital department			
Medicine	5	9	F=0.137
Surgery	4	7	P=0.155
Obstetrics & gynaecology	4	3	
Others	4	21	

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Conflict of Interest
There is no conflict of interest.

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