

Self-medication with antibiotics among Nigerian Dental Students

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Self-medication with antibiotics among Nigerian dental students. *Tanz Dent J* 2010, 16(2):48-54

Abstract

Introduction: Health workers are societal role models. Self-medication by health workers could result in an extraordinarily negative impact in the society. **Objective:** To determine the prevalence of self medication with antibiotics among Nigerian dental students. **Materials and Methods:** A descriptive cross-sectional survey of 200 dental students of University of Benin, Nigeria was performed between April and June, 2009. A self-administered questionnaire was used to enquire on self-medication by antibiotics. Data was analyzed using SPSS version 15.0. Associations were tested using Chi square, significance set at $P < 0.05$. **Results:** Response rate was 96.2%. The age range of the respondents was 16 to 35 years and Female: male ratio was 1:1.9. The prevalence of self medication with antibiotics in the 6 months preceding the survey was 53.5%. Amoxicillin was the most commonly self medicated antibiotics. The main factors influencing the choice of antibiotics were previous experience with the same illness and advice from pharmacy staff. Diarrhea, sore throat and common cold were the major reasons for self-medication with antibiotics. The predominant reason for self-medication among the respondents was previous experiences with similar ailments. **Conclusion:** The prevalence of self-medication with antibiotics among Nigerian dental students was high and amoxicillin was the most commonly self medicated antibiotics.

Keywords: Self-medication, antibiotics, Dental students

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Introduction

Self medication is the taking of drugs, herbs or home remedies on ones own initiative or on the advice of another person without consulting a doctor (1). Studies in developing countries have documented the prevalence of self-medication with drugs as 40.7-81.8% (2, 3). Commonly utilized drugs have been the mostly implicated in self-medication practices (4, 5). In their study conducted in Abidjan, Ivory Coast, Hounsa et al (6) found that about one-fifth of all antibiotics purchased from private pharmacies were self medication. Self medication with antibiotics has raised a worldwide concern because it causes numerous problems which include antibiotic resistance, delay in proper treatment of the disease, wrong choice of antibiotics, use of insufficient dosages and unnecessary therapy (7, 8). This negates the principle of the rational use of antibiotics and herald danger for organisms developing resistant.

Studies on self-medication have been conducted on university students, medical and pharmacy students in other parts of the world but none have been specifically conducted among dental students (5, 9-13). Despite the growing research interest in self medication, little information has been available about its prevalence and major determinants in Nigeria (13-17). Anecdotal evidence shows that the enforcement of Prescription-Only-Medicine and Over-The-Counter in Nigerian pharmacies is weak allowing the public access to a wider range of medications that otherwise are provided only on prescription. This, of course, has its implications on safety and effectiveness of the pharmacotherapy in question. The objective of the study was to determine the prevalence of self medication with antibiotics among Nigerian dental students.

Materials and Methods

This research was conducted as a descriptive cross-sectional survey of all dental students from 1st to 6th year of University of Benin in Nigeria between April and June, 2009. A 16-item self-administered questionnaire was used to collect information on demography, self-medication use of antibiotics, type, dose, frequency and duration, reason for the antibiotics self-medication, factors influencing the choice of antibiotics and the source of the antibiotics. The one page questionnaire was completed in an average of 7 minutes as detected from pretesting on 20 medical students from the same university. The first 7 items assessed demographic characteristics like age, gender, marital status, religion, ethnic group, class and residence which were hostel, inside campus other than hostel or outside the campus. The prevalence of self medication was assessed with a single question: "Have you taken any antibiotics without doctor's prescription in last 6 months?" Five questions assessed the health condition that necessitated self medication, the reason for the self medication, the type of antibiotics used, what influenced the choice of antibiotics and the source of the antibiotics. The remaining three questions assessed the dosage in terms of the milligram, the frequency per day and duration of the antibiotics. The deficiency in any of the 3 parameters on dosage was considered incorrect dose. The questionnaires were hand distributed and collected in a sealed anonymous envelope. Participation was voluntary and no incentive was offered. Informed consent was obtained from individual participant before the commencement of the survey. Participation or non participation had no adverse effect on their school or clinical work where applicable. Dental students absent from classroom for any reason and those that did not give consent at the point contact with the researchers were excluded from the survey. The ethical approval for this survey was obtained from University of Benin Teaching Hospital Ethics Committee. Statistical Package for Social Science (SPSS version 15.0) was used for data analysis. For the purpose of analysis, the students in 1st to 3rd year were categorized as preclinical students while those in 4th to 6th year were categorized as clinical students. The significance of association was tested with Chi square. $P < 0.05$ was considered significant. The results were presented in tabular and graphic forms.

Results

Out of the 208 questionnaires distributed, 200 questionnaires were completely filled and returned, giving an overall response rate of 96.2%. The age range and mean age of the 200 dental students that responded were 16-35 years and 23.9 years respectively. Majority of the respondents were between 22 and 24 years. Only 9.5% were above 27 years. Female: male ratio is 1:1.9 with males constituting 65%. About one third (32.0%) of the respondents were in preclinical level while the remaining approximately two-thirds (68.0%) were in clinical level (Table 1).

Table 1: Demographic characteristics of the respondents n = 200

Characteristics	n	%
Age (years)		
16-18	3	1.5
19-21	44	22.0
22-24	78	39.0
25-27	56	28.0
>27	19	9.5
Gender		
Male	130	65.0
Female	70	35.0
Level		
Preclinical	64	32.0
Clinical	136	68.0

The overall prevalence of self medication with antibiotics in 6 months preceding the survey was 53.5%. The prevalence of self medication with antibiotics among preclinical dental students was 45.3%, while 57.4% of the clinical dental students reported such use (Table 2).

The differences were not statistically significant. Amoxicillin was the most commonly self medicated antibiotic documented (Figure 1). Diarrhoea accounted for 28.3%, sore throat 23.6%, common cold 20.8%, dental infection 4.7%, others, 8.5% (cough 0.9%, UTI 0.9%, Otitis media 0.9%, Rash 0.9% unspecified infections 4.7%) (Figure 2).

The predominant reason for self-medication was among the respondents was previous experiences with similar ailments (Table 3). The main factors influencing the choice of antibiotics were previous experience with the same illness and advice from pharmacy staffs (Figure 3). A nearby pharmacy shop proved to be the most frequent (67.9%) source of the antibiotics (Figure 4).

Discussion

A significant number of people living in developing countries indulge in self medication. In the current study, the overall prevalence of self medication with antibiotics was 53.5% which is comparable to 55.0% and 56.9% documented among undergraduate university students in Sudan (11), and Nigeria (9) respectively. It is also comparable to the 56.0% documented in the community of Abu Dhabi Emirate, United Arab Emirates (8) and lower than 59.7 % documented among private pharmacy client

in Abidjan, Ivory Coast (6), However, it is higher than 48.1% documented among general population in the community of Khartoum State, Sudan (18), 40.7% documented among adult dental patients attending University of Jordan Hospital (3), 22.0% documented among general population in Lithuania (19), 19.1% documented among adults attending primary healthcare centers in Ankara, Turkey (20) and 13% documented in Poland (21).

Table 2: Distribution of participants by self medication with antibiotics

Use of antibiotics without prescription	Level				Total	
	Preclinical		Clinical			
	n	%	n	%	n	%
Yes	29	45.3	78	57.4	107	53.5
No	35	54.7	58	42.6	93	46.5
Total	64	100.0	136	100.0	200	100.0

$\chi^2 = 2.54, df = 1, p = 0.111$

Inadequate restriction on the sale 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. Self-medication with antibiotics is rare in countries where legal framework that forbids over-

the-counter dispensing of antibiotics is reinforced (22, 23). The higher prevalence of self medication among dental students than dental patients in Jordan (3) and Nigeria (17) is not a good practice, thus needs to be discouraged.

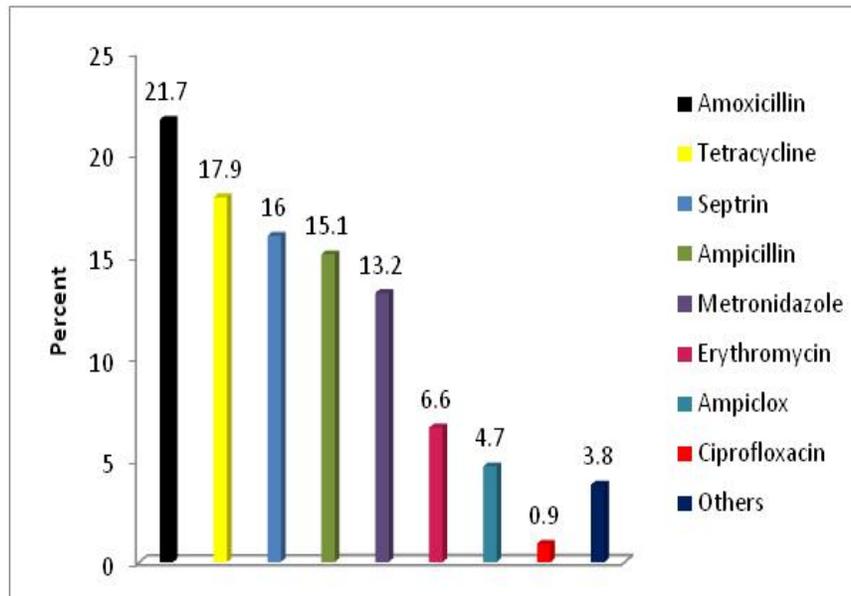


Figure 1 Type of self medicated antibiotics among the respondents

In the current study; age, gender, marital status, tribe and number of years in dental school was not statistically significantly associated with the prevalence of self medication with antibiotics. The homogeneity of the studied group in educational

status, narrow range of the age and residence in closely related environment may have masked the traditional, social and cultural factors that have been shown by Abasaeed et al (8) and Awad et al (18) to influence self-medication with antibiotics.

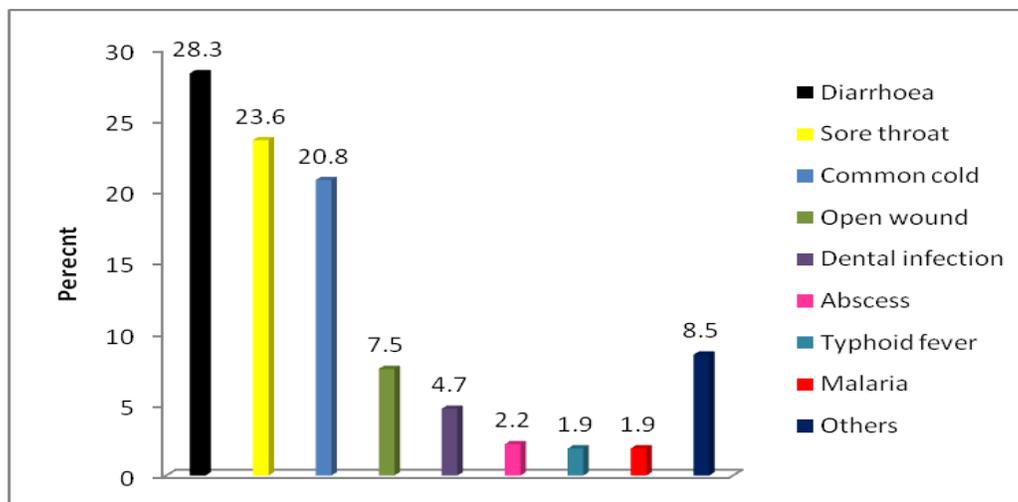


Figure 2: Self medicated conditions among the respondents

NB: Others include cough 0.9%, UTI 0.9%, Otitis media 0.9%, Rash 0.9% and unspecified infections 4.7%

Diarrhoea was the principal reason for self-medication with antibiotics in the current study. This is similar to findings of Olayemi et al. (9), who documented gastrointestinal tract infections as the predominant condition for such self medication. Diarrhoea is a common illness in developing countries because of poor sanitary conditions and limited water accessibility. The commonly utilized antibiotics for diarrhoea were tetracycline and metronidazole in this study.

The second and third commonest reasons for self-medication with antibiotics are sore throat and common cold, respectively, which are categorized as upper respiratory tract infection. Penicillins and sulfamethoxazole and trimethoprim (co-trimoxazole) were favoured in the self medication for upper respiratory tract infections in this survey. The geographical and weather differences may have altered the order of symptoms frequently seen in self medicated individuals with antibiotics in this study when compared with those documented in the literature (19-21).

Self-medication with drugs is an economical choice of treatment for some illnesses. In this study, the predominant reason for self-medication among the respondents was previous experiences with similar ailments which concurred with the findings of a study on undergraduate university students in Khartoum

State (11). Penicillins are one of most commonly self medicated antibiotics because they are relatively safe in all age groups, inexpensive, commonly available and rarely have serious side effects. The socioeconomic status and health experiences influence an individual health related attitude and behaviour.

Table 3: Reasons for self medication among respondents

Reasons	Frequency	Percent
Previous experience of treating a similar illness	28	26.4
Belief in efficacy of the drugs	20	18.9
Previous experience on the efficacy of treatment	18	17.0
Too minor an illness to see a doctor	18	17.0
Availability of the antibiotics	8	7.5
To save time and money	7	6.6
Financial constraints	3	2.8
Non availability of health personnel	3	2.8
Lecture note had the information on the condition	1	0.9
Total	106	100

In this survey, amoxicillin was the most commonly self medicated antibiotic documented. It may not be unconnected to fact that broad-spectrum semisynthetic penicillin particularly amoxycillin and clavulanic-amoxycillin are the most commonly stored antibiotic sachets in households (24). Self medication

with tetracycline was quite high. Its efficacy in management of diarrhoea may be responsible for this significant use. In Hungary, doxycycline was the number one nonprescription antibiotic over a five year period (25).

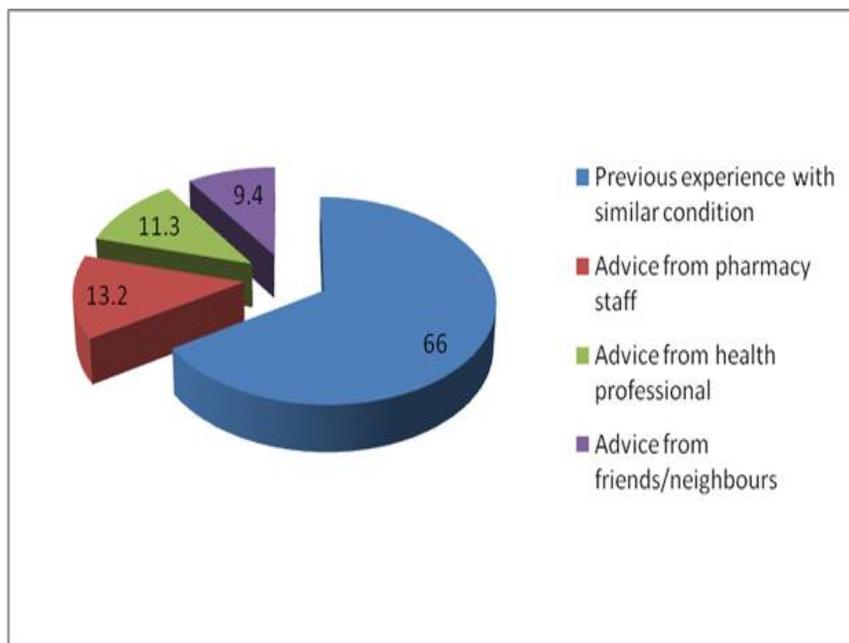


Figure 3: Factors that influenced the choice of self medicated antibiotics

Other drugs used in self medication among the respondents in this study include erythromycin and ciprofloxacin. The obvious use of the mentioned antibiotics in self medication has been documented earlier in Hungary where doxycycline, co-amoxiclav, co-trimoxazole, penamecillin, ampicillin, amoxicillin, clindamycin, clarithromycin, norfloxacin, and cefuroxime accounted for 90% of non-prescription antibiotic sales in 2004 (24). Information about drugs for treatment of specific illnesses can be obtained from previous experience, literature, significant others, colleagues and even total strangers. In this study, the main factors influencing the choice of antibiotics were previous experience with the same illness and advice from pharmacy staffs, relatives and friends.

In Nigeria, drugs can be purchased without a prescription from providers such as pharmacy shops, patent medicine dealers, hospital pharmacies or primary health care dispensaries. A nearby pharmacy shop proved to be the most frequent (67.9%) source of the antibiotics in the current study. Pharmacists have a key role to play in providing advice and appropriate information about medicines available for

self-medication to those seeking assistance. The pharmacy shop is a relatively popular source of medications because of the number of pharmacy shops, their location in almost all neighbourhoods and lack of a consultation fee charge by pharmacist.

Left over drugs at home are another source of drugs for self medication. A study conducted in Jordan documented the prescribed pharmaceuticals stored in the household as one of the main sources of antibiotics for self medication (27). Studies in United Arab Emirates, Nigeria, Croatia and Turkey also showed that the availability of antibiotics and other drugs at home favoured their use for self medication (8, 10, 14, 20). The sale of antibiotics in sachets, as practiced in Nigeria, makes it possible for antibiotics to remain after taking the prescribed dose. The stored left over antibiotics thereby stands as an easy source of antibiotics in the event of illness (26). In the current study, left over drugs kept at home were the source of self medication reported by 10.4% of the respondents comparable to 15% reported by Adu-Sarkodie in Ghana (7) and González et al. (24) in Spain. However, it is lower than 24.4% documented by Raz et al. (26) in northern Israel.

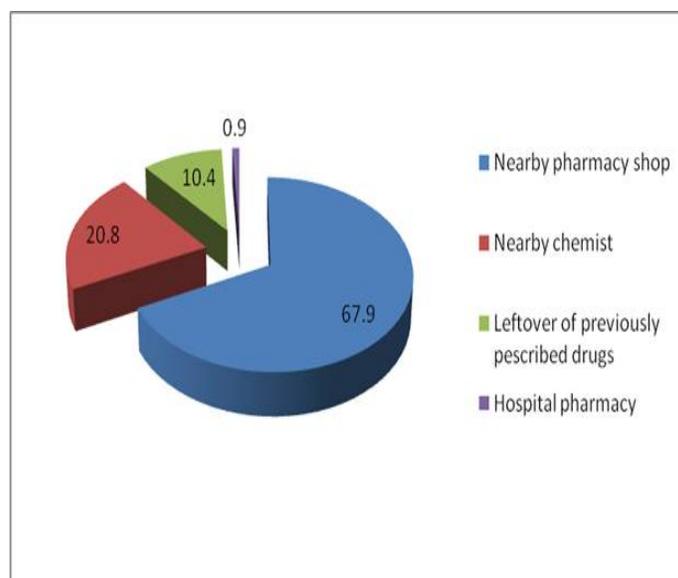


Figure 4: Sources of the self medicated antibiotics

Conclusion and Recommendations

Over half of the studied Nigerian dental students reported self medication with antibiotics in the 6 months preceding the survey. It is recommended that the government should reinforce a policy on drug dispensing and provide easily accessible and affordable healthcare.

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