ZIBELINE INTERNATIONAL™ PUBLISHING

ISSN: 2948-4901 (Online)
CODEN: MMHJB9

Malaysian Mental Health Journal (MMHJ)

DOI: http://doi.org/10.26480/mmhj.02.2023.39.45

CrossMark

RESEARCH ARTICLE

KNOWLEDGE, ATTITUDE AND PRACTICE OF SELF-MEDICATION AMONG PEOPLE OF CENTRAL MONROVIA, LIBERIA

Patience Alice Ogwuche[a,b], Adeyinka Olufemi Adepoju[a*] and Abdul Faiyah Bah[b]

[a] Research Institute for Innovations, African Methodist Episcopal University, Monrovia, Liberia.
[b] Department of Public Health, African Methodist Episcopal University, Monrovia, Liberia.
[*]Corresponding Author Email: adeyinka.adepoju.phd@gmail.com

ARTICLE DETAILS

Article History:

Received 05 June 2023
Revised 11 August 2023
Accepted 18 September 2023
Available online 20 September 2023

ABSTRACT

Self-medication practices is slowly becoming a world problem, where in people just take anything, they consider as medicine without knowing the health implications it has, as long as it's been suggested to solve their problem. Despite individual's educational background and occupation, the individual's one way or the other practice self-mediation. The aim of the study was to assess the knowledge, attitude, and practice of self-medication among citizens of three selected communities in central Monrovia namely Broad Street, Waterside and Benson Street. The study was cross sectional, with 200 people in central Monrovia been interviewed by random sampling. Data was collected using a structured questionnaire. A statistical data analysis was done using Microsoft excel 2016. Out of the 200 people sampled a total of 143 (71.5%) practice self-medication, while 57 (28.5%) do not practice self-medication. From the 143 persons that practice self-medication, 75 (52.5%) were male while 68 (47.5) were female. From the study findings the most common reason for people self-medicating is there feel there is no need to visit the doctor for minor illness that they can treat themselves and the most self-medicated drugs category is analgesic (47.41%) and antimalarial (32.31%), the illness most self-medicated for is headache (30.8). The prevalence of self-medication in Liberia is high, respondent knowledge on self-medication is good, but the attitude and practice towards it is wrong.

KEYWORDS

Self-medication, Liberia, drugs, illness, Over-the-counter, wellness.

1. BACKGROUND OF THE STUDY

Self-medication is defined as the selection and use of medicines by individuals (or a member of the individuals' family) to treat self-recognized or self-diagnosed conditions or symptoms (Ruiz, 2010). Self-medication is also defined as the taking of drugs, herbs or home remedies on one's own initiative, or on the advice of another person, without consulting a doctor, (Hernandez et al., 2002). *''Medicine can heal and they can also harm''*, (WHO, 2022). Self-medication is a contemporary public health issue. Self-medication has potential risks associated with many underlining health conditions that can lead to deaths (WHO, 2022). If medications are not taken appropriately for the right reason, at the right time and with a prescription from a trained health professional the medicine can be more dangerous for the health of an individual or population at large (WHO, 2022). According to Harris in one of his write-out and supported by the Liberia Ministry of Health (MOH) (2012), stated that many people who managed pharmaceuticals in Liberia lacked the basic skills and knowledge to operate the health markets. These and many more public health issues have created major health problem for the Liberian people (Harris, 2012).

However, Self-medication thus forms an integral part of self-care, which can be defined as the primary public health resource in the health care system, (Kumar et al., 2013). On the other hand, overusing or using a medication prescribed by a physician for an individual to treat a particular health condition at the same time using the same medication for another family member or friend who also falls ill can be consider as self-medication, (Hashemzaei et al., 2021). Self-medication (SM) is a common practice in both developed and developing countries worldwide (Razan et al., 2022). The prescription of medicine for oneself without having specialist advice can cause many side effects including drug resistance and complication as well as prolonging the disease within the body, (Hashemzaei et al., 2021). The act of self-medication has now become a common practice in many countries including Liberia, partly due to lack of quality access to health care, easy availability to over-the-counter medicines in markets and poor regulations, (Mehta et al., 2015).

Over-the-counter (OTC) medicines, also known as nonprescription medicines, are medicines that can be purchased without a prescription and are safe and effective as long as it is used properly and is in accordance with the directions on the label, and health care professional (US Food and Drugs Administration, 2018). According to recent studies, one of the most common reasons for which people self-medicate is the convenience of going to a pharmacy rather than seeing a doctor and avoiding the cost of a hospital treatment (Kassie et al., 2018). People may practice self-medication for several of reasons, like the lack of health services, poverty, ignorance, misbelief, excessive advertisements of drugs, and availability of drugs in establishments other than pharmacies (Lassie et al., 2018). The substances which are most extensively self-medicated are OTC drugs and dietary supplements, also analgesics, antimalarial, antibiotics, and cold syrups are intermittently used for self-administration. Sometimes some psychoactive drugs like recreational drugs, alcohol, and comfort foods are self-medicated to reduce the symptoms of mental distress, stress, and anxiety. The practice of self-medication has become rampant throughout the world, with a high prevalence rate in developing countries (Seam, 2018).

The uncontrollable act of an individual taking medicines without the supervision of a qualified health practitioner can lead to hundreds of

Quick Response Code	Access this article online	
	Website: www.mmhj.com.my	**DOI:** 10.26480/mmhj.02.2023.39.45

Cite The Article: Patience Alice Ogwuche, Adeyinka Olufemi Adepoju and Abdul Faiyah Bah (2023). Knowledge, Attitude and Practice of Self-Medication Among People of Central Monrovia, Liberia. *Malaysian Mental Health Journal, 2(2): 39-45.*

deaths, (NIDA, 2021). The National Institute of Drugs Abuse (NIDA) in America 2023 report stated that in America only, more than 106,000 people died from self-medication/overdose, (NIDA, 2021). This public health issues, (SM) can lead to destruction of the body organs that includes; liver and lead to drug addiction especially when taken on a long-term basis (NIDA, 2021). Patients often approach a pharmacist instead of visiting a doctor for minor ailments such as cough, cold, allergies, pain, fever, acidity, diarrhea, and skin-related conditions, because patient think it is illness that can be treated without the help of a doctor. Technically, drugs are OTC unless they are specifically stated as prescription only drugs (Marathe et al., 2020).

Even though, OTC medicines are meant for self-medication and are of proven efficacy and safety, improper use or abuse of it may lead to serious consequences, mostly in pediatrics, geriatrics, pregnancy and lactation (Ali et al., 2012). If the patient's diagnosis of their condition is incorrect, their medicine selection may worsen their condition, or even cause additional problems. People may prolong use, misuse OTC drugs, or combine treatment with other contraindicated drugs, leading to adverse interactions and reactions (Lei et al., 2018). Antimicrobial resistance is a current problem world-wide, particularly in developing countries, where antibiotics are often available without prescription (Omolase et al., 2007). Resistance to anti-malarial drugs has also been reported in many third world countries, reasons for this resistance include the irrational use of anti-malarias including non-prescription use (Omolase et al., 2007). However, some people engage in the practice of self-medication due to ignorance, poverty and unavailability of health facilities (Omolase et al., 2007).

The objective of the study was to assess the knowledge, attitude, and practice of self-medication among citizens of three selected communities in central Monrovia by; documenting the level of understanding of community people about self-medication, identifying the reasons for which community members are practicing self-medication, collating the various drugs category with which citizens practice self-medication the most, investigating the various health conditions which prompt citizens to practice self-medication.

2. METHODOLOGY

2.1 Research Design

The design chosen for this study is a descriptive cross -sectional research approach. It involves face to face interview regarding self-medication. The cross-sectional study design helped in describing and understanding the feature of the given data in the targeted population.

2.2 Study Area

Figure 1: Map of Monrovia (Source: Wikipedia 2023).

This study was carried out in Monrovia (Figure 1), the capital city of Liberia, and the largest city in the country. It has a population of 1,010,709 according to 2008 census, which constitutes home for about 29% of the total population of Liberia. Located on the Atlantic coast and the St. Paul River, it also has a modern and sophisticated harbor that dominates the country's economy. Monrovia is also Liberia's educational and cultural center, which hosts the University of Liberia, the country's financial center, and the Central Bank of Liberia.

Monrovia (Figure 1) lies along the Cape Mesurado peninsula, between the Atlantic Ocean and the Mesurado River, whose mouth forms a large natural harbor (6°18′48″N 10°48′5″W). The Saint Paul River lies directly north of the city and forms the northern boundary of Bushrod Island, which is reached by crossing the "New Bridge" from downtown Monrovia. Monrovia is located in Montserrado County and is Liberia's largest city and its administrative, commercial and financial center (UN Human Settlements Programme, 2014).

2.3 Population and Sampling Techniques

The research targeted people practicing self-medication only in the three selected communities, a survey that involves 200 persons was done, out of the 200 persons surveyed 143 persons practiced self-medication, making 143 the sample size.

2.4 Data collection instrument

The data of this study was collected using a structured questionnaire. The researcher drew questions that was asked during the collection of data, so as to achieve the objectives. The data was collected by interview. By asking question relating to self-medication so as to get the desired result.

2.5 Data Analysis

A statistical analysis was carried out using Microsoft Excel Version 2016.

2.6 Ethical Consideration

The work was approved by the ethics board of AME University, Monrovia, Liberia.

3. Results and Discussion

Table 1: Socio demographic data

Characteristics	Categories	Frequency	Percentage(%)
Age	Below13	21	10.5
	13-17	43	21.5
	18plus	136	68
Sex	Male	97	48.5
	Female	103	51.5
Marital status	Married	58	29
	Single	137	68.5
	In a relationship	5	2.5
Occupation	Private business	102	51
	Civil servant	18	9
	Working with private organization	9	4.5
	Unemployed	71	35.5
Residential address	Central Monrovia	52	26
	Other part of Monrovia	68	34
	Sinkorand Congo town belt	10	5
	Outside Monrovia	70	35

Table 2: Respondent knowledge on the definition of self-medication

Definition of self-medication	Frequency	Percentage%
Correct	143	71.5
Incorrect	57	28.5
Total	200	100

Table 2 depicts the amount of people interviewed that defined self-medication correctly and how many define self-medication incorrectly. Out of the 200 respondent, 143 (71.5%) define SM correctly while 57 (28.5%) did not get the definition of SM correctly. Which mean many people know the meaning of self-medication.

Table 3: Occurrence of Self-medication among respondents

	Frequency	Percentage %
Number of respondents that practice SM	143	71.5
Number of respondents that do not practice SM	57	28.5
Total	200	100

Table 3 shows how many respondents practice and do not practice self-medication. Out of the 200 total respondent, 143 (71.5) practice SM, while 57(28.5) do not practice self-medication. Which mean a high percentage of people practice Self-medication in the study area.

Table 4: Occurrence of self-medication among respondent based on sex.

Respondent that practice SM	Frequency	Percentage%
Male	75	52.5
Female	68	47.5
Total	143	100

Respondent that does not practice SM	Frequency	Percentage%
Male	22	38.6
Female	35	61.4
Total	57	100

Table 4 Shows the occurrence of self-medication based on sex, out of the 143 respondents that practice self-medication 75(52.5%) were male, while 68(47.5%) were female, surprisingly male population that practice SM was high, while the female was low, out of the 57 respondent that don't practice self-medication, 35(61.4%) were female, while 22(38.6%) were male and female population for not practicing SM was high and male was low.

Table 5: Occurrence of self-medication among respondent based on age

Respondents that practice SM	Frequency	Percentage%
Below 13	11	7.7
13-17	24	16.8
18plus	108	75.5
Total	143	100

Respondents that do not practice SM	Frequency	Percentage%
Below 13	10	17.55
13-17	19	33.33
18plus	28	49.12
Total	57	100

Table 5 shows the occurrence of self-medication based on age, out of the population that practice SM below 13 were 11 (7.7%), 13-17 were 24 (16.8%) and 18plus were 108 (75.5%), which means the percentage of people. And for people that do not practice SM below 13 were 10 (17.55%), 13-17 were 19 (33.33%) and 18plus were 28(49.12%). Which means self-medication are practiced mostly by people 18 above, then the smaller ones.

Table 6: Respondent that practice and do not practice SM base on residential area

Respondent that practice SM	Frequency	Percentage%
Central Monrovia	39	27.28
Other parts of Monrovia	53	37.08
Sinkor and Congo town belt	7	4.89
Outside Monrovia	44	30.75
Total	143	100

Respondent that does not practice SM	Frequency	Percentage%
Central Monrovia	13	22.81
Other parts of Monrovia	15	26.32
Sinkor and Congo town belt	3	5.26
Outside Monrovia	26	45.61
Total	57	100

Table 6 shows respondent that practice and do not practice SM base on their residential address. Other parts of Monrovia have the highest number of people practicing SM, while people outside Monrovia have the highest number of people that do not practice SM.

Table 7: Main source of obtaining drugs		
Site for obtaining drugs	**Frequency**	**Percentage%**
Pharmacy	125	87.76
Roadside hawker	17	12.24
Total	143	100

Table 7 depicts where the respondent usually obtains their drugs from, and 125 (87.76%) obtain their drugs from pharmacy while 17(12.24%) obtain theirs from roadside hawker.

Table 8: Most self-medicated drugs category		
Drugs category that are most self-medicated	**Frequency**	**Percentage%**
Analgesic	68	47.41
Antimalarial	46	32.31
Antibiotics	20	13.98
Antidiarrheal	5	3.5
Ointment	2	1.4
Tonics	2	1.4
Total	143	100

Table 8 shows the most commonly self-medicated drugs by the respondent, and analgesic 68(47.41%), were surprisingly higher than Antimalarial 46(32.31%). Which mean the most self-medicated drugs category is analgesic, ointment and Tonics 2(1.4%) are the least self-medicated drugs category.

Table 9: Respondent knowledge about their most self-medicated drugs		
Knowledge on Self-medicated drugs	**Frequency**	**Percentage%**
Content and Dose	90	62.93
Duration of therapy	15	10.48
No knowledge	38	26.59
Total	143	100

Table 9 shows what knowledge the respondent has about their most self-medicated drugs, most of the respondent have knowledge about the content and dose (62.93%) of the drugs and few have knowledge about the duration of therapy for the drugs (10.48%).

Table 10: Respondent illness that are most self-medicated for		
Illness self-medicated for	**Frequency**	**Percentage%**
Headache	44	30.8
Cough, cold, sore throat	23	16.1
Menstrual symptoms	23	16.1
Muscle pain	26	18.2
Diarrhea	10	6.9
Vomiting	5	3.5
Fever	12	8.4
Total	143	100

Table 10 shows the illness that are most self-medicated for, and the most self-medicated illness is Headache 44 (30.8%). Which means more people self-medicate when they experience headache, and the least illness self-medicated for is vomiting 5(3.5%).

Table 11: Respondent reason for choosing and not choosing self-medication.		
Reason for self-medicating	**Frequency**	**Percentage%**
Time saving	23	16.07
No need to visit doctor for minor Illness	52	36.4
Economical (Cheap)	29	20.29
Quick relief	4	2.79
Ease and convenience	10	6.97
I have old prescription	14	9.8
I have medicine at home	4	2.79
Past exposure	3	2.1
Pharmacist	4	2.79
Total	143	100

Reason for not self-medicating	**Frequency**	**Percentage%**
Risk of missing the diagnosis	21	36.84
Past terrible experience	17	29.82
Risk of wrong drug use	8	14.04
Risk of using wrong drugs	5	8.77
Risk of adverse drug reaction	6	10.53
Total	57	100

Table 11 shows the reason for which people practice and do not practice Self-medication, the major reason for the practice of SM from the respondent is no need to visit doctor for minor illness 52(36.4%), while the major reason for people not practicing SM is Risk of missing the diagnosis 21(36.84%).

Table 12: Respondent option on self-medication been safe or unsafe		
Is SM Safe/Unsafe	**Frequency**	**Percentage%**
Safe	99	49.5
Unsafe	93	46.5
I don't know	8	4
Total	200	100

Table 12. shows the number of respondents that said self-medication practices is safe 99(49.5%) and unsafe, 93(46.5%).

Table 13: Respondent source of obtaining information about their most SM drugs		
Source of obtaining info.	**Frequency**	**Percentage%**
Friends and relatives	68	47.55
Past exposure	67	46.85
Television	7	4.90
Lecture class	1	0.7
Total	143	100

Table 13. Shows where people usually get their source of information about the Medicine, they self-medicate with. Most people obtain information by friends or relative (47.55%), some by past exposure (46.85%), others through TV Ad (4.90%).

4. Discussion

The study was aimed at assessing the knowledge, attitude and practice of self-medication among people of Central Monrovia the answer of the respondent and the results of the study shows that they are a high prevalence of self-medication among people of the communities and also people of the Republic of Liberia. The study was similar to that of other researcher, according to Dare, he states that the overall self-medication rate in sub-Saharan Africa ranges from 11.9%-75.7%, the results of this study fall within the range that Dare stated in his research (Dare, 2022). According to research, self-medication appears to be more common in women, but surprisingly the result of this study was different, as self-medication is higher in men than women, according to the study findings, most women have stopped practicing self-medication because of their terrible past experiences from it (Ismail et al., 2021).

According to the common reason for people to self-medicate is the convenience of going to the pharmacy rather than seeing a doctor and avoiding the need to go to hospital for treatment, but according to the study, results shows that the most common reason for self-medication is because people think there is no need to visit a doctor for minor illness that can be treated by themselves (Kassie et al., 2018). Most respondent think self-medication is safe and others think it is not safe, the difference between it been safe and unsafe is less. Chautrakan states in his study that the most self-medicated drugs category NSAIDs and antibiotics, but from the respondent answers the most self-medicated drugs groups is Analgesics followed by antimalarial. Respondent use analgesic mainly for headache, muscle pain and menstrual symptoms, as for the ones that self-medicate with antimalarial, they feel they already knows the sign of malaria, and treat it themselves when they start getting these symptoms of developing malaria in their body, from the study result and finding, the use of antibiotics is low, only few people use antibiotics to treat cold, most people use cold syrups to treat cold (Chautrakan, 2021).

Lei in his research states that the most self-medicated illness in China were cough and cold, from the answers received from the respondent the illness most self-medicated for is Headache (Lei, 2018). Some people that are not practicing SM, reason for not practicing SM is the risk of missing the diagnosis and others are because of their past terrible experience with SM, from the study most women have to stop using SM, because they have missed the diagnosis and later had complication in their pregnancy, because they never knew they were pregnant but was using other drugs to treat an illness they recognized. Although some individual purchase drugs from road hawker, majority usually obtain their drugs from pharmacy, and the knowledge they have about their most self-medicated medicine is the dose and duration of therapy of the medicine, due to the fact that they have been self-medicating with the drugs and already have past experience of it, Respondent usually acquired knowledge of a certain drugs from their friends and family, and sometimes due to past exposure. People knowledge on self-medication is high, more people are knowledgeable about what they are practicing while few have no knowledge of what they are doing, their attitude and practice towards self-medication is not too good, and the irrational use of medicine is high according to the study findings.

For the respondent below 13 and 13-17, their knowledge on Self-medication is very low. Their way of practicing SM is through their parents mainly their mothers. For children below 13 and 13-17 that don't practice SM, are the privileged ones who parents can afford carrying them to the hospital for checkup. Some of the children that practice self-medication without their parents giving them the medicine are children that sells on the street and are one way or the other fending for themselves, once they have symptoms of an illness, they buy the medicine from the roadside seller and take it. For the adult that practice Self-medication their knowledge self-medication is high, but their attitude and practice towards it is wrong. Most of the adult use painkillers for muscle pain and headache, some of them take analgesic drugs every day, as long as the pain is still there. This could lead to drugs dependence and some of them buy different pain killers for every time they feel pain and still maintain the same dose as the first without checking the mg of the medicine to see if it's different.

Some individuals that practice SM go to the clinic or hospital for checkup, once they get the results on the kind of sickness they have, they go to the pharmacy to buy the medicine base on the report, without getting an advice from the doctor on how the medicine should be taken. Some go to the pharmacy and tell them which drugs they want, some buy more than 5 tablet and take it all at once, without knowing the adverse drugs effects, and without knowing if they are supposed to take the medicine at the same time or different time. Some individuals use left over medicine from previous sickness and use it to treat the same sickness but new one, some of them reduce or increase the dose that the pharmacist prescribed for them.

5. Conclusion

Self-medication practices is getting high in the study area. Many people in Liberia practice self-medication because they think there is no need to visit the doctor, which is not advisable. People are using too much analgesic and antimalarial when they feel sick, many people knowledge on self-medication is high, but their practice and attitude towards it is wrong.

Recommendations

From the findings, the following are the recommendations:

1. There is a need for health organizations to raise awareness and inform people about the risks of practicing self-medication.
2. The Health Regulatory Authority should put into place a strong policy for prescription-only drugs not to be available as over-the-counter drugs.
3. Hospitals and health centers should be built in more communities so they can be easily accessed by the citizens.

References

Abdi, A., Faraji, A., and Khatony, A., 2018. Prevalence of self-medication practice among health sciences students in Kermanshah, Iran. BMC Pharmacol Toxicol., 19, Pp. 36.

Abduelkarem, A.R., Othman, A.M., and Abuelkhair, Z.M., 2019. Prevalence of Self-Medication with Antibiotics Among Residents in United Arab Emirates. Infection and Drug Resistance, Pp. 3445-345.

Alduraib, R.K., and Altowayan W.M., 2022. Cross-sectional survey: knowledge, attitudes, and practices of self-medication in medical and pharmacy students.BMC Health Serv Res., 22, Pp. 352.

Ali, A.N., Kai, J.T.K., Least, C.C., Dhanaraj, S.A., 2013. Self-medication practices among health care professionals in a Private University, Malaysia. International Current Pharmaceutical Journal, 1 (10), Pp. 302-310.

Almakhi, M.E., Almuqati, S.F., Alwezainani, M.O., 2022. Cross sectional study of the knowledge attitude and practice of self-medication among the general population in Western region of Saudi Arabia. Cureus, 5;14(10), Pp. e29944. doi: 10.7759/cureus.29944. Erratum in: Cureus. 2023 Jan 4;15(1):c90. PMID: 36381834; PMCID: PMC9635938.

Ateshim, Y., Bereket, B., Major, F., Emun, Y., 2019. Prevalence of self-medication with antibiotics and associated factors in the community of Asmara, Eritrea: a descriptive cross-sectional survey. BMC Public Health. Jun 10;19 (1), Pp. 726. doi: 10.1186/s12889-019-7020-x. PMID: 31182071; PMCID: PMC6558833.

Babatunde, O.A., Fadare, J.O., Ojo, O.J., Durowade, K.A., 2016. Self-medication among health workers in a tertiary institution in South-West Nigeria. Pan Afr Med J., 16, Pp. 24-312. doi: 10.11604/pamj.2016.24.312.8146. PMID: 28154667; PMCID: PMC5267862.

Chautrakarn, S., 2021. Self-Medication With Over-the-counter Medicines Among the Working Age Population in Metropolitan Areas of Thailand. Front Pharmacol., 11 (12), Pp. 726643. doi: 10.3389/fphar.2021.726643. PMID: 34456738; PMCID: PMC8385363.

Chipwaza, B., Mugasa, J.P., Gwakisa, P.S., 2014. Self-medication with anti-malarials is a common practice in rural communities of Kilosa district in Tanzania despite the reported decline of malaria. Malar J, 3 (13), Pp. 252. doi: 10.1186/1475-2875-13-252. PMID: 24992941; PMCID: PMC4087197.

Chuwa, B.B., Njau, L.A., Msigwa, K.I., Shao, E., 2021. Prevalence and factors associated with self-medication with antibiotics among university students in Moshi Kilimanjaro Tanzania. Afr Health Sci., 21 (2), Pp.

633-639. doi: 10.4314/ahs.v21i2.19. PMID: 34795717; PMCID: PMC8568219.

Dare, S.S., Eze, D.E., Echoru, I., Usman, I.M., 2022. Behavioral Response to Self-Medication Practice Before and During Covid-19 Pandemic in Western Uganda. Patient Prefer Adherence, 20 (16), Pp. 2247-2257. doi: 10.2147/PPA.S370954. PMID: 36034331; PMCID: PMC9400814.

Freo, U., Ruocco, C., Valerio, A., Scagnol, I., Nisoli, E., 2021. Paracetamol: A Review of Guideline Recommendation. J. Clin Med., 3110(15), Pp. 3420. doi: 10.3390/jcm10153420. PMID: 34362203; PMCID: PMC8347233.

Grigoryan, L., Burgerhof, J.G.M., Deschepper, R., Monnet D.L., Matteo, A.D., 2006. Self-medication with Antimicrobial Drugs in Europe. Emerg Infect Dis., 12 (3), Pp. 452-459. doi: 10.3201/eid1203.050992. PMID: 16704784; PMCID: PMC3291450.

Harris, J.T., 2012. Assessing the Rational Use of Essential Medicines In Public Health Facilities Montserrado County, Liberia.

Hashemzaei, M., Afshari, M., Tabrizian, K., 2021. Knowledge, attitude, and practice of pharmacy and medical students regarding self-medication, a study in Zabol University of Medical Sciences; Sistan and Baluchestan province in south-east of Iran. BMC Med Educ., 14;21 (1), Pp. 49. doi: 10.1186/s12909-020-02374-0. PMID: 33446190; PMCID: PMC7807440.

Hernandez-Juyol, M., Job-Quesada, J.R., 2002. Dentistry and self-medication: A current challenge. Med Oral., 7 (5), Pp. 344-347. English, Spanish. PMID: 12415218.

Hu, X.Y., Logue, M., Robinson, N., 2020. Antimicrobial resistance is a global problem – a UK perspective. Eur J Integr Med., 36, Pp. 101136. doi: 10.1016/j.eujim.2020.101136. Epub 2020 May 12. PMID: 32399092; PMCID: PMC7217106

Ismail, Z., Mohan, A., Ngendahayo, C., Aborode, A.T., Abid, A., Ahmad, S., Essar, M.Y., 2021. Self-Medication in Africa during COVID-19 Pandemic.

Janatolmakan, M., Abdi, A., Andayeshgar, B., soroush, A., Khatony, A., 2022. The Reasons for Self-Medication from the Perspective of Iranian Nursing Students: A Qualitative Study. Nurs Res Pract. 2022 Apr 6; 2022:2960768. doi: 10.1155/2022/2960768. PMID: 35433047; PMCID: PMC9007662.

Kalungia, A.C., Burger, J., Goodman, B., Costa, J.O., Simuwelu, C., 2016. Non-prescription sale and dispensing of antibiotics in community pharmacies in Zambia. Expert Rev Anti Infect Ther., 14 (12), Pp. 1215-1223. doi: 10.1080/14787210.2016.1227702. Epub 2016 Sep 9. PMID: 27548801.

Kassie, A., Bifftu, B.B., Mekonnen, H.S., 2018. Self-medication practice and associated factors among adulthood household member in Meket District, Northeast Ethiopia. BMC Pharmacol Toxicol., 10;19 (1), Pp. 15.

Kumar, N., Kanchan, T., Unnikrishnan, B., Mithra, T.R.K., Kulkarni, V., Papana, M.K., Holla, R., Uppal, S., 2013. Perception and practice of self-medication among medical students in Coastal South India. PLoS One. Aug 28;8 (8), Pp. e72247. doi: 10.1371/journal.pone.0072247. PMID: 24015223; PMCID: PMC3756058

Kumari, R., Kiran, K., Kumar, D., Bahl, R., Gupta, R., 2012. Study of Knowledge and Practices of Self-Medication among Medical Students at Jammu. jms [Internet]. 2012Dec.27 [cited 2023Jul.27];15 (2), Pp. 141-4.

Lei, X., Jiang, H., Liu, C., Ferrier, A., Mugavin, J., 2018. Self-Medication Practice and Associated Factors among Residents in Wuhan, China. Int J Environ Res Public Health., 4;15 (1), Pp. 68. doi: 10.3390/ijerph15010068. PMID: 29300318; PMCID: PMC5800167

Liu, H., Li, H., Teuwen, D.E., Sylvia, S., Shi, H., Rozelle, S., Yi, H., 2022. Irrational Use of Medicine in the Treatment of Presumptive Asthma among Rural Primary Care Providers in Southwestern China. Front Pharmacol., 13, Pp. 767-917. doi: 10.3389/fphar.2022.767917. PMID: 35242030; PMCID: PMC8885990.

Mamo, D.B., Alemu, B.K., 2019. Rational Drug-Use Evaluation Based on World Health Organization Core Drug-Use Indicators in a Tertiary Referral Hospital, Northeast Ethiopia: A Cross-Sectional Study. Drug Healthc Patient Saf., 16 (12), Pp. 15-21. doi: 10.2147/DHPS.S237021. PMID: 32021478; PMCID: PMC6970620.

Marathe, P.A., Kamat, S.K., Tripathi, R.K., Raut, S.B., Khatri, N.P., 2020. Over-the-counter medicines: Global perspective and Indian scenario. J Postgrad Med., 66 (1), Pp. 28-34. doi: 10.4103/jpgm.JPGM_381_19. PMID: 31898596; PMCID: PMC6970327.

McCrae, J.C., Morrison, E.E., Maclntyre, I.M., Dear, J.W., Webb, D.J., 2018. Long-term adverse effects of paracetamol – a review. Br. J. Clin. Pharmacol., 84 (10), Pp. 2218-2230. doi: 10.1111/bcp.13656. Epub Jul 20. PMID: 29863746; PMCID: PMC6138494.

Mehta, K.R., Sharma, S., 2015. Knowledg, Attitude and Practice of self-medication among medical student. IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959, 4 (1), Pp. 89-96.

Mekonnen, B.D., Ayalew, M.Z., Tegegn, A.A., 2021. Rational Drug Use Evaluation Based on World Health Organization Core Drug Use Indicators in Ethiopia: A Systematic Review. Drug Healthc Patient Saf., 27 (13), Pp. 159-170. doi: 10.2147/DHPS.S311926. PMID: 34349565; PMCID: PMC8326223.

Melku, L., Wubetu, M., Dessie, B., 2021. Irrational drug use and its associated factors at Debre Markos Referral Hospital's outpatient pharmacy in East Gojjam, Northwest Ethiopia. SAGE Open Med. Jun 12; 9:20503121211025146. doi: 10.1177/20503121211025146. PMID: 34178342; PMCID: PMC8202335.

Moonajilin, M.S., Mamun, M.A., Rahman, M.E., Mahmud M.F., Shamim, A.H.M., Mamun, A.L., Rana, M.S., Gozal, D., 2020. Prevalence and Drivers of Self-Medication Practices among Savar Residents in Bangladesh: A Cross-Sectional Study. Risk Manag Healthc Policy, 8 (13), Pp. 743-752. doi: 10.2147/RMHP.S256272. PMID: 32753987; PMCID: PMC7354917.

Nepal, G., Bhatta, S., 2018. Self-medication with Antibiotics in WHO Southeast Asian Region: A Systematic Review. Cureus., 5 (10-4), Pp. e2428. doi: 10.7759/cureus.2428. PMID: 29876150; PMCID: PMC5988199.

Ofori-Asenso R., 2016. Irrational Use of Medicine. Pharmacy (Basel). 4 (4), Pp. 35. Published online 2016 Oct 28. doi: 10.3390/pharmacy4040035 PMCID: PMC5419375PMID: 28970408

Omolase, C.O., Adeleke, O.E., Afolabo, A.O., Afolabo, O.T., 2007. Self-medication amongst general outpatient in a Nigerian community hospital. Ann Ib Postgrad Med., 5 (2), Pp. 64-7. doi: 10.4314/aipm.v5i2.64032. PMID: 25161435; PMCID: PMC4110989

Pavyde, E., Veukutis, V., Maciuliene, A., Maciulis, V., Petrikonis, K., Stankevicius, E., 2015. Public Knowledge, Beliefs and Behavior on Antibiotic Use and Self-Medication in Lithuania. Int J Environ Res Public Health, 12 (6), Pp. 7002-16. doi: 10.3390/ijerph120607002. PMID: 26090612; PMCID: PMC4483745.

Prestinaci, F., Pezzotti, P., Pantosti, A., 2015. Antimicrobial resistance: a global multifaceted phenomenon. Pathog Glob Health, 109 (7), Pp. 309-18. doi: 10.1179/2047773215Y.0000000030. Epub 2015 Sep 7. PMID: 26343252; PMCID: PMC4768623

Rahimisadegh, R., Sharifi, N., Jahrohmi, V.K., Zahedi, R., Rostayee, Z., Asadi, R., 2022. Self-medication practices and their characteristics among Iranian university students. BMC Pharmacol Toxicol., 23 (1), Pp. 60. doi: 10.1186/s40360-022-00602-5. PMID: 35941706; PMCID: PMC9358361.

Rashid, M., Chhabra, M., Kashyap, A., Undela, K., Gudi, S.K., 2020. Prevalence and Predictors of Self-Medication Practices in India. A systematic literature review and analysis. Curr Clin Pharmacol., 15 (2), Pp. 90-101. doi: 10.2174/1574884714666191122103953. PMID: 31763976; PMCID: PMC7579319.

Ray, I., Bardhan, M., Hassan, M.M., Sahito, A.M., Khan, E., Patel, S., Jani, I., Bhatt, P.K., Rohini, S.P., Swed, S., 2022. Over the counter drugs and self-medication: A worldwide paranoia and a troublesome situation in India during the COVID-19 pandemic. Ann Med Surg., (Lond), 78, Pp. 103797. doi: 10.1016/j.amsu.2022.103797. Epub 2022

Rehman, M., Ahmed, S., Ahmed, U., Tamanna, K., Sabir, M.S., Niaz, Z., 2021. An overview of self-medication: A major cause of antibiotic resistance and a threat to global public health. J Pak Med Assoc., 71 (3), Pp. 943-949. doi: 10.47391/JPMA.1331. PMID: 34057954

Ruiz, M.E., 2010. Risk of self-medication practices. Curr Drug Saf., 5 (4), Pp. 315-23. doi: 10.2174/157488610792245966. PMID: 20615179

Rusu, R.N., Ababei, D.C., Bild, W., Stoian, I., Macadan, I., Stanciu, G.D., Ciobica, A., Bild, V., 2022. Self-Medication in Rural Northeastern Romania: Patients' Attitudes and Habits. Int J Environ Res Public Health. 2 Nov 13;19 (22), Pp. 14949. doi: 10.3390/ijerph192214949. PMID: 36429676; PMCID: PMC9690038

Sabry, A.N., Farid S.F., Dawoud, D.M., 2014. Antibiotic dispensing in Egyptian community pharmacies: An observational study. Res Social Adm Pharm., 10 (1), Pp. 168-84. doi: 10.1016/j.sapharm.2013.03.004. Epub 2013 May 10. PMID: 23665078.

Sachdev, C., Anjankar, A., Agrawal, J., 2022. Self-Medication with Antibiotics: An Element Increasing Resistance. Cureus., 29;14 (10), Pp. e30844. doi: 10.7759/cureus.30844. PMID: 36451647; PMCID: PMC9704507.

Saha, A., Marma, K.S.S., Rashid, A., Tarannum, N., Das, S., Tonmoy, C., Afrin, N., Chakraborty, P., Emran, MD., Mehedi, H.M.H., Hussain, M.I., Barua, A., Mistry, S.K., 2022. Risk factors associated with self-medication among the indigenous communities of Chittagong Hill Tracts, Bangladesh. PLoS One, 13;17 (6), Pp. e0269622. doi: 10.1371/journal.pone.0269622. PMID: 35696405; PMCID: PMC9191716

Seam, M.O.R., Bhatta, R., Saha, B.L., Das, A., Hossain, M.M., Uddin, S.M.N., Karmaka, P., Choudhuri, S.M.K., Sattar, M.M., 2018. Assessing the Perceptions and Practice of Self-Medication among Bangladeshi Undergraduate Pharmacy Student, 15;6 (1), Pp. 6. doi: 10.3390/pharmacy6010006. PMID: 29342983; PMCID: PMC5874545.

Sema, F.D., Asres, E.D., Wubeshet, B.D., 2021. Evaluation of Rational Use of Medicine Using WHO/INRUD Core Drug Use Indicators at Teda and Azezo Health Centers, Gondar Town, Northwest Ethiopia. Integr Pharm Res Pract., 21;10, Pp. 51-63. doi: 10.2147/IPRP.S316399. PMID: 34189113; PMCID: PMC8232866.

Skiliros, E., Merkouris, P, Papazafiropoulou, A., Gikas, A., Matzouranis, G., Papafragos, C., Tsakanikas, L., Zarbala, I., Vasibosis, A., Stamataki, P., Sotiropoulos, A., 2010. Self-medication with antibiotics in rural population in Greece: a cross-sectional multicenter study. BMC Fam Pract., 11, Pp. 58. https://doi.org/10.1186/1471-2296-11-58

The National Institute of Drugs Abuse (NIDA) report 2023.

United Nations Human Settlements Programme. 2014. Liberia Housing Profile" (PDF). . Pp. 14–15, 23. Archived from the original (PDF) on 2017-10-17. Retrieved 2017-10-16.

US Food and Drugs Administration, 2018. U.S. Understanding Over-the-counter Medicines.

Wegbom, A.I., Edet, K.C., Raimi, O., Fagbamigbe, A.F., Kiri, V.A., 2021. Self-Medication Practices and Associated Factors in the Prevention and/or Treatment of COVID-19 Virus: A Population-Based Survey in Nigeria. Front Public Health. Jun 4;9:606801. doi: 10.3389/fpubh.2021.606801. PMID: 34150693; PMCID: PMC8213209.

Yadav, A.K., Rai, B.K., Budhathoki, S.S., Ghimire, A., hrestha S.R., Malla, G.B., 2016. Self-prescription of Paracetamol by Undergraduate Students in BP Koirala Institution of Health Sciences. JNMA J Nepal Med Assoc., 55 (203), Pp. 11-15. PMID: 27935916

Yin, X., Mu, K., Yang, H., Wang, J., Chen, Z., Jiang, N., Yang, F,, Zhang, G., Wu. J., 2021. Prevalence of self-medication with antibiotics and its related factors among Chinese residents: a cross-sectional study. Antimicrob Resist Infect Control, 10, Pp. 89. https://doi.org/10.1186/s13756-02-00954-3