Prevalence, Knowledge, Practice and Perception of Self Medication among Pharmacy Students in a Nigerian tertiary Institution

Mgbahurike A. A. | Nenwi G. F

Abstract
The practice of self-medication has become a form of self-care and is a global trend that is encouraged when it deals with minor illnesses and with proper guide and information. In countries where there are no strict regulations and prescription drugs are freely dispensed, ir-responsible self-medication is common. This study aimed to assess the prevalence, knowledge, practice and perception of self-medication among pharmacy students in University of Port Harcourt. The study included all pharmacy students from 200L to 500L who gave their consent to participate. Ethical approval was obtained from the University Ethics and Research Committee. Descriptive cross sectional study design was adopted. Pre-tested structured questionnaire was used to collect the required data. The questionnaire was structured in four parts: demographic; knowledge; practice and perception sections. A total of 476 pharmacy students responded and gave their consent to the study. 42.4% (202) were male and 57.6% (274) were female. The mean age of the population was 24.55±5.32years. Most of the respondents, 49.2% (234), were within the age of 20 – 25years, while 4.4% (21) were more than 30years. Most, 94.7% (451) were single. 37% were in 200L, 22.9% (109) in 400L, and 18.9% (90) in 500L. Prevalence rate of self-medication among these students was 83.8%. A significant (p>0.05) percentage, 69.8% (327) showed good knowledge of self-medication and agreed to the need to consult health professional before consuming medicines, and yet a good number, 51.4% (245) often practice self-medication. The most common source of information for their self-medication was textbooks/class materials, 31.1% (148). The respondents showed positive perception towards self-medication as many, 40.3% (192) claimed that self-medication is right /safe and should be encouraged. Knowledge about the medicine used (91.8%) (437) was the commonest reason for self-medication, while analgesic/antipyretic (91.6%) (436) was the commonest class of medicines used for self-medication. The next common class of medicine was antibiotics, (84.7%) (403) and herbal remedy was the least, 15.5% (74). Fever, 83.6% (398), headache 80.5% (383), were the most common ailment treated by self-medication. Dependence on textbooks/class materials as information source increases significantly (p>0.05) with increase in years of study. In conclusion self-medication is highly prevalent among the pharmacy students evaluated. There is need to steer these students towards responsible self-medication especially towards antibiotics stewardship.
INTRODUCTION

Self-medication is generally defined as the use of drugs to treat self-diagnosed conditions. Self-medication is not limited to only over the counter (OTC) drugs; it also encompasses use of prescription drugs like antibiotics \(^1\). The practice is a form of self-care \(^2\) and is a global trend that is encouraged when it deals with minor illnesses and with proper guide/information. \(^3\) In countries where there are no strict regulations and prescription drugs are freely dispensed, irresponsible self-medication is common. Responsible self-medication has to do with the appropriate use of OTC drugs in conditions for which they are necessary; a practice that requires a certain level of knowledge by those who use such drugs. \(^4\) Responsible self-medication requires that medicines used are of proven safety, quality, and efficacy; medicines used are those indicated for conditions that has been so diagnosed; and for some already known ailments such as chronic conditions. The product should also be supported with information on how to take the medicine, its side effect, possible interactions, duration of use, precautions and warnings, and when to seek professional advice. World Health Organization (WHO, 1995) \(^5\) stressed that responsible self-medication helps in the prevention and treatment of minor pathological conditions at an affordable cost. However, the practice is not without undesirable and sometimes serious setbacks as in addition to the possibility of serious adverse effects, drug interactions, polypharmacy, drug abuse, dependence, and waste are also present. \(^6\) The dangers of self-medication are many such as habituation, allergic reactions that maybe severe or even fatal. Under dose of medicines may not cure the symptoms. Overdose can produce collateral damage to many organs. By masking the symptoms temporarily, it will be difficult for the doctor to arrive at a correct diagnosis. Drugs like NSAIDs e.g. Ibuprofen increase the risk of stroke. \(^6\) Self-medication constitutes an important part of self-care which the WHO defines as the primary public healthcare resource in the healthcare system.

Reasons for self-medication as reported \(^1, 2, 7\) include high cost of medical consultation, long hours of waiting at clinics, lack of time, social or family support, previous experience with similar condition and its drug management, and lack of nearby health facilities, as well as unavailability of health professional.

Analgesics, antibiotics, and cough syrups are the most commonly used drugs for self-medication \(^8\). Demographic characteristics such as gender, age, and some socio-cultural aspects, like attitudes towards life and health, stress, and social inclination of the consumers also influence the practice of self-medication \(^9–11\). Studies \(^12–14\) have shown that self-medication is practiced among different populations especially in developing countries where there is easy access to drugs. Factors like education, family, societal norm, availability of drugs, and exposure to advertisement has increased its practice. \(^7\) Self-medication may be practiced at any age, but special concern is on the elderly and children. One reason for the higher rate of self-medication among the elderly population is due to the fact that this population suffers from multiple morbid conditions such as cardiovascular diseases, diabetes, cancer, arthritis, etc. The practice of self-medication is also common among the youths. Information about drugs may be obtained from internet, advertisements, and/or friends. Too much information culled from the internet or magazines may make people confident about treating their own illness. Pharmacy students in course of their training are exposed to information about drugs. This information places them at higher risk of practicing self-medication and irrational use of drugs, as future pharmacists.

Self-medication is more likely among medical students and pharmacy students as they have easy access to drug information sources and their knowledge of self-diagnosis and self-medication increases as they progress through their training. \(^7, 13, 15\) They also have easier access to medicine both

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Corresponding Author: Mgbahurike A. A. Mgbahurike A. A. Email: amakamgbahurike@gmail.com
through samples provided by pharmaceutical companies; and the “white coat” also ensures easy access to medicines. This knowledge of medicines has shown to influence, and predispose pharmacy students to self-medication. (7, 13, 15) Although self-medication is useful in treating minor ailments, its disadvantage cannot be overemphasized as it can lead to fatal consequences and adverse drug reaction. This study, thus aimed to assess the prevalence, knowledge, practice, and perception of self-medication among the pharmacy students of University of Port Harcourt, Rivers State, in Nigeria.

2 | METHOD

Descriptive cross-sectional study design was adopted to assess the prevalence, knowledge, practice and perception of self-medication among pharmacy students of University of Port Harcourt. The school is situated along East-West road Choba, Port Harcourt, Rivers State, Nigeria, in the Niger Delta region of Nigeria.

The study included all pharmacy students, from second year (200L) to final year (500L). The study targeted all the student but only those who gave their consent and were willing to participate were recruited into the study. In the year studied the total number of pharmacy students from 200L to 500L was 678 (six hundred and seventy-eight). The total number that gave their consent to participate and were used for the study was 476 (four hundred and seventy-six).

Ethical approval was obtained from the University ethics and research committee.

Pretested, structured questionnaire was used for the study. The self-administered questionnaire was structured into four parts. Part I: demographic information; Part II: Knowledge questions on self-medication; Part III: questions related to self-medication practice; Part IV: Questions related to perception towards self-medication. The questionnaires were administered at different periods for each class level. After retrieval, invalid (improperly filled or incomplete) questionnaires were eliminated. The data were collated and analyzed using SPSS version 20 and p-value less than 0.05 was taken as being significant.

3 | RESULT

The demographic data of the studied group is shown in Table 1 Out of 476 respondents, 42.4% (202) were male and 57.6% (274) were female. There were more female pharmacy students than male. Most (49.2%) (234) of the pharmacy students were within the ages of 20yrs – 25yrs. The mean age of the studied population was 24.55 ± 5.32yrs. Of this number 94.7% (451) were married and 5.3% (25) were unmarried. For year of study, 37 % (176) were in 200L, 21.2 % (101) in 300L and 18.9% (90) in 500L.

| TABLE 1: Demographic information of the respondents. (N =476) |
|---------------------------------------------------------------|
| **Variables**        | **Frequency** | **Percentage** |
| Gender              |               |                |
| Male                | 202           | 42.4%          |
| Female              | 274           | 57.6%          |
| Age (years)         |               |                |
| 15 – 19             | 132           | 27.7%          |
| 20 – 25             | 234           | 49.2%          |
| 26 – 30             | 89            | 18.7%          |
| >30                 | 21            | 4.4%           |
| Marital status      |               |                |
| Married             | 451           | 94.7%          |
| Unmarried           | 25            | 5.3%           |
| Year of study       |               |                |
| 200L                | 176           | 37%            |
| 300L                | 101           | 21.2%          |
| 400L                | 109           | 22.9%          |
| 500L                | 90            | 18.9%          |

The Mean Age of respondents = 24.55±5.32 years

The result of prevalence of self-medication is shown in Table 2. The prevalence of self-medication among pharmacy students in our study is quite...
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high. A large number, 83.8% (399) indulge in self-medication as against 16.2% (77), who do not.

**TABLE 2:** Prevalence of self-medication among the respondents (N = 476)

| Self–medication in the last one year | Frequency | Percentage |
|-------------------------------------|-----------|------------|
| Yes                                 | 399       | 83.8%      |
| No                                  | 77        | 16.2%      |

The respondents’ knowledge about self-medication is shown in Table 3. The result showed that 69.8% (327) had good knowledge of definition of self-medication.

Meanwhile 50.1% (234) agreed that there is need to consult a health personnel before taking medicines, and a significant number 46.7% (218) stated that it’s not all the time. Furthermore, 60.7% (289) admitted that self-medication is not safe, while 15.1% (72) believed that knowledge of medicine is not necessary for self-medication.

The result of respondents’ practice of self-medication is shown in Table 4. The result showed that 83.8% (399) of the respondents have practiced self-medication within the past one year.

The result further showed that 51.4% (245) of the respondents often practiced self-medication while only 9.5% (45) never indulged in self-medication, as 20.6% (98) that always practice self–medication, and the 18.5% (88) that rarely self-medicate.

The respondents obtained information for the medicines used for self-medication from various sources. Most 31.1% (148) used textbooks/class materials, followed by 23.9% (114) that use internet, and 18.3% (87) obtained their information from friends/family, as 13% (62) used past experience of the ailment, and 12.6% (60) used combined information from friends and internet, while only 1.1% (5) used old prescription as source of their information.

For the source of medicines used for the self-medication, majority, 73.5% (350) sourced their medicines from pharmacies, 16.8% (80) obtained their medicines from family/friends, as 6.3% (30) went for home remedies, while 3.4% (16) relied on leftover medicines from previous similar ailment.

Meanwhile 18.3% (87) admitted to have given their prescription drugs to some other persons, and a good number, 46.6% (222) denied ever given their prescription medicines to some other persons, as a significant percentage, 35.1% (167) admitted they sometimes give out their prescription medicines to some other persons.

Respondent’s perception to self-medication is shown in Table 5. The result showed that 40.3% (192) believed that self-medication is right and safe. While 20.4% disagreed. 29% (138) think self-medication is sometimes safe and 10.3% (49) have no idea if self-medication is safe or right.

With that regard 30.9% (147) would encourage self-medication, as 17.2% (82) would never encourage the practice, but 27.7% (132) would sometimes encourage it.

The various reasons given by the respondents for indulging in self-medication is given in Table 6. The most common reason among the respondents was having knowledge about the medicines, 91.8% (437). This is followed by the claim to “have previous experience of treating similar condition” 80% (381).

25.4% (121) of respondents admitted that the medicines were readily available, as 24.5% (117) admitted practicing self-medication because the ailment required rapid/emergency care. 19.3% (92) claimed the practice was for fast relief of the condition. Few respondents, 4.2% (20), claimed that self–medication is safer and fewer, still, 2.1(10) indulged in self-medication for preventive purposes, but none admitted to its effectiveness.

The various class of medicines commonly used for self–medication is given in Table 7. The most common class of drug used for self-medication as shown in Table 7 was analgesic/antipyretic/anti-inflammatory which include paracetamol, diclofenac, ibuprofen, and piroxicam, 91.6% (436). The next was antibiotic, 84% (403), followed by antimalarial, 69.7% (332), while use of cough syrup was equally high, 69.3% (330). The use of herbal remedy was also recorded, and the use of worm expellant, vitamin, and antacid were within about same range, 21.2% (101); 26.7% (127) and 27.1% (129) respectively.
**Table 3:** Respondents Knowledge about self-medication. (N= 476)

| Knowledge of definition of self-medication                                                                 | Frequency | Percentage |
|-----------------------------------------------------------------------------------------------------------|-----------|------------|
| (a) The use of drug purchased by authorized medical personnel                                             | 65        | 13.9%      |
| (b) The use of drugs not prescribed by an authorized medical personnel to treat self-diagnosed ailment     | 327       | 69.8%      |
| (c) The use of medicines prescribed by health personnel to treat self-diagnosed conditions                  | 53        | 11.3%      |
| (d) The use of medicines prescribed by a medical personnel at home/outside health facility to treat self-diagnosed ailment | 22        | 4.7%       |

| Consulting a health personnel before taking medications is necessary                                      | Frequency | Percentage |
|---------------------------------------------------------------------------------------------------------|-----------|------------|
| Yes                                                                                                      | 234       | 50.1%      |
| No                                                                                                       | 15        | 3.2%       |
| Not all the time                                                                                          | 218       | 46.7%      |

| Knowledge of safety/disadvantage of self-medication                                                      | Frequency | Percentage |
|---------------------------------------------------------------------------------------------------------|-----------|------------|
| (a) Self-medication is safe/right                                                                     | 289       | 60.7%      |
| No                                                                                                       | 111       | 23.3%      |
| Not all the time                                                                                         | 76        | 16%        |
| (b) Knowledge of medicines is necessary for self-medication                                            | Frequency | Percentage |
| Yes                                                                                                      | 284       | 59.7%      |
| No                                                                                                       | 72        | 15.1%      |
| Not all the time                                                                                         | 120       | 25.2%      |

The various conditions for which the respondents practiced self-medication within the last one year is shown in Table 8. The highest percent-age was fever, 83.6% (398), followed by headache (80.5% (383). Allergies, cold and cough, and musculoskeletal pain, were the least of the conditions for which self-medication were practiced, 3.8 % ( 18); cold and cough 4 % (19); 0.84% (19) respectively. Abdominal discomfort 44.3 % (211); diarrhea 18.7(89); nausea and vomiting 24.2% (115); constipation 14.7% (70); and indigestion 11.1% (53); were also recorded. Skin conditions, including rashes, acne, 16% (76) were also reported.

Effect of year of study on the source of information for medicines used for self-medication is shown in Figure 1.
### TABLE 4: Respondents’ practice of self-medication. (N = 476)

(a) Have you practiced self-medication in the past one year?

|        | Frequency | Percentage |
|--------|-----------|------------|
| Yes    | 399       | 83.8%      |
| No     | 77        | 16.2%      |

(b) How often have you self-medicated in the past one year?

|        | Frequency | Percentage |
|--------|-----------|------------|
| Always | 98        | 20.6%      |
| Often  | 245       | 51.4%      |
| Rarely | 88        | 18.5%      |
| Never  | 45        | 9.5%       |

(c) What was/were the source/s of information you used for medicines you used for self-medication?

- Past experience about the ailment: 62 (13%)
- Family & friends suggestions: 87 (18.3%)
- Leftover prescription medicines: 5 (1.1%)
- Textbooks/class materials: 148 (31.1%)
- Internet: 114 (23.9%)
- Internet chat with friends: 60 (12.6%)

(d) From where do you source your medicine when you self-medicate?

- Pharmacies: 350 (73.5%)
- Friends & family: 80 (16.8%)
- Home remedies: 30 (6.3%)
- Leftover medicines: 16 (3.4%)

(e) Have you ever given your prescription drugs to other people to use for self-medication?

|        | Frequency | Percentage |
|--------|-----------|------------|
| Yes    | 222       | 46.6%      |
| Sometimes | 167     | 35.1%      |

### TABLE 5: Respondents’ Perception of self-medication (N=476)

| Do you think self-medication is right/safe? | Frequency | Percentage |
|-------------------------------------------|-----------|------------|
| Yes                                       | 192       | 40.3%      |
| No                                        | 97        | 20.4%      |
| Some times                                | 138       | 29%        |
| No idea                                   | 49        | 10.3%      |

| Would you encourage the practice of self-medication? | Frequency | Percentage |
|------------------------------------------------------|-----------|------------|
| Yes                                                  | 147       | 30.9%      |
| No                                                   | 115       | 24.2%      |
| Sometimes                                             | 132       | 27.7%      |
| Never                                                | 82        | 17.2%      |
TABLE 6: Reasons for self-medication. (N = 476 for each reason) (multiple responses)

| Reason                                                      | Frequency | Percentage |
|-------------------------------------------------------------|-----------|------------|
| (a) Have previous experience of treating similar ailment    | 381       | 80%        |
| (b) For minor illness                                      | 243       | 51.1%      |
| (c) The illness required rapid/emergency care               | 117       | 24.6%      |
| (d) Self-medication saves time                             | 397       | 83.4%      |
| (e) Self-medication is for preventive purposes             | 10        | 2.1%       |
| (f) It is safer                                             | 20        | 4.2%       |
| (g) It is always effective                                 | 0         | 0          |
| (h) Self-medication is readily available                   | 121       | 25.4%      |
| (i) Have knowledge about the medicines                     | 437       | 91.8%      |
| (j) Fast relief of symptoms                                | 92        | 19.3%      |

TABLE 7: Classes of drugs commonly used for self-medication. (N = 476 for each of drug) (Multipleresponses)

| Drug class                                                                 | Frequency | Percentage |
|---------------------------------------------------------------------------|-----------|------------|
| 1. Analgesic/ antipyretic/ anti-inflammatory (paracetamol; diclofenac; ibuprofen; feldene) | 436       | 91.6%      |
| 2. Antibiotics (penicillin; chloramphenicol; tetracycline; amoxicillin; ampicillin, septrin) | 403       | 84.7%      |
| 3. Antimalarial (coartem; quinine; chloroquine; armatem)                  | 332       | 69.7%      |
| 4. Anthelmintic (Worm expellant)                                          | 101       | 21.2%      |
| 5. Vitamins                                                                | 127       | 26.7%      |
| 6. Antacids                                                                | 129       | 27.1%      |
| 7. Antitussive (Cough syrup)                                              | 330       | 69.3%      |
| 8. Herbal remedy                                                           | 74        | 15.5%      |

TABLE 8: Conditions for which self-medication was used. (N=476 for every condition) (Multiple responses)

| Disease Condition | Frequency | Percentage |
|-------------------|-----------|------------|
| 1. Fever          | 398       | 83.6%      |
| 2. Abdominal discomfort | 211       | 44.3%      |
| 3. Headache       | 383       | 80.5%      |
| 4. Constipation   | 70        | 14.7%      |
| 5. Diarrhoea      | 89        | 18.7%      |
| 6. Nausea/vomiting| 115       | 24.2%      |
| 7. indigestion    | 53        | 11.1%      |
| 8. skin conditions(rashes, acne) | 76       | 16%        |
| 9. musculoskeletal pain | 4        | 0.84%      |
| 10. allergies     | 18        | 3.8%       |
| 11. cold and cough| 19        | 4%         |
At lower study level (200L) respondents relied more on friends/family followed by internet for source of information for self-medication. While at higher level (500L) they depended more on textbooks and class materials and less on friends and family to source information for self-medication. As students’ year of training increases there is a decrease in relying on friends/family, or past experience about the medicine as source of information for self-medication. Again, the use of internet as source of information for medicines used for self-medication decreased with increase in year of training, but there’s more dependence on use of textbooks/class materials.

Furthermore, comparison of past experience with the medicine and textbook/class materials as source of information for medicines used for self-medication as year of training increases is shown in Figure 2.

![Figure 2](image)

**FIGURE 2:** Comparison of use of past experience of the medicine and academic knowledge (textbooks/class material) as source of information for self-medication

The result showed a significant increase (p<0.05) in the use of textbooks and class materials as source of information for medicines used for self-medication, as year of training increases. A corresponding significant decrease (p<0.05) in the use of past experience of the medicine as source of information for self-medication with increase in year of training.

**4 | DISCUSSION**

The practice of self-medication is a form of self-care and is a global trend that is encouraged when it deals with minor illnesses and there is proper guide and information (2, 3). In countries where there are no strict regulations and prescription drugs are freely dispensed, irresponsible self-medication is common. This study identified higher prevalence rate of 83.8% among the pharmacy students studied when compared to previous studies among Jordanians medical and pharmacy students with rate of 78.5% (16); among Saudi medical students, 26% (17); among Egyptian medical and non-medical students, 62.9% (18); but similar to studies among Chitwan medical students in Nepal, 84% (19); among undergraduate students in a Nigerian private University, 82% (20). However, prevalence rate in our study is lesser than some other studies reported among students in other settings, Gujarat 88% (21); 86.4% among students in Brazil (22); among students in North India, 87% (23) and 88.2% (24) were reported. Still higher rates were reported among students in South India 92% (25); 92.3% among healthcare and non-healthcare students of Slovenia (15); in Pakistan 95.5% (12); among students in Palestine 98% was reported (13); in South West Nigeria 91.4% (9); among medical and non-medical University students in Jordan 96.8% (26) and among medical and pharmacy students in Bangladesh 100% rate was reported (14). These high levels of prevalence rates of self-medication maybe attributed to poor regulation of medicines and consequent easy accessibility of medicines.

A significant (p>0.05) number, 69.8% of the respondents have good knowledge of self-medication and its safety implications and the importance of consulting a healthcare professional before consuming medicines. This level of knowledge agrees with other studies (7, 19) which reported that majority of the students had fairly good knowledge of self-medication. This level of knowledge maybe attributed to the category of the group studied who are pharmacy students who were undergoing training on medicines, and this may possibly explain why knowledge about the medicine was the major reason for the respondents’ practice of self-medication.
Most of the respondents often practiced self-medication and source information concerning the medicines used mainly from range of sources, but move more towards textbooks and class materials from internet, as their year of training increases. The respondents also exhibited positive perception towards self-medication, and source their medicines from pharmacies. This level of positive perception is in agreement with the study by James et al;2006 (7) where majority of respondents favored self-medication as acceptable. The fact that the respondents were being trained to be future pharmacists may explain why they source their medication from pharmacies, as to favor their own.

The three most prominent reasons for self-medication were knowledge about the medicine; time-saving; and previous experience of treating similar ailment. This result agreed with other study (20) where the two prominent reasons were, no time to go to school clinic and unfriendly health center staff. The inability to devote time to follow process in management of health issues may be an implicating factor, and again, training to be a pharmacist may possibly have a strong link to self-medication.

Consistent with previous studies (7, 19), analgesic/antipyretic was the most common class of medicines used for self-medication. This may be expected as the most common condition for which the respondents self-medicate was fever followed by headache. While self-medication may relieve the symptoms promptly, the underlying cause of the ailment maybe masked thereby making diagnosis difficult. Of more concern is the second most common class of medicine used for self-medication which is the antibiotics, to which 84.7% respondents admitted using for self-medication. Indiscriminate use of antibiotics may lead to drug resistant strains of the organisms and treatment failures. The fact that the study group are future pharmacists and future custodian of medicines places the antibiotic stewardship at stake. The use of antibiotic for self-medication was higher in our study compared to other studies, (19),40.3%; (7), 6%; (26), 21%. The high level of antibiotics use may be attributed to easy access to drugs due to poor drug regulation.

This study further showed significant relationship (p<0.05) between years of study and source of information for medicines used for self-medication,Figure 2. With increase in years of training the students are exposed to more information about medicines. Thus depending on the depth of academic knowledge acquired, they tend to depend more on the source of that training, their class materials including textbooks for self-medication.

5 | CONCLUSION

Self-medication is quite prevalent among pharmacy students of University of Port Harcourt. The major reason for the self-medication was having knowledge about the medicine, hence training as pharmacist may be a predisposing factor to self-medication. Again self-medication with antibiotics is quite high among this population thus there is need to steer this group towards responsible self-medication particularly towards antibiotic stewardship.

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