



Available online at www.ujpronline.com
Universal Journal of Pharmaceutical Research
 An International Peer Reviewed Journal

ISSN: 2831-5235 (Print); 2456-8058 (Electronic)

Copyright©2018; The Author(s): This is an open-access article distributed under the terms of the CC BY-NC 4.0 which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited



RESEARCH ARTICLE

ANTIMICROBIALS SELF MEDICATION AMONG PARAMEDICAL STUDENTS IN A NIGERIAN UNIVERSITY

Muhammad Tukur Umar*^{ID}, Aluefua Omobhude Fidelis^{ID}

Department of Pharmacology and Therapeutics, Faculty of Basic Clinical Sciences, College of Health Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria.

Article Info:



Article History:

Received: 25 March 2018

Reviewed: 11 May 2018

Accepted: 14 June 2018

Published: 15 July 2018

Cite this article:

Umar MT, Fidelis AO. Antimicrobials self medication among paramedical students in a Nigerian University. Universal Journal of Pharmaceutical Research 2018; 3(3): 35-38. <https://doi.org/10.22270/ujpr.v3i3.164>

*Address for Correspondence:

Muhammad Tukur Umar, Department of Pharmacology and Therapeutics, Faculty of Basic Clinical Sciences, College of Health Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria. E-mail: um.tukur@gmail.com, Tel: +2348035124579.

Abstract

Objective: Self-medication refers to selection and use of medicines by individuals to treat self-recognized illness and symptoms. It is widely practiced globally and often regarded as part of self-care. Though, unlike the other elements of self-care, it acts as a double-edged sword with the ability to do good as well as exposure to hazards because it employs use of drugs. The objective of this study was to assess prevalence of antibiotic self-medication among paramedical students of Usmanu Danfodiyo Sokoto, Nigeria.

Methods: It was questionnaire-based, cross-sectional study involving undergraduate paramedical students in a Nigerian University. Participants were selected by multistage sampling technique and data generated was analyzed using SPSS version 20.

Majority of the respondents were males and singles, 64(68%) and 84(89.4%) respectively. Age ranged 18-25 years for majority of respondents, 87(92.6%).

Results: Total 81.9% self-medicate with antimicrobials and penicillin was the most used antibiotic group 58(61.7%), and among the penicillin group, amoxicillin was the commonly used, 17(18.1%). There was no statistically significant association between gender, marital status and course of study with self-medication ($X_1=0.06$, $p=0.81$; $X_2=0.028$, $p=0.87$ and $X_3=2.28$, $p=0.52$ respectively).

Conclusion: A high proportion of self-medication with antimicrobials was observed among the respondents of the study. However there was no statistically significant association of the medication with gender, marital status or course of study.

Keywords: Antimicrobials, Nigeria, paramedical students, self-medication, University.

INTRODUCTION

Self-medication refers to selection and use of medicines by individuals to treat self-recognized illness and symptoms¹. It is widely practiced globally and often regarded as a part of self-care. Though, unlike the other elements of self-care, it acts as a double-edged sword with the ability to do good as well as exposure to hazards because it employs use of drugs². It is much easier, to circumvent the trouble of seeing a medical doctor and the cost involved by self-medication, especially in financial and human resources constrained circumstances such as low and middle income countries. In most parts of the world, it is commonly practiced as over 50% of antibiotics are purchased without prescription³. Exorbitant costs of health care services, poor accessibility to health facilities, unregulated distribution of drugs, and inequality in the spread of health care services provide

fertile grounds for self-medication^{4,5}. Self medications for whichever purpose poses a serious public health challenge worldwide and contribute immensely to development of deadly antimicrobial resistance irrespective of age or gender¹. The magnitude of antibiotics self-medication is higher with population in developing countries among the young and literates^{6,7}. Use of antibiotics for self-medication is considered as a injudicious use of antibiotics⁸. Antibiotics resistance which may arise from self-medication currently poses one of the most important health issue globally⁹. This is more common in developing countries, where antibiotics are freely purchased over the counter without prescription¹⁰. Reasons for antibiotics resistance are multifaceted which include human factors such as self-medication¹¹. Socioeconomic status, life styles and easy accessibility to drugs have been shown to influence self-medication¹². Widespread use of antibiotics in agriculture as growth promoters

and prophylaxis in livestock has been implicated in promoting resistance¹³. The consumption of antibiotics via these processes account for 63,000 to 240,000 tons of annual global use and through food chain, resistance can be transmitted from animals to humans^{14,15}. In Nigeria antibiotics are purchased over the counter¹⁶. It is however, unfortunately not without attendant dire consequences. These penalties include but not limited to masking symptoms of serious illness, fatal adverse drug reactions, wrong diagnosis, and susceptibility to addiction, risks of under or over dosage and poly pharmacy². This is more so, with emerging more worrisome-the antimicrobial resistance. This has started rearing its ugly head years ago¹⁷. If left unchecked, it will take this generation back to pre antibiotics era of course with deadly outcome. This study therefore, aimed at assessing the prevalence of antibiotic self-medication among paramedical students of Usmanu Danfodiyo Sokoto as future key players in healthcare delivery.

METHODS

Usmanu Danfodiyo University is among the second generation Universities created in 1975. It is located in Sokoto seat of Usmaniyya caliphate. Paramedical students include Nursing, Radiography, Medical laboratory Science and Pharmacy. The first three are located in the College of Health Sciences while the last one is a faculty on its own. The trainings involve preclinical and clinical phases. At the preclinical stage, students are taught mainly basic medical courses, and proceed to the clinical levels at the Teaching Hospital which serves as referral centre for the neighboring states of Kebbi, Zamfara, Kano, Katsina and even Niger republic. The hospital is managed by various cadres of health professionals. The present study is a cross sectional descriptive study.

The respondents were selected by multistage sampling technique as follows:

Stage 1: Respondents were stratified based on course of study into nursing, pharmacy and radiography.

Stage 2: Total number of students was obtained from in each department/faculty by their study levels.

Stage 3: Total number of respondents to be selected from each department and level by proportionate allocation.

Stage 4: Actual respondents who participated in the study from the department/level were selected by sampling interval.

Questionnaire design, Validation and Data collection

The semi-structured questionnaire was derived from previous studies^{16,18,19}. It was reviewed by experts and tests were carried out for construct and content validity among students of faculty of Medical Laboratory Science. Areas of ambiguity were identified and addressed appropriately before administering. It comprised of 3 sections. Section A, contained questions on demographic characteristics, section B focused on reasons for self-medication and section C awareness of hazards associated with self-medication. The questionnaires were distributed to the volunteers and asked to fill and collected on the spot by one of the

researchers (Fidelis). Those that could not fill promptly were given the next day to complete.

Study population

Only registered students duly confirmed by the respective administrative offices of the concerned departments were recruited for the survey. Participation in this study was purely voluntary. This was clearly mentioned to the participants.

Statistical analysis

Crude descriptive statistics was calculated for the components of the questionnaire. We used Chi-square Pearson's test to ascertain association of antimicrobial self-medications with gender, marital status and course of study. Analyses were based on $p < 0.05$ and SPSS version 20 was used.

RESULTS

One hundred and fifteen questionnaires were administered and retrieved. After data cleaning, 94 were analyzed, of whom majority were males and singles, 64(68%) and 84(89.4%) respectively. The mean age was 22 ± 0.1 years and most of the respondents' age ranged 18-25 years, 87(92.6%). As a group, penicillin was the most used antibiotic group, 58(61.7%), and among the penicillin group, amoxicillin was the commonly used and recorded as, 17(18.1%). Respondents using metronidazole accounted for 17(18.1%) shown in Table 1.

Table 1: Antibiotics usage by respondents.

Antibiotic	N (%)
Ampicillin+ Cloxacillin	12(12.8)
Ampicillin	7(7.5)
Amoxicillin	17(18.1)
Penicillin G procaine	13(13.8)
Ciprofloxacin	13(13.8)
Metronidazole	17(18.1)
Erythromycin	5(5.3)
Co-trimoxazole	4(4.3)
Tetracycline	4(4.3)
Ceftriazone	3(3.2)
Chloramphenicol	1(1.1)

NB: Some respondents mentioned more than 1 drug

On where the respondents purchased drugs, 44(46.8%) bought from Pharmacists' store while 24(25.5%) from 'Chemists' and only 1(1.5%) from street hawkers. The rest obtained drugs from hospital pharmacy and patent medicine stores 7(7.5%) and 18(19.2%) respectively. Headaches, skin rashes and dizziness were the serious adverse effects experienced by the respondents (52.9%) each and 17.7% respectively. Association between gender, marital status and course of study with self-medication were recorded. ($X_1=0.06$, $p=0.807$, $df=1$; $X_1=0.028$, $p=0.868$, $df=1$; $X_3=2.281$, $p=0.516$, $df=3$ respectively).

DISCUSSION

A high response rate recorded which could be attributed to on spot administration and collection of data. Female respondents constituted minority in our study which differs from the findings of similar

works^{20,21}. Girl child education is still an obstacle in this part and most part of northern Nigeria and always reflects in enrolments in tertiary level of education and other formal sectors of economy²². The proportion of respondents who self-medicate with antibiotics observed in this study was quite higher than Southern India and China where it was reported as 39.3 and 47.9% respectively^{23,24}. Antibiotics are sold over the

counter in Nigeria and may be responsible for the high percentage recorded in the study. This is really worrisome and regulatory bodies saddled with the responsibility of monitoring drugs need to develop a policy frame work to curtail this menace by striking a balance between control and access to antimicrobials to vast majority especially in areas where healthcare manpower is overstretched.

Table 2: Responses of respondents on reasons for self-medication.

Question	Yes, N(%)	Odds	95% CI lower	95% CI higher
SM with antibiotics last 1 year	77(81.9)	4.529	2.695	7.614
To Save time	77(81.9)	4.529	2.695	7.614
To Save money	52(55.3)	1.238	0.827	1.854
Past successful use	74(78.7)	3.700	2.269	6.034
Left over medicines	43(45.7)	0.843	0.564	1.262
Academic knowledge	75(79.8)	3.947	2.399	6.497
To avoid stress of seeing a doctor	70(74.5)	2.917	1.482	4.618
The drug has worked successfully in acquaintances before	74(78.7)	3.700	2.269	6.034
No need to consult a doctor for minor illness	59(62.8)	1.686	1.113	2.553
Unfavourable attitudes of health care workers	52(55.3)	1.238	0.827	1.854
Lack of confidence in health care giver	57(60.6)	1.541	1.022	2.323
Encounter with adverse drug effects following self-medication	17(18.1)	0.221	0.131	0.371
Awareness that self-medication can be harmful to health	76(80.9)	4.222	2.539	7.019

SM= self-medication

The finding of this study showed that penicillin as a group was the most commonly used for self-medications. This was in accordance with the observations made by Fadare and Tamuno²⁵. This may be explained by the fact that Penicillin were among the earlier antibiotic that are still clinically relevant currently because of their broad spectrum antibacterial activities, less side effects, affordability, safety profile and efficacy²⁶. Among the penicillin group, amoxicillin was the most frequently cited, a finding reechoing reports in previous studies^{19,20,21}. Saving money, time and presence of left over drugs as reasons for self-medication were quite higher than 44, 19 and 16% respectively reported in Karachi²⁷. This may be explained by prevailing economic recession being experienced in the country. A good proportion of participants admitted lack of confidence in health care providers prompted them to self-medication which differed from finding in Lagos²⁸. On the awareness of dangers associated with self-medication, the finding of this study was higher than 51.2% reported in India²⁹. This is really encouraging and strengthens hope of improved rational drug use as the respondents were the future captains of health care delivery system. It was encouraging that majority of respondents procured their drugs from approved designations. Previous study in the study area had documented that non-medical students of University tend to purchase their drugs from unauthorized outlets³⁰. There was no association observed between antibiotic self-medication with gender, marital status or course of study. This finding was different from what was documented earlier that

female students were more inclined to self-medication than their male counterpart^{19,24}.

CONCLUSIONS

This study has revealed high prevalence of antimicrobial self-medication among undergraduate paramedical students of Usmanu Danfodiyo University. No association was established of the self-medication with gender, marital status or course of study. There is need for intervention study to stem the tide of self-medication.

ACKNOWLEDGEMENTS

The authors extend their thanks and appreciation to the Usmanu Danfodiyo University, Sokoto, Nigeria to provide necessary facilities for this work.

AUTHOR'S CONTRIBUTION

Umar MT: formal analysis, writing, review, and editing. **Fidelis AO:** writing, review, and editing, investigation, data curation, conceptualization. All authors read and approved the final manuscript for publication.

DATA AVAILABILITY

The data and material are available from the corresponding author on reasonable request.

CONFLICT OF INTEREST

None to declare.

REFERENCES

- World Health Organization. The role of pharmacist in self-care and self medication; 2011.
- Hughes CM, Mc Elnay JC, Fleming GF. Benefits and risks of self medication. *Drug Safety* 2001; 24(14):1027-37. <https://doi.org/10.2165/00002018-200124140-00002>
- Morgan DJ, Okeke IN, Laxminarayan R, Perencevich EN, Weisenberg S. Non-prescription antimicrobial use worldwide: A systematic review. *Lancet Infect Dis* 2011; 11:692–701. [https://doi.org/10.1016/S1473-3099\(11\)70054-8](https://doi.org/10.1016/S1473-3099(11)70054-8)
- Esimone CO, Nworu CS, Obina PU. Utilization of Antimicrobial agents with and without prescriptions by Out-patients in selected pharmacies in south-eastern Nigeria. *Pharm World Sci* 2007; 29:655–60. <https://doi.org/10.1007/s11096-007-9124-0>
- Yousef AM, Al-Bakri AG, Bustajani Y, Wazaify M. Self-medication patterns in Amman, Jordan. *Pharm World Sci* 2008; 30(1):24–30. <https://doi.org/10.1007/s11096-007-9135-x>
- Napolitano F, Izzo MT, Di Giuseppe G, Angelillo IF: Public knowledge, attitudes, and experience regarding the use of antibiotics in Italy. *PloS One* 2013; 8 (12): e84177 10.1371. <https://doi.org/10.1371/journal.pone.0084177>
- James H, Handu SS, Al Khaja KA, Otoom S, Sequeira RP: Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. *Med Princ Pract* 2006; 15 (4): 270-5. PMID: 26009650
- Grigoryan L, Burgerhof JG, Haaijer-Ruskamp FM, Degener JE, Deschepper R, Monnet DL *et al.* Is self-medication with antibiotics in Europe driven by prescribed use? *J Antimicrob Chemother* 2007; 59(1):152-6. <https://doi.org/10.1093/jac/dkl457>
- Bell BG, Schellevis F, Stobberingh E, Goossens H, Pringle M. A systematic review and meta-analysis of the effects of antibiotic consumption on antibiotic resistance. *BMC Infect Dis.* 2014; 14:13. <https://doi.org/10.1186/1471-2334-14-13>
- Olayemi OJ, Olayinka BO, Musa AJ. Evaluation of antibiotic self medication: Pattern amongst undergraduate students of ABU (main campus) Zaria. *J App Sci Res* 2010; 2(1):35-38
- Ramanan L, Adriano D, Chand W, Anita KMZ, Heiman FLW, Nithima S. *et al.* Antibiotics resistance – the need for global solutions *Lancet* 2013;13(12):1057-1098 [https://doi.org/10.1016/S1473-3099\(13\)70318-9](https://doi.org/10.1016/S1473-3099(13)70318-9)
- World Health Organization. The Role of pharmacist in Health Care System; 1998. Available from: <http://www.apps.who.int/medicinedocs/en/d/Jwhozip32e>. [Accessed 29th August, 2017, 18:44]
- Ventola CL. The antibiotic resistance crisis: part 1: causes and threats. *P T.* 2015; 40(4):277–283. PMID: 25859123
- Landers TF, Cohen B, Wittum TE, Larson LE. A review of antibiotic use in food animals: perspective, policy, and potential. *Public Health Rep* 2012; 127(1):4–22. <https://doi.org/10.1177/003335491212700103>
- Grace D. Review of Evidence on Antimicrobial Resistance and Animal Agriculture in Developing Countries, Evidence on Demand. International Livestock Research Institute 2015. https://doi.org/10.12774/eod_cr.june2015.graced
- Eshiet UI, Essien GE, Effiong GS, Ekwueme C. Self-Medication with Antibiotics amongst Civil Servants in Uyo, Southern Nigeria. *J Adv Medical Pharmac Sci* 2015; 2(3):89-97. <https://doi.org/10.9734/JAMPS/2015/15147>
- Aboderin OA, Abdu A, Odetoyin KW, Lamikara A. Antimicrobial resistance in *Escherichia coli* strains from urinary tract infections isolates. *J Nat Med Assoc* 2009; 101:1268-1273. <https://doi.org/10.1292/jyms.13-0281>
- Kasulkar AA, Gupta M. Self medication practices among medical students of a private institute. *Indian J Pharm Sci* 2015; 77(2):178-182. PMID: 26009650
- Núñez N, Tiasierra-Ayala M, Gil-Olivares F. Antibiotic self medication in University students from Trujillo. *Medicina Universitaria* 2016; 18(73):205-09 <https://doi.org/10.1016/j.rmu.2016.10.003>
- Suleiman IS, Rubian SS. Antibiotics use with and without prescriptions in Healthcare students. *American J Pharmacol Sci* 2013; 1(5):96-99 <https://doi.org/10.12691/ajps-1-5-5>
- Sarahroodi S, Arzi A, Sawalba AF, Ashtarinezhad A. Antibiotics Self medication among Southern Iranian University students. *Int J Pharmacol* 2010; 6(1):48-52 <https://doi.org/10.3923/ijp.2010.48.52>
- Nmadu G, Avidime S, Oguntade O, Dashe V, Abdulkarim B, Mandara M. Girl Child Education: Rising to the Challenge. *African J Reproduc Heal* 2010; 14(3):107-12
- Kumar N, Kanchan T, Unnikrishna BT, Mithra P, Kulkarni V, Papanna MK, Holla R, Uppal S. Perceptions and practices of self medication among medical students in coastal south India. *PLOS one* 2013; 8(8):e72247 <https://doi.org/10.1371/journal.pone.0072247>
- Zhu X, Pan H, Yang Z, Cui B, Zhang D, Ba-Thein W. Self medication practices with antibiotics among Chinese University students. *Public Health* 2016; 130:78-83. <https://doi.org/10.1111/imi.12322>
- Fadare JO, Tamuno I. Antibiotic self medication among University medical undergraduates in northern Nigeria. *J Pub Heal Epidem* 2011; 3(5):217-220.
- Guqkaeva Z, Crago JS, Yesnogorodsky M. Next step in antibiotic stewardship: Pharmacist –provided penicillin allergy testing. *J Clin Pharm Ther* 2017; 42(2): 509-512. <https://doi.org/10.1111/jcpt.12530>
- Syed J, Hammah A, Rija BR, Sidra N, Mirrah M, Muhammad HJ, *et al.* Self medication with antibiotics among non-medical University students of Karachi: a cross-sectional study. *BMC Pharmacol Toxicol* 2014; 15:74. <https://doi.org/10.1186/2050-6511-15-74>
- Ogunnowo BE, Olunfulayo TF, Sule SS. Client perceptions of service quality at out- patient clinics of a General Hospital in Lagos, Nigeria. *Pan African Medical J* 2015; 22:68. <https://doi.org/10.11604/pamj.2015.22.68.6228>
- Gupta S, Singh M. Self medication among north Indian first year undergraduate healthcare students: a questionnaire-based study. *Trop J Med Res* 2016; 19(2):162-167. <https://doi.org/10.4103/1119-0388.185448>
- Umar MT, Bello SO, Chika A, Jimoh AO, Sabir AA. Attitude of University students towards fake drugs in Sokoto Northwest, Nigeria. *Int J Innov Res Dev* 2014; 3(9): 158-161.