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Original Research Article

Use of antibiotics among undergraduate students of Delta State University, Abraka

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Abstract

Purpose: This study was designed to evaluate the use of antibiotics among undergraduate students of Delta State University, Abraka.
Methods: Self-administered, structured, pretested questionnaire was used to collect data from 450 students pursuing different courses of study using a random sampling technique.
Results: The result obtained revealed that 63.1% of the students studied had engaged in self-medication with antibiotics in the last six months preceding the study. Skin infection (26.8%) was the most common condition that provoked the students to self-medication with antibiotics, while respiratory tract infection (13%) was the least. Beta lactam antibiotics particularly Ampicillin and cloxacillin combination (Ampiclox) was the most common antibiotics used by respondents while tetracycline was the least used. The predominant reason for self-medication with antibiotic was prior knowledge about the drug (31%) followed by illness considered not serious for enough for consultation with a healthcare practitioner (27%). More female used antibiotics inappropriately than their male counterparts with a P-value of 0.01.
Conclusion: A high prevalence of inappropriate use of antibiotics was found amongst students of the institution studied. This highlights the need for concerned efforts to strengthen and implement policies and legislations on advertising, prescription, sales and distribution of antibiotics.
Keywords: Inappropriate use, self-medication, antibiotics, community pharmacy and students.

Indexing: Index Copernicus, African Index Medicus

Introduction

Medicines availability and distribution have improved over the years in many developing countries especially with the introduction of essential drug programmes. However, the availability of information about rational handling and use of these medicines is inadequate in many developing countries[1].

Antibiotics are one of such medicaments which were regarded as a miracle drug capable of effecting a cure no matter the kind of ailment[2]. This view of antibiotics is still present today and is also one of the reasons why antibiotic resistance developed at the rates it does today. Because of this view antibiotics are often misused and abused not only by the public but sometimes by those in the medical profession as well.

Inappropriate use of antibiotics is an important issue around the world. Not only can the use of antibiotics for viral infections or overuse of antibiotics promote antibiotic resistance, but it can also increase the likelihood of preventable drug related adverse events. Inappropriate use of antibiotics can be linked to two main sources, the prescriber (the physician) and the user (the public). The antibiotic seeking and taking behaviour of the public can promote antibiotic resistance within the community[3]. On the other hand, inappropriate antibiotic prescribing pattern of physicians can also promote antibiotic resistance[4].

Self-medication is a major example of inappropriate use of antibiotics[5]. In our society today, self-medication is a common practice among the Nigeria public, it is a practice which cuts across the seemingly enlightened to the unenlightened.

Widespread usage of antibiotics in hospitals have also been associated with increase resistance in bacteria strains and species that no longer respond to treatment with the common antibiotic[6].

The objective of this study to evaluate the inappropriate use of antibiotics among undergraduate students of Delta State University Abraka.

Methods

Study design

The study was a cross sectional descriptive study conducted using an interviewer –administered questionnaire

Setting

The study was conducted at the Abraka campus of the Delta State University, Abraka, Nigeria

Population/Sample

Undergraduate students at the Abraka campus of the Delta State University made up the study population. Delta state university has a total population of about 36,000 students with the Abraka campus having about two-thirds of the total student population. Using a population of 24,000, sample size was calculated using Raosoft® sample size calculator with the margin of error , confidence level and response distribution set at 5%, 95% and 50% respectively a sample size of 379 was obtained. However 450 was used in order to make up for attrition.

Instrument

A self-administered, structured pretested question-naire was designed and used to collect data from 450 students pursuing different courses of study using a random sampling technique. The questionnaire consisted of both closed and open ended questions. The questionnaire had two parts. The first comprised the social demographic variables such as age, sex, marital status, department, nationality and level of the students while the second had questions relating to the use of antibiotics.

Data collection

Using a simple random sampling technique, the questionnaires were distributed to the students in their classrooms and halls of residence, and around their faculties after obtaining informed consent.

Data analysis

The returned questionnaires were sorted out and the information extracted analysed using Microsoft Excel using frequencies, percentages, bar charts, pie chart, and tables. Inferential statistics was done using Graphpad Instat and P value was set at 0.05

Results

The 450 questionnaires that were distributed across the various faculties were returned completed giving a response rate of 100%. Majority of the students 232 (51.6%) were males while 218 (48.4%) were females. Most of the students were within the age range of 21-25 years (64.9%). Students in the faculty of science were more (33.5%) in the sample while others were from the Social Sciences (29.7%), Basic medical sciences (7.5%), Pharmacy (10.6%), Education (2.2%) and Engineering (1.5%). 0.4% of students were in 600 level while (13.3%) were in 100 level. Majority of the study population were single (94%) and nearly all (99.46) were Nigerians. Details of demographics are as shown in Table 1.

The distributions of respondents who use antibiotics inappropriately are given in Table 2. More than half of the respondents 284(63.1%) admitted to have used antibiotics without a doctor's prescription. Of this proportion more females 149 (33.1%) than males 135 (30.0%) self-medicated with antibiotics ($P < 0.05$).

The various types of antibiotics used by respondents are given in Figure1. Ampicillin and cloxacillin, a combination medication was the most commonly used antibiotics documented this is closely followed by ampicilin, and tetracycline was the least used.

Majority of the respondents (26.8%) reported that they use antibiotics inappropriately for skin infection, (26.0%), for abdominal disturbance (19.4%), for others (which included malaria, typhoid fever, and otitis media) (14.8%), for urinary tract infection and (13%) for respiratory tract infection.

Pattern of use of antibiotics by respondents are given in Table 3. Most of the respondents (79.6%) reported that they get involved in self-medication with antibiotics occasionally.

Majority of the respondents sourced their antibiotics from community pharmacies. Other sources are as shown in Figure 2.

Among those who have used antibiotics, 81.7% of the respondents received information on antibiotic use. Of this proportion 19.4% claimed that their source of information was from journals, 32.4% from friends, 4.9% from a neighbour while 25% of respondents got information from other sources.

The major reasons given for self-medication with antibiotics by the respondents include prior knowledge about the drug (31%), illness not serious for consultation and prior experience on use, other reasons are shown in Table 4

Table I: Socio-demographic characteristics of the respondents n=450

Characteristics	No. of Students	Percentage (%)
Gender		
Male	232	51.56
Female	218	48.44
Age Group:		
16-20	74	16.44
21-25	292	64.89
26-30	81	18.00
31 and above	3	0.67
Nationality:		
Nigerian	447	99.40
Foreign	3	0.60
Status:		
Married	27	6
Single	423	94
Faculty:		
Basic medical science	34	7.56
Science	151	33.55
Social Science	134	29.77
Engineering	7	1.56
Art	66	14.67
Education	10	2.22
Pharmacy	48	10.67
Level of Study:		
100	60	13.33
200	122	27.11
300	83	18.44
400	119	26.44
500	64	14.22
600	2	0.44

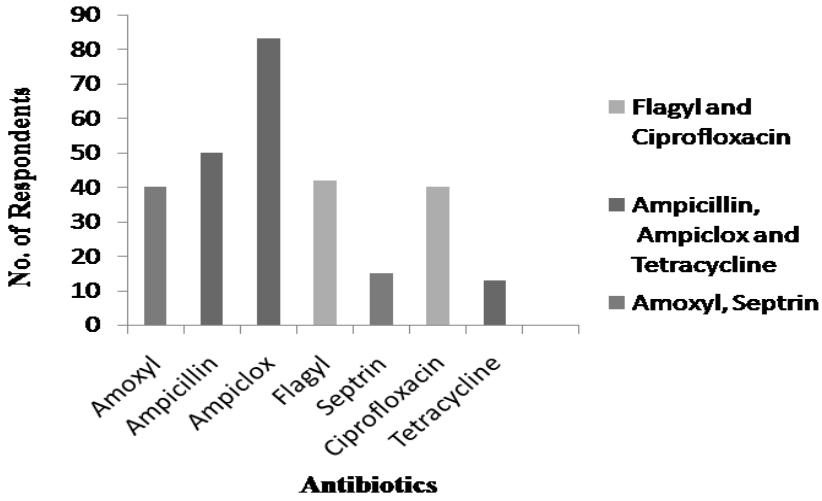

Figure 1: The types of antibiotics used by respondent

Table 2: Distribution of respondents who use antibiotics inappropriately

	Yes	No	Total
Male	135 (30.0%)	97 (21.5%)	232 (51.0%)
Female	149 (33.1%)	69(15.3%)	218 (48.4%)
Total	284(63.1%)	166 (48.4%)	450 (100%)

Table 3: Pattern of use of antibiotics

Responses	Frequency
Occasionally	226(79.6%)
Frequently	26 (9.1%)
Most times	32 (11.3%)
Total	284(100%)

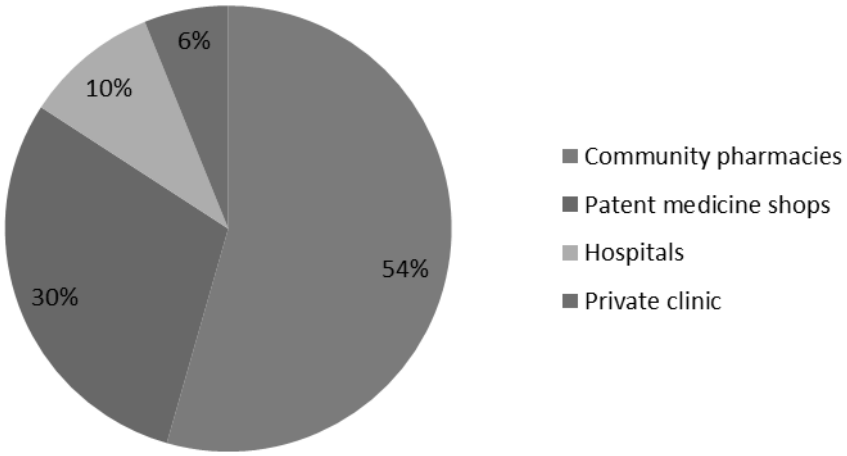

Figure 2: Source of antibiotics purchase by the respondents

Table 4: Reasons for antibiotics use

Reasons for self-medication	Males	Females	Total	Percentage %
Prior knowledge about drugs	50	38	88	31
Lack of time	9	15	24	8
Financial constraint	16	15	31	11
Nonchalant attitude of hospital staff	7	5	12	4
Prior experience on drug use	26	24	50	18
Illness not considered serious for consultation	24	52	76	22
Others	3	0	3	1
Total	135	149	284	100

Discussion

The study has revealed that, the inappropriate use of antibiotics among undergraduate students of Delta State University, Abraka is considerably high. About two-thirds of the students self-prescribe the antibiotics they use. This rate is higher than those documented in similar studies[7,8] carried out among other undergraduate university students in Nigeria (56.9%) and Sudan (53.5%). Inadequate restriction on the sales of antibiotics without a doctor's prescription in Nigeria makes it possible to access antibiotics without prescription thus accounting for this high prevalence of self-medication. This injudicious use of antibiotics by students may lead to increase antibiotic resistance, serious health hazard such as adverse drug reaction and wastage of resources. More females in the current study used antibiotics inappropriately compared to their male counterparts, and this was statistically significant which is in contrast with another study[9] carried out in northern Nigeria among medical undergraduate students where more males used antibiotics than females.

Skin infection was the major condition that provoked self-medication with antibiotics by the respondents in the current study. This is in contrast to a similar studiy[7] which reported gastro-intestinal infections as the predominant condition that provoked the respondents to self-medication with antibiotics. This may be due to differences in environmental conditions.

Skin infections are prevalent in developing countries because of poor sanitary conditions and this suggests that the trend of antibiotics self-medication may continue if proper measures are not taken.

In this study, Beta lactam antibiotics particularly ampicillin and cloxacillin combination, were the most commonly misused antibiotics and this corroborates the findings of another study[10] conducted in Nigeria. Beta lactam antibiotics have broad spectrum of activity and are used for the treatment of skin infections such as boils which was the major condition for which the respondents self-medicated. This may also be related to the fact that it is widely prescribed by physicians which have led most people to recognize this drug.

Prior knowledge about the drug was the predominant reason for self-medication among the respondents this is similar to the findings of previous studies[7,11]. Although the students admitted they had knowledge of antibiotics, the consequences of its misuse and hazards associated with self-medication. This did not deter them from indulging in the practice of self-medication. The major problem of self-medication with antibiotics is the emergence of drug resistance. Antimicrobial resistance is a current problem

worldwide particularly in developing countries. It is widely believed that malpractices such as inadequate dosing, incomplete treatment courses and indiscriminate drug use have contributed to the emergence and spread of antimicrobial resistance[12]. The consequences of this is the loss of efficacy of relatively cheap drugs and this will require development of new drugs which will be more expensive and will further put developing countries at a disadvantage. The rational use of antibiotics is thus of utmost importance to limit the increase of bacteria resistance.

From the study, the major source of purchased antibiotics was the community pharmacy. This is closely followed by patent medicine stores. Community pharmacies are a relatively popular source of medications since they are readily accessible because of their location in almost all neighbourhoods. .

Although there are regulations that categorize most of these drugs as prescription only medicines, regulatory authorities often lack resources to enforce them, even if enforcement was possible having and enforcing a strict prescription policy without providing adequate and affordable access to medical consultation and treatment might exclude the poorest from accessing medications, leading to increased morbidity from otherwise treatable infections disease. There are concerns that most of these antibiotics were obtained from the community pharmacy and patent medicine stores .There is need for enforcement of regulations regarding the sales and distribution of antibiotics. They are encouraged to dispense over the counter medications alone for self-medication purposes[13].

Conclusion

A high prevalence of inappropriate use of antibiotics was found among the students studied. It is recommended that a holistic approach must be taken to prevent this problem from escalating which would involve increase awareness and education regarding the implications of self-medication, strategies to prevent the supply of medicines without prescription by pharmacies, strict rule regarding pharmaceutical advertising, sales and distribution of antibiotics and formulating polices to make receiving health care much less difficult to access.

Declarations

Acknowledgement

The authors are grateful to the students of Delta State University who participated in this study.

Conflict of Interest

No conflict of interest associated with this work.

Contribution of Authors

The authors declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by them.

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