Attitude, Knowledge and Practice of Self-Medication Among the Students of Islamia University of Bahawalpur, Punjab, Pakistan

| Muzammila Akram[*] | Sania Moin[†] | Sabiha Iqbal[‡] |

Abstract

Self-medication is the usage of medicines to resolve self-identified health issues, and it is common in third world nations. The current study aimed to measure the attitude, knowledge and use of self-medication among the students of Islamia University of Bahawalpur, Punjab Pakistan. To achieve the objective of this study, a descriptive cross-sectional survey design was applied. Using simple random sampling technique, 330 students were selected for data collection from the target population. Keeping in view the objectives and reviewing some relevant literature, a questionnaire was developed. The validity and reliability of the questionnaire were calculated through a pilot study. To analyze the data, the statistical package for social science (SPSS, version-22) was utilized. Overall, the majority of undergraduate students (87%) observed self-medication. It was found that the majority of students used medicines due to smooth accessibility of OTC drugs, prior prescriptions records, internet, publicity substances and advice from peers etc. The use of un-prescribed drugs by the students without consultation might cause severe side effects and produce lifelong health issues. Therefore, the study recommended that self-practice medication and availability of drugs without prescription should be discouraged. Moreover, Healthcare facilities should be provided to all the students, staff, and suppliers of the Islamia University of Bahawalpur.

Key Words: Self-Medication, Practice, Medicine, Over the Counter (OTC) Drug, Attitude, University Students

Introduction

Self-remedy could be described as the use of medicines without consultation. The drug treatments were used for addressing common health issues without clinical supervision (Galato, 2009). To take care of themselves considered as natural phenomena. The intrinsic intuition in humans generated an inclination to take care of themselves. Every day, all around the world, people watched out of their health without consulting qualified personnel, they practised what is known as self-care (Galato, 2009).

The history of the disease and its remedy was as old as mankind itself. The man had incorporated various combinations of remedies to treat and word off illness since times immemorial (Bennadi, 2014). Self-medications were being used on self-explanatory justification and behaviors (World Health Organization, 2000). Because of these human behaviors, peoples were using the substances or other means for self –prescribed drugs for physical and mental wellbeing (Weissenberg, 2006). The World Health Organization (WHO, 2000) acknowledged that the best attainable standard of fitness is a fundamental right to every human being (Hughes, 2001). The Sustainable Development Goals included many targets associated with promoting health/ fitness, gender equality, and the capability to make choices approximately one's own health (Geissler, 2000). The empowerment of men, women, and the community were critical to improving their health. All human beings have an equal right to maintain their health care (Hughes, 2001). In a research study, it was highlighted that female students were using more self- medicines than male students, and self-medication frequency was established to be higher

---

[*]Assistant Professor, Department of Educational Training, The Islamia University of Bahawalpur, Punjab, Pakistan.
Email: muzammilamurad@yahoo.com
[†]MPhil Scholar, Department of Educational Training, The Islamia University of Bahawalpur, Punjab, Pakistan.
[‡]Assistant Professor, Department of Educational Training, The Islamia University of Bahawalpur, Punjab, Pakistan.

among the highly educated community (James, 2006). According to an epistle, self-prescribed medication usage was more in rural areas as compared to urban areas, 7.1% vs 2.6% (Burak, 2000).

The modern revolution had driven healthcare system into a brand-new era (Sleath, 2001). Associated structural and ideological modifications, in addition to patient empowerment modified traditional, hierarchical face-to-face healthcare (Sleath, 2001). The term electronic health served as a customary umbrella period for the use of ICT in health-related offerings and processes (Mitchell, 2019). Electronic health had become essential for current healthcare structures internationally and covered a wide style of applications, which included electronic health records, electronic remedy overview, and telemedicine-associated offerings. Revolution in the information and communication technologies (ICT) and smooth accessibility apps also performed a vital role in self-medicine practices amongst students. (Mitchell, 2019).

Survey of self-medication among students was essential because this populace represented the highly knowledgeable contributors of society. Moreover, they had better access to healthcare-related records. Of specific significance was the research of self-remedy among the populace of college students because they considered as the future generation and had the right to get admission on health issues and preventions (Shailendra, 2006). In studies by Omolase in Nigeria (Omolase, 2007) and Shankar in Nepal (Shankar, 2002), it was found that pharmacist possessed better knowledge on medicines and was considered as a good choice for minor illnesses. In the best setting, the most effective justifiable cause for the self-medicinal drug could be the necessity of the problem (James, 2006).

In third world country like Pakistan, the bulk of the pharmaceutical shops provided medicines on demand of the clientele without asking a doctor's prescription (Afridi, 2015). Consequently, antibiotics, probably dependency forming medicines and even tranquillizers were easily available to the ordinary peoples (Bennadi, 2014). This practice was leaving bad effects on the health of a common man. A study was carried out in Spain, and it explored the fact that self-medication practices were higher among the highly educated population (Grigoryan, 2006). Moreover, the deficiency of the primary health care facilities and poor socioeconomic conditions of the public were compelling them to buy cheap drugs available over the counter without proper consultation (Sharma, 2005). A survey was conducted among the university students at Karachi, and it was found that the prevalence of using medicines without consultation rate was up to 76% (Zafar, 2008). On the other hand, a study was carried out on self-prescribed Anti-Biotics amongst university students at Islamabad, and it evaluated the frequency rate up to 77% (Javed, 2013).

In Pakistan, where medicines are freely available over the counter of stores, it is developing trend to save the money of consultation or to store the time. People buy medicines from the shops without knowing the outcomes and aspect outcomes of drug treatments. Studies have shown the self-medicinal drug to be common among several students (Afridi, 2015). In this scenario, the present study was designed to assess the attitude, knowledge and practice of self-medication among the students of IUB.

Method

The Quantitative research approach was used for the present study. The study was delimited to the Baghdad campus of the Islamia University of Bahawalpur, Punjab, Pakistan. A cross-sectional survey was conducted in the Baghdad campus of IUB. The target population of the study was all the enrolled university students (i.e.,2200) during fall semester 2019 in the Baghdad campus. Using simple random sampling technique, 330 students were selected for data collection. A self-administered questionnaire was distributed amongst the participants after explaining the purpose of the study. The researchers observed the ethics of social sciences and obtained the consent of participants. Moreover, the privacy of the participants was guaranteed.

Research Instrument

keeping in view the objectives and reviewing some relevant literature, a questionnaire was developed. The validity and reliability of the questionnaire were calculated through a pilot study. For pilot testing, the questionnaire was distributed among 30 students (who were not the part of the selected sample) of educational training department of IUB. All the quarries observed in the pilot study were resolved. Moreover, the content validity of the instrument was ensured after discussion with eminent experts. Some amendments were made in

the final draft. The internal consistency was calculated (0.89) using SPSS version 22. The questionnaire was comprised of three portions, in 1st portion socioeconomic and demographic features were included, in 2nd portion knowledge and practices were observed whereas in 3rd portion student's views regarding the use of self-medication was documented.

Data Collection and Analysis

Data was collected from the randomly selected sample of 330 students. Participants were approached by visiting various departments personally. Furthermore, foreigner students and visitors were excluded from the study. Total of 300 questionnaires was retrieved out of 330, and the response rate was 91%.

Data were checked for completeness and consistency before entry. Statistical Package for Social Science (SPSS, version-22) was used for analysis. Descriptive statistics were applied to obtain the results of the study.

Result

Table 1. Sociodemographic Characteristics of Respondents

Characteristics (n=300)	Frequency	Percent	Valid Percent	Cumulative Percent
Age (Years)				
Under 20	23	7.7	7.7	7.7
Between 20 to 30	241	80.3	80.3	88.0
30 to 40 Years	36	12	12	100.0
Total	300	100.0	100.0	
Sex Distribution				
Male	180	60	60	60
Female	120	40	40	100
Total	300	100	100	
Semester of Stu				
1st	21	7.0	7	7.0
2nd	95	31.7	31.7	38.7
3rd	85	28.3	28.3	67.0
4th	99	33.0	33.0	100.0
Total	300	100.0	100.0	
Hometown				
Urban	167	55.7	55.7	55.7
Rural	133	44.3	44.3	100
Total	300	100.0	100.0	

Table 1 Sociodemographic information of the respondents in Islamia University of Bahawalpur, Baghdad campus, (n- 300).

Table 1 describes the sociodemographic information of respondents. Table 1 exhibit that 23/300 (8%) were less than 20 years, 241/300 (80%) were of age between 20 to 30 years, and 36/300 (12%) were having age between 30 to 40 years, the bulk of the study population (80%) were between the age of 20 to 30 years, among them 180/300 (60%) were male and 120/300 (40%) female. Majority 167/300 (56%) of the study population were resident of urban areas whereas 133/300 (44%) from rural areas of south Punjab. The respondents were largely 99/300 (33%) from 4th semester, second largest group 95/300 (32%) of the study population was of 2nd semester, whereas 85/300 (28%) and 21/300 (7%) were from 3rd and 1st semester, respectively.

Table 2. Knowledge about Self-Medication

Knowledge on the questions	n	Agreed/ Disagreed/ Neutral	Valid %Agreed/ Disagreed/ Neutral
Self-medication is a human behavior	300	249/ 21/ 30	83/ 7/ 10
Students start self-medication without basic knowledge of drug	300	226/ 65/ 9	75.3/ 21.7/ 3

Knowledge on the questions	n	Agreed/ Disagreed/ Neutral	Valid %Agreed/ Disagreed/ Neutral
Usually, Students do not know the consequences of wrong drug selection	300	273/ 21/ 6	91/ 7/ 2
A drug interaction is a reaction between two (or more) drugs or between a drug and food, beverage, or supplement	300	96/ 60/ 144	39/ 20/ 48
A drug interaction can make a drug less effective, increase the action of a drug, or cause unwanted side effects	300	67/ 48/ 185	22.3/ 16/ 61.7
A drug allergy is the abnormal reaction of your immune system due to medication	300	81/ 57/ 162	27/ 19/ 54
The federal Food and Drug Regulating Authority is primarily responsible for the regulation of prescribed drugs	300	56/ 31/ 213	18.7/ 10.3/ 71

Table 2 Perceived knowledge of self-medication practices of the respondents

Table 2 shows that majority amongst the study populations are well conversant about the statement that "Self-medication is a human behavior" (83%). Among the students, 75% were agreed that students start medication without basic knowledge of medicine while 91% students did not know the consequences of wrong drug selection. Furthermore, 48%, 61% and 54% students had concerns about the drug interaction, unwanted side effects and drug allergy simultaneously. It is worth mentioning that 71% students were not having knowledge about the federal food and drug regulating authority.
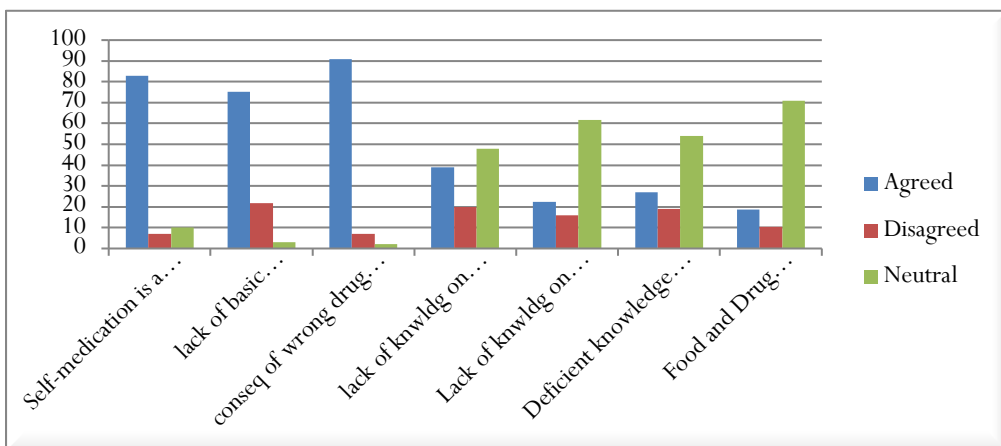

Figure 1: Knowledge of the Respondents on Self-Medication Practices

Table 3. Behavior Regarding Self-Medication

Knowledge on the questions	n	Agreed/ Disagreed/ Neutral	Valid% Agreed/ Disagreed/ Neutral
Self-medication is an essential component of self-care	300	225/ 60/ 15	75/ 20/ 5
Self-medication includes health-related decision-making of individuals and family members	300	247/ 47/ 6	82/ 16/ 2
Pharmacists have more practical knowledge than physicians	300	183/ 74/ 43	61/ 25/ 14
Pharmacists are good source of information for minor medical problems	300	162/ 89/ 49	54/ 30/ 16
The course of medicines should be completed although the symptoms subside	300	75/ 168/ 57	25/ 56/ 19
University students have sufficient knowledge to treat symptoms of common diseases like flu, cough, headache, fever, allergy, stress etc.	300	210/ 51/ 39	70/ 17/ 1

Knowledge on the questions	n	Agreed/ Disagreed/ Neutral	Valid% Agreed/ Disagreed/ Neutral
IUB students are educated community and self-medication is acceptable for them	300	228/ 54/ 18	76/ 18/ 6
Self-medication is not acceptable at all, and it would be harmful	300	51/ 207/ 42	17/ 69/ 14

Table 3 represents the various attitudes of the study population on self-prescribed drugs, concepts about self-medication were classified into categories namely self-care (75%), health-related decision-making of individuals and family members (82%), Pharmacists have more practical knowledge (61%), university students have sufficient knowledge to treat symptoms of common diseases (70%) and acceptable practice (76%).
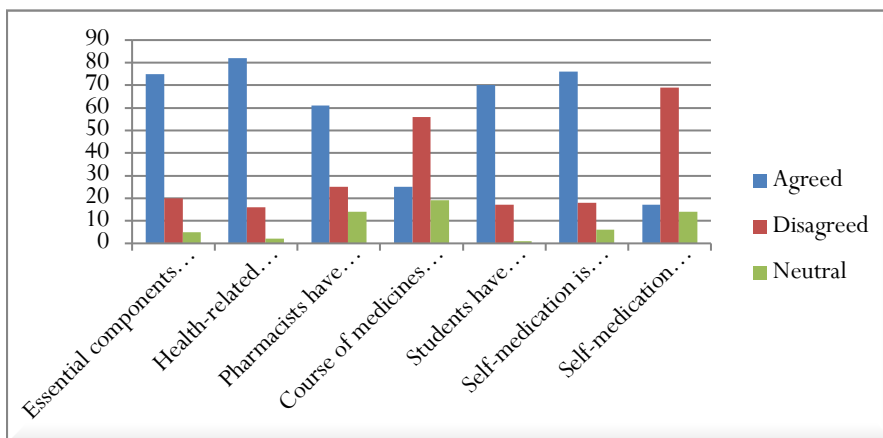

Figure 2: Various Attitudes of the Respondents on Self-Prescribed Drugs (n- 300).

Table 4. Practice of Self-Medication

Are You practising the self-medications?	N	%
Response Yes	261	87
No	39	13

Table 4 highlighted that the bulk of the students (87 %) are involved in self-medication, while 13 % did not claim in using the self-medication.

Table 5. Usage of Self-Medication

Items	n	Yes	No	Yes%	No%
Reasons for self-medication					
No need to visit the doctor for minor illness	261	211	50	81.0	19.0
Quick relief	261	235	26	90.0	10.0
Time saving	261	198	63	76.0	24.0
Confidence on your knowledge about medicines	261	175	86	67.0	33.0
Economical	261	37	224	14.0	86.0
Ease and convenience	261	177	84	67.7	32.3
Crowd avoidance	261	141	120	54.0	46.0
Learning opportunity	261	94	167	36.0	64.0
Indications for Self-Medication					
Headache	261	273	27	91.0	9.0
Fever	261	231	69	77.0	23.0

Items	n	Yes	No	Yes%	No%
Cough, cold, sore throat	261	174	126	58.0	42.0
Stomachache	261	144	186	38.0	62.0
Menstrual symptoms	261	19	101	15.8	84.2
Vomiting	261	117	183	39.0	61.0
Diarrhea	261	177	123	59.0	41.0
Ocular symptoms	261	42	258	14.0	86.0
Ear symptoms	261	27	273	9.0	91.0
Skin symptoms	261	36	264	12.0	88.0
Source of information for Self-Medicaion					
Reading Material	261	44	217	17	83
Advice from pharmacists	261	146	115	56	44
Advice from physician/ nurse but without prescription	261	78	183	30	70
Own experience	261	206	55	79	21
Internet	261	123	138	47	53
Advertisement	261	26	235	10	90
Advice from friend or class fellow	261	10	251	4	96
Advice from traditional healers	261	42	219	16	84
Others	261	76	185	29	71
Type of Self-Prescribed Medicine					
Herbal/Traditional Medicine	261	81	180	31	69
Homeopathy	261	50	211	19	81
Allopathic	261	230	31	88.3	11.7
Tib	261	76	185	29	71
Other	261	44	217	17	83

Table 5 revealed that the respondents are using the medications for different diseases, and there is no clear-cut demarcation for the use of disease. It is also revealed from the table that (91%) undergraduate students of IUB, Baghdad campus habitual of self-medication for headache, (58%) cough and cold/flu, (59%) diarrhea, (38%) stomachache, (39%) nausea and (12%) skin problems. Hence, the results explored that the use of self-medication for headache is common among students as compared to other health issues, but the use of self-medication for ear problems is very low.

The usage of self- medications by the students was categorized into eight main types. Therefore, (79%) students are habitual of self-medication. Advice from a pharmacist (56%) and information available on the internet (47%) were the second reasons for practising self-medication. Thus, quick-relief (90%), lack of time to consult a doctor (76%), confidence on your knowledge about medicines (67%), and cost-effectiveness (14%) were other motives to use of self-prescribed drugs. Data analyzed as per table-5 shows that most respondents (88.3%) are using the Allopathic form of medicine next comes in the line is Herbal/Traditional Medicine (31%) then Tib (29%) and Homeopathy (19%). It is worth mentioning that (17%) among the population are also using other methods like spiritual healing, Tib e Nabvi, home remedies etc. The crux of the analysis is that 88.3% are using Allopathic form of medicine for self-medication.

Conclusion and Discussion

In this study, a total of 300 valid responses were retrieved out of 330; this high response rate was attained because university students were an educated community, and they understood the weightage of the studies. Results of present study drawn the following conclusions.

In the present research study, it was concluded that the majority of undergraduate students of IUB were practising self-medication. Most common reasons for using the self -medication was mild illnesses, quick relief, reliance on self-previous experiences and easy availability of the drugs. The common ailments were fever, cough/common cold, diarrhea and headache for which self- medications used. This study showed that common sources

of information for self-medication were own experiences, advice from a pharmacist, information through the internet and advice from physician/ nurse but without prescription. Researchers observed with the help of the data that most respondents were using the Allopathic form of medicines, next was herbal/traditional medicine, then Tib and Homeopathy. A sizeable study population knew that self-medication was human behavior and believed that students used self-medication without basic knowledge of drug reactions. The majority believed that self-medication was an essential component of self-care and considered that pharmacists were a good choice for minor illnesses. Majority was confident to use self-medication and attributed the exercise of self-medication due to smooth availability of over the counter (OTC) drugs, data from preceding prescriptions, internet, publicity substances and advice from peers etc. The use of un-prescribed drugs and accessibility of over-the-counter drugs inside the university had a negative impact on student's general health.

The incidence of self –prescribed drugs was frighteningly high among the students of Islamia University of Bahawalpur, Punjab, Pakistan. This study established the fact that the majority practiced self-medication even though it was incorrect. Frequent use of self-medicines without proper check-up by the consultants and in the university was alarming. In Pakistan, no study had been conducted to analyze the frequency of self-prescribed drugs at the national level. It was therefore not possible to compare; however, in a few studies on the subject, it was evident that frequency to use self-decided drugs was 51% in Pakistan (Afridi, 2015).

In the present study, the researchers found that 87% of the students of the Islamia University of Bahawalpur were practising self-medication. But many other studies had given varied prevalence ranging from 43.2 to 91% (Atsbeha, 2001). This might be due to the varied demography, socioeconomic status, and the availability of nonprescription drugs over the counter (Burak, 2000). In this study, most common reasons for using the self - medication has been found in mild illnesses 211/ 261 (81%), quick relief 235/ 261 (90%) and easy availability177/ 261 (67.7%). These findings were in accordance with the observations of some other studies (Afridi, 2015). The common ailments for which self- medications were used; fever 231/ 261(77%), cough/ cold 174/ 261(58%), diarrhea 177/ 261 (59%) and headache 273/ 261 (91%). The same was reported in a study conducted in Ethiopia (Atsbeha, 2001). This research study confirmed the findings of another study conducted in India that had reported cough and cold to be the commonest cause (Prakasam, 2011).

In accordance with the common ailments, this study showed the common sources of information for self- medication were own experience 206/ 261 (79%), advice from pharmacist 146/ 261 (56%), internet 123/ 261 (47%), and advice from physician/ nurse but without prescription 78/ 261(30%). In a study, advice from a friend or class fellow was found to be 41.3% (Akinyede, 2001). One study which was carried out in India has reported advice from traditional healers to be the most used (Saleem, 2011). Another study conducted in Karachi also had shown increased use of antibiotics (Abdelmonein, 2005). This indicated that the use of antibiotics as self-medication was increasing. These findings of current research demanded proper implementation of regulatory control of over-the-counter drugs.

In this study, the researcher observed with the help of the data that the majority were using the Allopathic medicines, next was herbal and traditional medicines, then Tib e Nabvi, and homoeopathy. In another study, it was revealed that traditional medicines were also being practised since ancient time, and various herbal and household items were being used as self-medication (Geest, 1990).

This study revealed that the majority of the students had knowledge that self-medication was human behavior, and thus they started using medicines without considering the drug reactions. It had been noticed in various studies that because of lack of knowledge on medicines, peoples used wrong medicines and incorrect doses (Atsbeha, 2001). It is evident in this study that the majority showed their concerns on the consequences of wrong drug selection. Similar reports are from developing countries in Asia and Africa (Osaka, 1996).

This study concluded that the majority believed that self-medication was an essential component of self-care. Furthermore, they considered self-medication as a health-related decision making of individuals and family members. Worldwide, particularly in advanced countries, surveys disclosed that people wished to take a greater role in the upkeep of their own health (Galato, 2009). This study confirmed the findings of some previous research studies that pharmacists had better knowledge of medicines and considered an as good choice for minor illnesses (Omolase, 2007; Shankar, 2002). It was worth mentioning that the students of the Islamia University of Bahawalpur, Baghdad campus considered their knowledge on the common diseases, compelled them to use self-

prescribed drugs. In another study on Pakistani mothers, it was found that they (61.3%) used medicines based on old experiences (Haider, 1995). This sort of thinking was not good; even well-educated community did not realize the situation and instigated health issues.

University students considered as a part of an educated community who had shown inappropriate attitude in practising the self-medication without knowing the side effects that might harm the national health. Therefore, this study recommended healthcare planners to guide not only the nation but also enforce the rules and regulations on the subject. These self-medication practices might increase the burden of diseases, as well as it would harm the national economy. This study was conducted on a limited scale on the students of Islamia University of Bahawalpur Baghdad Campus. Further probing on the subject was recommended not only among the students but also among the various segments of the Pakistani community. This study recommended that governments and healthcare managers should safeguard national health. The smooth accessibility of OTC drugs should be discouraged in the light of world health organization's guidelines legislation for selling, availability, and publicity. This study had opened gateways for further research on this issue, also showed that this real problem must not be ignored.

Recommendations

Based on the findings and conclusions of the study, followings recommendations were suggested to reduce the problem of self-medication.

1. There should be a campaign every year at the time of admission to educate the students, teachers, staff, and facility users about the importance of professional consultation before drugs usage.
2. The side effects of self-medication should be made clear to the populace with special emphasis on responsible self-medication.
3. Healthcare facilities should be provided to all the enrolled students, staff, and suppliers of the Islamia University of Bahawalpur.
4. Availability of over-the-counter drug inside and around the university area should be discouraged.
5. First aid and buddy care workshops on department level might be a solution to give the knowledge to the students about judicial use of the drugs.
6. Students of various departments should be motivated to organize subject research on a larger scale to assess and compare the level of issue in various universities of South Punjab, and interprovincial level under the umbrella of HEC of Pakistan.
7. Legislation on the subject should be made if required, and strict implementation should be ensured at Federal and provincial government levels. The advertising and selling of over-the-counter drugs be controlled to prevent this problem from growing.
8. Plans should be framed, and guidelines are enforced to check the supply of drugs without medical advice by pharmacies and traditional healers (quacks/ witch doctors). Proper rules and regulation should be formulated to keep eyes on these irregularities.
9. Efficient healthcare facilities in all the segments of the healthcare delivery system along with future needs would be a long-term solution to the self-medication issues.

References

Afolabi, A., Akinmoladun, V., Adebose, I., & Elekwachi, G. (2010). Self-medication profile of dental patients in Ondo State, Nigeria. *Nigerian Journal of Medicine, 19*(1).

Afridi, M. I., Rasool, G., Tabassum, R., & Shaheen, M. (2015). Prevalence and pattern of self-medication in Karachi: A community survey. *Pakistan journal of medical sciences, 31*(5), 1241.

Agboghoroma, C. O., Sagay, S. A., & Ikechebelu, J. I. (2013). Nigerian prevention of mother to child transmission of human immunodeficiency virus program: The journey so far. *Journal of HIV and Human reproduction, 1*(1), 1.

Al-Azzam, S. I., Al-Husein, B. A., Alzoubi, F., & Masadeh, M. M. (2007). Self-medication with antibiotics in Jordanian population. *International journal of occupational medicine and environmental health, 20*(4), 373.

Arul Prakasam, K., Samuel, S., & Nanthakumar, N. (2011). Perception of community pharmacist on self-medication in Erode, India. *Res J Pharm Biol Chem Sci, 2*(3), 99-106.

Atsbeha, B. W., & Suleyman, S. A. (2008). Medication knowledge, attitude and practice (kap) among university of gondar freshman students, north western ethiopia. *Pharmacologyonline, 1*, 4-12.

Azhar, M. I. M., Gunasekaran, K., Kadirvelu, A., Gurtu, S., Sadasivan, S., & Kshatriya, B. M. (2013). Self-medication: awareness and attitude among Malaysian urban population. *International Journal of Collaborative Research on Internal Medicine & Public Health, 5*(6), 0-0.

Bennadi, D. (2013). Self-medication: A current challenge. *Journal of basic and clinical pharmacy, 5*(1), 19.

Berzanskyte, A., Valinteliene, R., Haaijer-Ruskamp, F., Gurevicius, R., & Grigoryan, L. (2006). Self-medication with antibiotics in Lithuania. *International journal of occupational medicine and environmental health, 19*(4), 246-253.

Burak, L. J., & Damico, A. (2000). College students' use of widely advertised medications. *Journal of American College Health, 49*(3), 118-121.

Galato, D., Galafassi, L. d. M., Alano, G. M., & Trauthman, S. C. (2009). Responsible self-medication: review of the process of pharmaceutical attendance. *Brazilian Journal of Pharmaceutical Sciences, 45*(4), 625-633.

Geissler, P. W., Nokes, K., Prince, R. J., Achieng'Odhiambo, R., Aagaard-Hansen, J., & Ouma, J. H. (2000). Children and medicines: self-treatment of common illnesses among Luo schoolchildren in western Kenya. *Social science & medicine, 50*(12), 1771-1783.

Greenhalgh, T. (1987). Drug prescription and self-medication in India: an exploratory survey. *Social science & medicine, 25*(3), 307-318.

Haider, S., & Thaver, I. H. (1995). Self-medication or self-care: implication for primary health care strategies. *Journal-Pakistan Medical Association, 45*, 297-297.

Hughes, C. M., McElnay, J. C., & Fleming, G. F. (2001). Benefits and risks of self medication. *Drug safety, 24*(14), 1027-1037.

James, H., Handu, S. S., Al Khaja, K. A., Otoom, S., & Sequeira, R. P. (2006). Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. *Medical principles and practice, 15*(4), 270-275.

Kuku, K., & Odusanya, O. Research Project Self Medication; Attitudes and Practices amongst residents of Ikeja Local Govt Area of Lagos, Nigeria.

Mitchell, M., & Kan, L. (2019). Digital technology and the future of health systems. *Health Systems & Reform, 5*(2), 113-120.

Omolase, C., Adeleke, O., Afolabi, A., & Ofolabi, O. (2007). Self medication amongst general outpatients in a Nigerian community hospital. *Annals of Ibadan postgraduate medicine, 5*(2), 64-67.

OSAKA, R., & NANAKORN, S. (1996). Health Care of Villagers in Northeast Thailand. *The Kurume medical journal, 43*(1), 49-54.

Sawalha, A. F. (2015). Assessment of self-medication practice among university students in Palestine: therapeutic and toxicity implications. *IUG Journal of Natural Studies, 15*(2).

Shankar, P., Partha, P., & Shenoy, N. (2002). Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: a questionnaire-based study. *BMC family practice, 3*(1), 1-7.

Sharma, R., Verma, U., Sharma, C., & Kapoor, B. (2005). Self-medication among urban population of Jammu city. *Indian journal of pharmacology, 37*(1), 40.

Sleath, B., Rubin, R. H., Campbell, W., Gwyther, L., & Clark, T. (2001). Physician–patient communication about over-the-counter medications. *Social science & medicine, 53*(3), 357-369.

Tse, M., Chung, J., & Munro, J. (1989). Self-medication among secondary school pupils in Hong Kong: a descriptive study. *Family practice, 6*(4), 303-306.

Valverde, J. L., & Weissenberg, P. (2005). *The Challenges of the New EU Pharmaceutical Legislation* (Vol. 6): *IOS Press.*

Zafar, S. N., Syed, R., Waqar, S., Zubairi, A. J., Vaqar, T., Shaikh, M., & Saleem, S. (2008). Self-medication amongst university students of Karachi: prevalence, knowledge and attitudes. *Journal of the Pakistan Medical Association, 58*(4), 214.