Journal of Science, Innovation and Creativity
www.utafitionline.com/index.php/jsic

Prevalence of Self- Medication Practice and Associated Factors Among Kabarak University Students

[1]Sindani N. Elizabeth, [2]Michael N. Walekhwa, [3]Filex O. Otieno, [4]Esbon N. Wambugu

ABSTRACT

Rational practice of self-medication confers beneficial effects to the user although the reverse is equally true. Benefits include self-reliance in managing minor illnesses and reduction in medical costs. Untoward effects associated with the practice include emergence of antibiotic resistance, toxicities in cases of overdose and development of tolerance. While self-medication practice has some positive side, the negative effects requires that the extent of its practice is established and where necessary, regulatory interventions considered. Currently, these data are either limited or completely lacking. We therefore assessed the prevalence of self-medication practice and associated factors among students in Kabarak university. Survey-descriptive research design was employed to study students in Kabarak University. Questionnaires were used to collect data from a sample size of 369 participants. Multistage stratified convenient sampling technique was used to select study participants. Ethical and study approval were obtained prior to data collection. Out of the 368 respondents, 82% practiced self-medication with majority being females (195). School of pharmacy reported the highest prevalence rate (22%) among the seven schools in Kabarak University. The main symptom prompting self-medication was reported to be headache (37%) and respiratory associated conditions. Friends and family members were the most common source of information and drug use for self-medication. Majority of participants stated that long delays in the process of seeking for conventional medical attention exacerbated the practice of self-medication. Paracetamol and antibiotics were the most common drugs used for self-medication. Majority of students sampled practice self-medication. Considering the associated negative effects, targeted sensitization programs should be designed and implemented to scale down the practice.

Keywords: ***Self-medication, headache, antibiotic resistance, students, Kabarak University***

Submitted: 22nd August 2022

Accepted: 12th October 2022

Published: 12th October 2022

Author Details

[1]S. N. Elizabeth
School of Pharmacy,
Kabarak University.
sindanielizabeth@gmail.com

[2]M. N. Walekhwa
Department of Biomedical Sciences,
Kabarak University.
walekhwam@gmail.com

[3]F. O. Otieno*
School of Pharmacy
Kabarak University.
Filexotieno27@gmail.com

[4]E. N. Wambugu
School of Pharmacy,
Kabarak University.
ewambugu@kabarak.ac.ke

Corresponding Author
[3]Filex O. Otieno
School of Pharmacy
Kabarak University.
Filexotieno27@gmail.com

I. INTRODUCTION

As people become more self-aware and knowledgeable, they develop a sense of independence in terms of decisions and choices they make. Interestingly, it is not only self-awareness and knowledge but also confounding factors that make people to make self-independent choices. These confounding factors include peer influence, social status, and childhood background. In particular, it has been noted in how pharmaceutical products are used by the general populace. Self-medicating is nowadays a common encounter especially with the skepticism that surrounds how and why doctors prescribe a given medicine. Self-medication may be defined as the selection and use of drug formulations by a person to treat a condition or its symptom that they have self-diagnosed themselves (Ruiz, 2010). While this practice is beneficial if properly undertaken, it may have detrimental effects if irrationally practiced. Benefits of self-medication range from individual level to the community level include: creation of self-reliance in managing minor illnesses, reduction of medical costs and promotion of community knowledge in terms of disease management. On the contrary, irrational use may cause shortages, development of resistance and occurrence of toxicities.

Analgesics and antibiotics are the commonly self-prescribed medicines. Paracetamol and NSAIDS are

common self-medications for headache (Sawalha., 2008). On the other hand, tetracycline, amoxicillin and metronidazole are the most self-prescribed medications as reported by Debora et al. (2018). Sources of self-medicated drugs vary and studies have shown that they can be from first aid kits, community pharmacy, herbalists, retail shops or from friends and relatives (Galan et al, 2021; Zeru 2020). These medications are used to treat mild respiratory infections, diarrhea, cough tonsillitis, fever and headache (Shaffle et al. 2018; Selvaraj et al., 2014, Chipwaza et al., 2014 & Jassim 2010).

Prevalence of self-medication across the world varies depending on the methodology used for study. In United States of America (USA), 82% of women and 71% of men practice self-medication at least once in a period of 6 months (Hong et al, 2005) while; in the United Kingdom, 41.5% of people have been reported to have practiced self-medication (Singh et al, 2014). About 27% of people in Spain, mainly self-medicate for pain management (Bassols et al, 2008). A self-medication prevalence of 78% was reported in coastal south India (Kumar,2013). Among medical students and those doing health related courses in Ethiopia, 38.5% practice self-medication (Abay and Amelo,2010). Similarly, 92% of pharmacy students in Guntur have been reported to practice self-medication (Mounicca, 2014). In Kenya, there is no clear record on the prevalence rate nationally but a survey done in Kisumu showed that 74% of patients had practiced self-medication before visiting a health center (Kimoloi et al., 2013). In addition, Onchonga and Omwoyo (2020) reported a self-medication prevalence rate of 59.6% among students with university student having higher prevalence than college students. Against this backdrop, we determined the prevalence of self-medication practice and associated factors among students in Kabarak university.

II. METHODS

Survey research design was employed for this study. The research was carried out in Kabarak University. The institution has seven schools. As of October 2021, the student population of the University was at 9000. Sample population was randomly selected from the seven schools. All participants had to be undergraduate students at the institution and were to be in session during the study period. A sample size of 369 students was determined using Fisher's formula for a population less than 10,000 (Fisher et al., 1998). Multistage stratified convenient sampling technique was used to select participants from the 7 schools i.e., the sample size was distributed proportionately to each school forming 7 strata, each stratum was then stratified into various study years from where participants were randomly selected. Both open and closed-ended questionnaires were used to collect data. validity and reliability of the research instruments was achieved by conducting a pretest. Collected data were analyzed using Statistical Package for the Social Sciences (SPSS) and presented inform of tables.

Study approval was sought from the school of pharmacy, Kabarak university. Ethical approval was obtained from Kabarak University Research Ethics Committee (KUREC-130622). Permission to collect data was given by the National Commission for Science, Technology & Innovation (NACOSTI/P/22/19177). Permission to collect data was also sought from the Kabarak University management board. Participation in this study was voluntary and participants had to sign the consent form willing fully after being elaborated on what the study entailed. Confidentiality was strictly upheld by the researcher and data collected were stored in a password protected document in a flash disk which can only be accessed by the principal investigator for a period of two years after which the data will be deleted and the flash disk destroyed. Questionnaires containing the responses will be shredded three years post completion of research. Personal information of the participants such as the name and registration numbers were not recorded to ensure subject confidentiality and privacy.

III. RESULTS

A. Socio-Demographic Characteristics

Four socio-demographic characteristics of participants were investigated. These were distribution of participants based on gender (table 1), age (table 2), school (table 3) and year of study (table 4).

Table 1:

Gender Distribution of Participants

Gender	Frequency
Male	47% (173)
Female	53% (195)

Table 1 shows majority of participants were females (53%) compared to males (47%).

Table 2:

Age Distribution of Participants

Age cohort	Frequency
<18 years	20 (5%)
18 – 25 years	326 (89%)
>25 years	22 (6%)

Table 2 shows majority of participants were aged between 18-25 years (89%) which is a common occurrence among universities. Least were those aged below 18 years (5%) as they were probably first year students.

Table 3:

Distribution of Participants Per School

School	Frequency
Business	56 (15%)
Education	60 (16%)
Law	43 (12%)
Medicine and health sciences	41 (11%)
Pharmacy	80 (22%)
Music and media	30 (8%)
Science, engineering and technology	58 (16%)

Table 3 shows majority of participants were from the school of pharmacy (22%) followed by school of education and school of science, engineering and technology (16%), school of business (15%). Least participation was from school of music and media (8%) probably due to their small population.

Table 4:

Distribution of Participants According to Year of Study

Year of study	Frequency
First	23 (6%)
Second	128 (35%)
Third	100 (27%)
Fourth	81 (22%)
Fifth	36 (10%)

Table 4 shows majority of participants were students in their second year of study (35%) followed by those in third year of study (27%). Least were student in their first year of study (6%).

B. Prevalence of Self-Medication

Table 5 below shows number of participants who have ever practiced self-mediation and the number of times they have done it.

Table 5:

Prevalence of Self-Medication Among Students in Kabarak University

Variable	Yes (at least once)	No
Has ever practiced self-medication	303 (82%)	65 (18%)
	Distribution	
Frequency of practice	1-2 times	150 (41%)
	3-5 times	102 (28%)
	6-9 times	16 (4%)
	> 10times	35 (18%)
	Never	65 (18%)
Has ever practiced self-medication + illness in past 6 months	Yes	268 (88%)
	No	35 (12%)
Has never practiced self-medication but illness present in past 6 months	Yes	10 (15%)
	No	55(85%)

82% of the population practiced self –medication in the past 6 months before the study was carried out. Among the 82%, 88% had been ill while self-medicating. 18% of the population had not practiced self-medication in the past 6 months before the study and 85% of them had not been sick. When asked how many times they had practiced self-medication in the past 6 months, 41% of the population reported to have practiced self-medication once or twice and 9% had practiced it more than 10 times while 18% of the population had never practiced self-medication.

C. Common Illnesses that Prompt Self-Medication and Drugs that are Self-Medicated

Table 6 tabulates frequency of illnesses that prompted indulgence in self-medication while table 7 shows the drugs that were commonly used for self-medication among the students.

Table 6:

Illnesses that Prompted Self-Medication Among Students

Illness	Frequency
Headache	117 (37%)
Respiratory illnesses	70(22%)
Abdominal pain	35(11%)
Fever	19(6%)
Dysmenorrhea	15(5%)
Infections	15(5%)
Malaria	10(3%)
Joint pain	8(2%)
Other	9(3%)

Out of 368, 51 participants reported that no illness prompted them to self-medicate. Of the remaining 317, 37% reported they self-medicated because of headache. 3% reported other illnesses such as nausea, vomiting, diarrhea, toothache, constipation and food poisoning as the illnesses that caused them to self-medicate. Second common illness was cold, flu, cough and other respiratory related illnesses (22%) of the population followed by abdominal pain (11%) of the population, fever (6%) and dysmenorrhea and infections at 5% each. The least common was joint pain accounting for 2% of the population.

Table 7

Drugs Student Commonly Used to Self-Medicate

Drug used for self-medication	Frequency
Paracetamol	80 (34.2%)
Antibiotics	57 (24.4%)
NSAIDS	31 (13.2%)
Antihistamines	26 (11.1%)

Cough medicines	16 (6.8%)
Antimalarial	6 (2.6%)
Other	18 (7.7%)

Out of the total population of 368, 134 of the participants either did not remember the name of the medicine they had used or had not self-medicated in the past 6 months. The most frequently used medicine was Paracetamol (34.2%), followed by Antibiotics (24.4%), NSAIDs (13.2%), antihistamines (11.1%) and cough medicines (6.8%). The least used was antimalarial (2.6%).

D. Sources of Information for Medications that are Self-Medicated

Table 8 illustrates the various sources of medicines and drug-related information while table 9 presents the frequency of various reasons given by students at to why they practice self-medication.

Table 8:

Sources of Drug and Drug-Related Information

Source of drugs	**Frequency**
	267 (72.4%)
	56 (15.2%)
Pharmacy	31 (8.1%)
General Shop	14 (3.8%)
Other	2 (0.5%)
Source of drug-information	
Opinion of friends and family	186 (50.41%)
Social media	58 (15.72%)
Old prescription of a doctor	50 (13.55%)
Persuasion by a sales man at a chemist	38 (10.3%)
Advertisements	13 (3.52%)
Learning from class	13 (3.52%)
Left over medicines	3 (0.81%)
Other	7(2.17%)

Majority of respondents accessed drugs from pharmacies (72.4%). General shop (15.2%), and given by friends, family (8.1%). Some mentioned primary healthcare center (3.8%) has a source for self-medication practices. Other mentions (0.5%) included home left over drugs. The total number of responses is higher than the number of participants because it was a multiple-choice question and a participant could choose more than 1 answer. Of the total respondents,50.41% found information from opinion of their friends and family, 15.72% from social media, 13.55% from old prescription of a doctor, 10.3% from persuasion by a sales man at a chemist, 3.52% from both advertisements and learning from class and 3% from left over medicines. Other sources given by participants included: Learning from clinical sessions, General knowledge, previous work experience in a chemist and movie.

Table 9:

Reasons Given by Students for Self-Medicating

Reasons for practicing self-medication	**Frequency**
Long delays in health facility	101 (27.4%)
Cost cutting	80 (21.7%)
Lack of time	64 (17.4%)
Availability of information in the internet	52 (14.1%)
Minor illness	40 (10.9%)
Previous experience of either the drug or the illness	19 (5.2%)
Lack of clinician	6 (1.6%)
Other	6 (1.6%)

The most frequently reported cause of self-medication was long delays in healthcare facility (27.4%) followed by cost cutting (21.7%) and the least reported cause was lack of clinician (6%). Other reasons given included: Family member is in the medical field, clinical knowledge of the drug and privacy.

IV. DISCUSSION

A total of 368 questionnaires were duly filled giving a response rate of 99% which is adequate enough for data analysis. The prevalence of self-medication among undergraduate students in Kabarak University was noted to be at 82%. These findings are congruent with those obtained in other studies done among institutions of higher learning across the world. For instance, Deborah et al. (2018) showed that a private university in Nigeria had a prevalence of 81.8% while Patel et al. (2013) reported prevalence of 88% in Gujarat university. In addition, a prevalence of 86.4% and 87% was noted among students in Rio Brazil and North India respectively (Correa et al., 2012). In contrast to the above reported prevalence, other studies done in Uganda and Ethiopia depict a lower prevalence at 63.5% and 43% respectively (Niwandinda et al.,2020; Gutema et al., 2011). The varied prevalence rates noted across different parts of the world shows just how many confounding factors exist that influence results. Factors such as the academic program of the students surveyed, laws governing drug use within a country, strength of pharmacovigilance and regulatory authorities in ensuring appropriate use of medications influence a lot on prevalence rate.

Notably, 88% of those who self-medicated were also reported to have been ill during the period of self-medication while; 85% of those who had not practiced self-medication for six months preceding the study period did not report being ill. Thus, we can point out that self-medication is not purposely and mainly used to abuse drugs. Since medication warrants a dose schedule, self-medicating patients tend to take medicines if they notice signs and symptoms. Majority of the participants (41%) had self-medicated once or twice with 9% having self-medicated more than 10 times. In particular, female subjects were reported to practice self-medication more than their male counterparts. This is analogous to the

study done by Deborah et al. (2018) that reported female students as main elements in the use of over-the-counter medicine; but contradicts findings of a study done by Badiger et al. (2012) in South India where more male students practiced self-medication than female students. Among the student participants, majority of those practicing self-medication were in second year of study compared to other years of study and within the age bracket of 18-25 years. Additionally, the school of pharmacy had the highest rate of self-medication practice attributable to their richness in knowledge about drug use and related information.

Participants reported headache (37%) as the major symptom for which they were self-medicating. Respiratory ailments followed in second (22%) while others reported abdominal pain (11%), fever (6%), dysmenorrhea (5%) and infections (5%). Other rare indications were malaria, joint pains, nausea and vomiting, food poisoning and constipation. Majority of above indications are common clinical presentations of various diseases; while some such as headache may just be mild. It is noteworthy that self-medication practice is generally for symptomatic management. Paracetamol, a common analgesic was the mostly used drug for self-medication followed by antibiotic agents. Paracetamol has a wide therapeutic window requiring almost daily intake of 4g for toxicities to set in thus a common over the counter drug. Antibiotics differ in terms of therapeutic window with some having wider others narrower. The antibiotics procured were used to treat cough, common cold, sore throat and mild infections. Amoxicillin (26%), Metronidazole (21%) and Ciprofloxacin (18%) were the mostly used antibiotics. The high use of antibiotics is an alarming problem, as their misuse increases the risk of developing drug resistance but this is not the case in other countries. A study done by Abay and Amelo (2010) in Ethiopia reported low prevalence of self-medication involving antibiotics (4.8%).

Majority of the participants (50.41%) sourced the information about which drug to use from family members and friends. Other information sources were social media (15.72%), old prescriptions (13.55%), salesperson in a chemist outlet (10.3%) while; 3% procured drugs and related information from advertisement and left-over medicines. Main reasons given for self-medication by the students were that seeking medical attention from established health facilities was time-consuming, non-reliable and expensive. Most of the medicines used for self-medication were purchased from pharmacy outlets (72.4%), general shops (15.2%) and 8.1% of participants got drugs from friends, family or left-over medicines. Thus, it can be noted that inadequate restrictions for selling of drugs tend to lure students to opt for self-medication. The most frequently reported cause of self-medication was long delays in the process of seeking for medical attention in health facility (27.4%) followed by cost cutting (21.7%), lack of time (17.4%), availability of information in the internet (14.1%), minor illness (10.9%), previous experience of either the illness or the medicine (5.2%) and the least reported cause was lack of clinician (6%). Other reasons given were: family member is being in the medical field, clinical knowledge of the drug and privacy.

V. CONCLUSION

In conclusion:

i. Prevalence of self-medication among students in Kabarak University is high at 82%.
ii. The main cause of self-medication was long delays in the process of seeking for medical attention in the health facility.
iii. Paracetamol and antibiotics were the major drugs students used for self-medication.
iv. Ailments that students treated through self-medication were mostly headaches, cough and respiratory related conditions.
v. Opinion from friends and family members was the major source of information on which drugs to self-medicate with.

VI. RECOMMENDATIONS

Based on the conclusion, we recommend:

i. The health center at Kabarak University to revisit their policies and come up with policies that minimizes time it takes to seek medical attention.
ii. Students should seek health related information from certified and licensed people and institutions offering healthcare services.
iii. Pharmacy outlets to offer counselling and drug use information for student patients who frequently purchase over the counter medications especially antibiotics.
iv. Regulations on the sale of antibiotics as over the counter medicines and for minor illnesses should be adhered to and properly followed.

VII. CONFLICT OF INTEREST

Authors declare no conflict of interest.

VIII. REFERENCES

Abay, S. M. & Amelo, W. (2010). Assessment of self-medication practices among medical, pharmacy and health science students in

Gondar University, Ethiopia. *Journal of young pharmacists: JYP*, 2(3), 306-310. https://doi.org/10.4103/0975-1483.66798.

Badiger, S., Kundapur, R., Jain, A., Kumar, A., Pattanshetty, S., Thakolkaran, N., Bhat, N., & Ullal, N. (2012). Self-medication patterns among medical students in South India. The Australasian medical journal, 5(4), 217–220. https://doi.org/10.4066/AMJ.2012.1007

Bassols A, Bosch F, Baños J.E. (2008). How does the general population treat their pain? A survey in Catalonia, Spain. *Journal of Pain and Symptom Management*. 23(4):318–328. https://doi.org/10.1016/S0885-3924 (01)00415-8

Chipwaza, B., Mugasa, J. P., Mayumana, I. (2014). Self-medication with antimalarials is a common practice in rural communities of Kilosa district in Tanzania despite the reported decline of malaria.*Malaria Journal*. https://doi.org/10.118611475.13.252

Correa de Silva, M. G., Soares, M.C.F. & Mucillo-Baisch, A.L (2012), Self-medication in university students from the city of Rio Grande, Brazil. *BMC Public Health* 12(1),339. https://doi.org/10.1186/1471-2458-12-339

Deborah, E.T.,Fasoro, A. A.,Odesanya, O. E.,Esan, T. O.,Ojo, E. F.,& Faeji, C. O.(2018). Assessment of self-medication practices and its associated factors among undergraduates of a private university in Nigeria. Journal of environmental and public health, 5439079. https://doi.org/10.1155/2018/5439079

Galan Andres, M. I., Guijo Blanco, V., Casado Verdejo, I., Iglesias Guerra, J. A.,& Fernandez Garcia, D. (2021). Self-medication of Drugs in Nursing Students from Castile and Leon (Spain). *International journal of environmental research and public health*, 18(4): 1498. https://doi.org/10.3390/ijerph18041498

Gutema, G. B., Gadisa, D. A., Kidanemariam, Z. A., Berhe, D. F., Berhe, A. H., Hadera, M. G. & Abrha, N. G. (2011). Self-medication practices among health sciences students: the case of Mekelle University. Journal of Applied Pharmaceutical Science, (Issue), 183-189. https://japsonline.com/admin/php/uploads/325_pdf

Hong, S.H., Spadaro, D., West, D. and Tak, S.H. (2005), Patient valuation of pharmacist services for self-care with OTC medications. *Journal of Clinical Pharmacy and Therapeutics*, 30: 193-199. https://doi.org/10.1111/j.1365-2710.2005.00625.x

Jassim, A.M. (2010). In home drug storage and self-medication with antimicrobial drugs in Bashr, Iraq. *Oman medical journal*, 25(2), 79-87. https://doi.org/10.5001/omj.2010.25

Kimoloi, S., Nicky, 0., Bartholomew, N. O. and Bernard, K. L. (2013). Choice and sources of antimalarial drugs used for self-medication in Kisumu, Western Kenya. *African journal of pharmacology and therapeutics* 2(4), 124-129. https://journal.uonbi.ac.ke/ajpt/article/view/1176

Kumar, N., Kanchan, T., Unnikrishnan, B., Rekha, T., Mithra, P., Kulkarni, V., et al. (2013) Perceptions and Practices of Self-Medication among Medical Students in Coastal South India. *PLoS ONE*. 8(8): e72247. https://doi.org/10.1371/journal.pone.0072247

Mounicca Bollu, Badduri Vasanthi, Pothina Sushma Chowdary, D. S. Chaitanya, P. S. Nirojini, Rama Rao Nadendla. (2014). Prevalence of self-medication among the pharmacy students in Guntur. *World Journal of pharmaceutical Science* 3(12), 810-826. www.wjpps.com, 3, 826–836.

Niwandinda, F., Lukyamuzi, E.J., Ainebyona, C.,Ssebuny, V.N, Murungi, G.,&Atakunda, E.C.(2020). Patterns and practices of self-medication among students enrolled at Mbarara University of Science and Technology in Uganda. *Integrated pharmacy research &practice*,9, 41. DOI: 10.2147/IPRP.S237940

Onchonga, D., Omwoyo, J., & Nyamamba, D. (2020). Assessing the prevalence of self-medication among healthcare workers before and during the 2019 SARS-CoV-2(COVID 19) pandemic in Kenya. *Saudi pharmaceutical journal: SPJ: the official publication of the Saudi Pharmaceutical Society*, 28(10), 1149-1154. https://doi.org/10.1016/j.jsps.202.08.003

Patel, M. M., Singh, U., Sapre, C., Salvi, K., Shah, A., & Vasoya, B. (2013). Self-medication practices among college students: a cross sectional study in Gujarat. Natl J Med Res, 3(3), 257-60. http://njmr.in/uploads/3-3_257-260.pdf

Ruiz, M. (2010). Risks of self-medication practices. *Current Drug Safety*, *5*(4), 315-323. https://doi.org/10.2174/157488610792245966

Sawalha, A. F. (2008). A descriptive study of self-medication practices among Palestinian medical and nonmedical university students. *Res Social Adm Pharm*. 4(2):164-172. https://doi.org/10.1016/j.sapharm.2007.04.004

Selvaraj, K., Kumar, S. G., &Ramalingam, A. (2014). Prevalence of self-medication practices and its associated factors in urban puducherry, India. *Perspectives in clinical research*, 5(1), 32-36. https://doi.org/10.4103/2229-3485.124569

Shaffie, M., Eyasu, M., Muzeyin, K., Worku, Y., Martin-Aragon (2018). Prevalence and determinants of self-medication practices among selected households in Addis Ababa community. *PLoS ONE* 13(3): e0194122. https://doi.org/10.1371/journal.pone.0194122

Singh, I., Bard, I., & Jackson, J. (2014). Robust resilience and substantial interest: a survey of pharmacological cognitive enhancement among university students in the UK and Ireland. *PLoS ONE* 9(10): e105969. https://doi.org/10.1371/journal.pone.0105969

Zeru, N., Fetene, D., Geberu, D. M., Melesse, A. W., & Atnafu, A. (2020). Self-medication Practice and Associated Factors among University of Gondar College of Medicine and Health sciences students: a cross-sectional study. *Patient Preference and Adherence*, 14: 1779-1790. https://doi.org/10.2147/PPA.S274634