Open Access

Pak J Med Res
Vol. 62, No. 4, 2023

Original Article

Practice of Self-medication and its Determinants among Non-medical Adult Population of Rawalpindi

Sana Bilal, Rizwana Shahid, Mehjabeen Qureshi, Syed Arshad Sabir, Narjis Zaidi
Department of Community Medicine, Rawalpindi Medical University, Rawalpindi.

Abstract

Objective: To analyse self-medication practice and its determinants among non-medical adult population of Rawalpindi.
Study type, settings & duration: A cross-sectional descriptive study was carried out in Rawalpindi city from April to September 2022.
Methodology: The 382 non-medical adults were enrolled through consecutive non-probability sampling. Self-administered structured questionnaire was used to gather the information pertinent to demographics of study subjects, distance from healthcare facility, access to medicines, ways of demanding medicine from pharmacist, reasons/ ailments for self-medication and source of information about drug. The data was analysed by using SPSS version 25.0 and Microsoft Excel 2016. Chi-square test was applied to determine the association of self-medication practice with education and socio-economic status. $p < 0.05$ was considered significant.
Results: Out of 382 study subjects, most (54.2%) were females with mean age of 22.46±0.79 years. About 83% respondents were indulged in self-medication practice and 31.8% of them did self-medication due to quick relief from symptoms while 43.3% of the 65 persons did not indulge in self-medication due to fear of wrong use of drug. Low and middle social class had statistically significant association (p <0.001) with self-medication practice. Similarly educational level has non-significant association (p >0.05) with self-medication practice. Almost 61.8% of respondents were urban dwellers and 70% were students. About 40.14% were practicing self-medication in compliance with previous prescription.
Conclusion: Female students are more indulged in self-medication practice for getting relief of their symptoms from previously prescribed medications.
Key words: Self-medication, determinants, students, urban dwellers, previous prescription.

Introduction

Self-medication is routinely practiced worldwide.[1] However, it has frequently been reported among the people of resource constrained countries.[2] The resultant antimicrobial resistance and confrontation with adverse drug reactions have emphasized self-medication as a serious public health challenge.[3]

In lieu of self-medication practice globally, World Health Organization (WHO) has specified certain guidelines for regulatory assessment of the drugs that are commonly used by general public for self-medication.[4] Self-medication has also determined as the prime cause for delay in reaching the healthcare facilities for early diagnosis and prompt medical intervention; hence it is also known as one of the reasons for poor prognosis among such individuals.[5] Illogical utilization of antibiotics without medical prescription has also led to significant anti-microbial resistance in the community; hence necessitates discouragement at mass media level for health promotion and protection of our people from this menace.[6]

Taking medication for self-diagnosed ailment by general public is associated with certain health-related risks particularly drug interaction, poly-pharmacy and drug dependence.[7] Conveniently accessible drugs in medical stores of

Corresponding Author:
Rizwana Shahid
Department of Community Medicine
Rawalpindi Medical University, Rawalpindi.
Email: drriz_shahid@yahoo.com

Received: 18 February 2023, **Accepted:** 17 January 2024,
Published: 31 January 2024

Authors Contribution

SB & SAS conceptualized the project. RS & MQ did the data collection. SB & RS also did the literature search. SB, MQ & NZ performed the statistical analysis. Drafting, revision & writing of manuscript were done by SB, RS & SAS.

Pakistan are analgesics, antipyretics, anti-histamines and multi-vitamins.[8] No doubt, our healthcare professionals in addition to medical and pharmacy students are also practicing the same, but counselling the healthcare workforce for condemning the irrational use of allopathic medicines in order to discourage the same by non-medical personnel at their homes and society is imperative in order to get rid of the grave healthcare consequences.[9] Self-medication among healthcare personnel is attributed to competitive work environment and commitment to their profession.[10]

Practicing self-medication has now become a culture in Pakistan. Considering the aliment as a minimal issue is responsible for intake of inappropriate drug dosage irrespective of their resultant side effects.[11] Several factors are contributing towards self-medication among our general population like education, socioeconomic status, family attitudes, drug regulations and previous experience with medicines.[12] Numerous such studies have been carried out among medical and non-medical university students. This practice among general population of our country is veiled and non-medical personnel being unaware of drug pharmacokinetics, interactions, indications and contraindications are more vulnerable to suffer from hazards of self-medication. The present study is therefore intended to find out the determinants of self-medication among general population of Rawalpindi city. Knowing the root causes for this harmful practice would enable our stakeholders to work up for its elimination by implementation of relevant legislative measures not only for the benefit of our people but also to reduce excessive workload on our healthcare facilities due to subsequent adversity of self-medication.

Methodology

A cross-sectional descriptive study was carried out among 382 non-medical adults of Rawalpindi city from April to September 2022 who were enrolled through consecutive non-probability sampling. Non-medical adults from the community who visited Holy Family Hospital Rawalpindi as attendant along with their patients were included in the study. Non-medical adults in current study refer to non-doctors and non-medical students. Moreover, nurses, paramedics and pharmacists were also excluded from this study. Prevalence of self-medication in Pakistan is determined to be 53%-61.3%[13]. In accordance with this prevalence, the sample size of 382 was calculated with WHO sample size calculator with 95% confidence level of 1.96 (z) and 5% margin of error (d). The formula used for calculation was $n = z^2 \times p\ (1-p) / d^2$. The informed consent from the study subjects were taken. This research was carried out in alignment with STROBE checklist. Self-medication is the practice of taking non-prescribed medicine either considering illness as a minimal healthcare issue, or in the light of previous diagnosis. The drugs easily accessible to the people are taken by them without consulting the health care professionals. Data was collected by means of self-administered structured questionnaire. Face and content validation of the questionnaire was established following its review and modifications as per recommendations of 3 educationists and 3 public health specialists respectively. Items of the questionnaire were binary with Yes/ No options and comprised of demographics of the study subjects, distance from healthcare facility, access to medicines, demanding medicine from pharmacist either verbally or through written prescription, reasons/ ailments for self-medication and source of information about drug. The data was analysed by using SPSS version 25.0 and Microsoft Excel 2016. Descriptive statistics were applied for all variables. Chi-square test was applied to determine the association of self-medication practice with education and socio-economic status. p <0.05 was considered significant.

The ethical approval was obtained from the Institutional Research and Ethics Form of Rawalpindi Medical University, Rawalpindi through reference no. 148/IREF\RMU\2021.

Results

Of the total 382 study participants in current research, about 175(45.8%) were males while 207 (54.2%) were females. Mean age of our study subjects was 22.46±0.79 years. About 317 (83%) of them were indulged in self-medication practice and majority (56.6%) of them were females. Mainly 18-27 years old females were indulged in self-medication practice as depicted below in Figure-1.

Most (78.2%) of our respondents were unmarried while 20.9% and 0.9% were married and widowed respectively. Around 40% of our study subjects had monthly income more than Rs. 70,000/- while rest of the 31.2% and 28.8% respondents were earning up to and less than Rs. 40,000/- respectively. About 56.5% of the individuals in our study belonged to low and middle social class and statistically significant association of low and

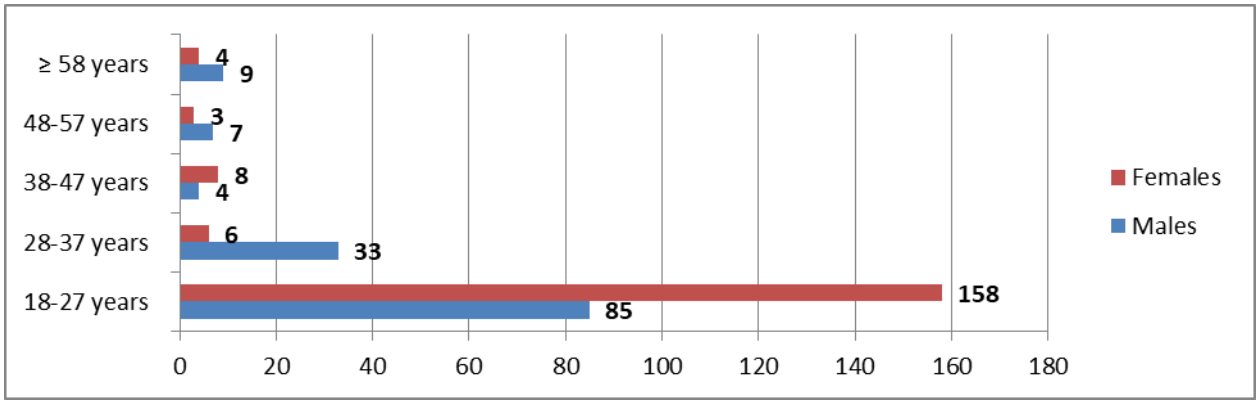

Figure-1: Gender-based self-medication practice in different age groups. (n = 317)

middle socioeconomic status was determined with self-medication practice as illustrated below in Table-1.

Table 1: Relationship of social class with self-medication practice.

Social class	*Self-medication Practice*		*Total*
	Yes	*No*	
Low & middle	179	51	230
Upper	138	14	152
$X^2 = 11.01$		$p < 0.001$	

Majority (61.8%) of the people were residing in urban communities. Around 70% of our study subjects were students as shown below in Figure-2.

About 73% of illiterate participants out of 44 and 84% of educated persons out of 338 literate in our study were practicing self-medication as shown below in Table-2.

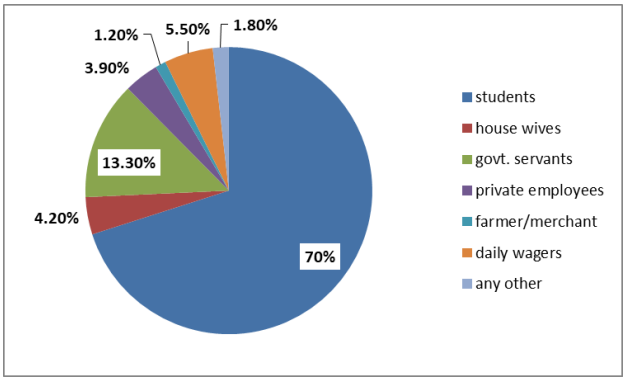

Figure-2: Occupational details of our respondents.

On comparing the self-medication practice of illiterate with those educated up to intermediate level, there was statistically insignificant association (p >0.05). Despite more indulgence of people with graduation and above in self-medication practice. There was statistically insignificant difference in their self-medication practice with those educated up to intermediate level as revealed below in Table-3.

Table 2: Relationship of self-medication with educational level of study subjects. (n =274)

Educational Level	*Self-medication Practiced*		*Total*
	Yes	*No*	
Illiterate	32 (73%)	12 (17%)	44 (11.5%)
Able to read and write	9 (75%)	3 (25%)	12 (3.16%)
1-8 grades	22 (96%)	1 (4%)	23 (6.1%)
9-12 grades	84 (82.3%)	18 (17.7%)	102 (26.7%)
Graduated and above	170 (84.6%)	31 (15.4%)	201 (52.5%)
Total	317	65	382

Table 3: Statistical association of educational level with self-medication practice.

Educational Level	*Self-medication Practiced*		*p-value*
	Yes	*No*	
Illiterate	32	12	$p > 0.05$
Educated up to grade 12	115	22	
Graduated and above	170	31	$p > 0.10$
Educated up to grade 12	115	22	

Around 24.8% out of 274 respondents were doing self-medication by peer pressure while rest of the 75.2% were self-medicated by their own will. Of the 382 study population, 80.9% were having health facility at less than one hour distance and medicines were easily accessible to approximately 95.2% of study subjects.

On scrutinizing the way of requesting the pharmacist for medicine, most (68.5%) demanded the required medicine by mentioning its name while 20.3% and 4.8% self-medicated people asked for

medicine from pharmacist by telling their symptoms and showing the drug container respectively. Rest

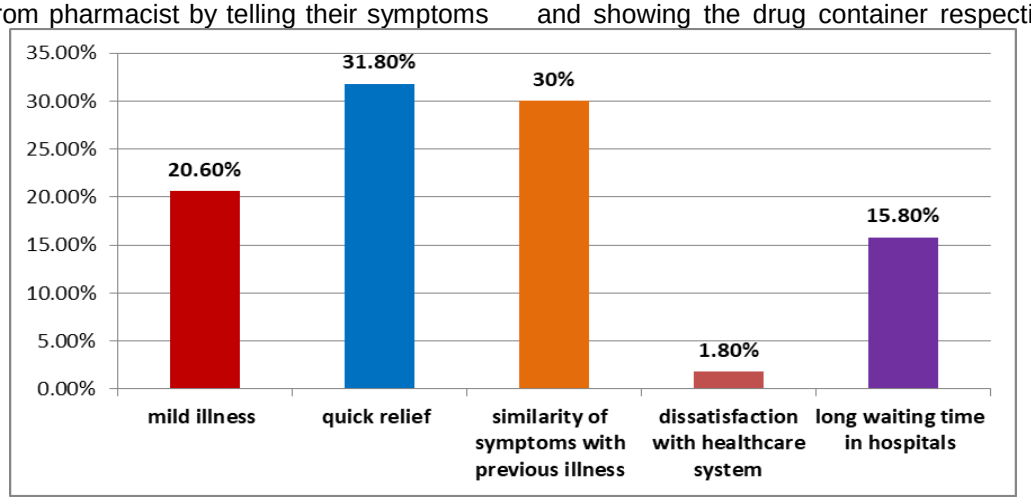

Figure 3: Reasons for self-medication. (n = 317)

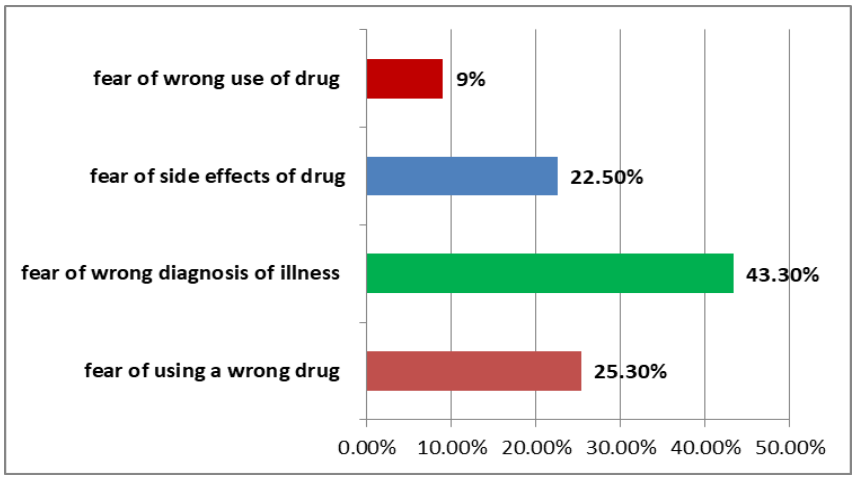

Figure 4: Reasons for not practicing self-medication. (n = 65)

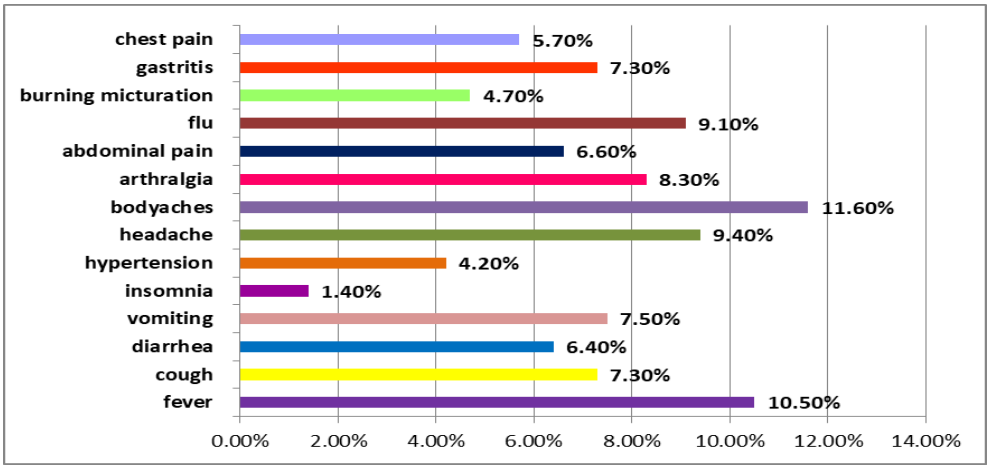

Figure 5: Reasons / ailments for self-medication.

of the 6.4% study participants denied disclosing their mode of getting medicine for self-medication. Of the 317 (83%) respondents practicing self-medication, the reasons for this practice are revealed below in Figure-3.

About 74.5% did self-medication for their own sickness while 2.3% and 2.4% practiced self-medication for their adult family member and children respectively. The reasons for not doing self-medication by 65 (17%) of our study population are reflected below in Figure-4.

About 81.9% of self-medicated population got relief from their symptoms while 1.5% subjects got worsening of their symptoms. However, 12.4% reported non-relief from symptoms and 4.2% experienced side effects from self-medication. Of the 317 people practicing self-medication around 66.4% were unaware of the exact drug dosage. The ailments for which self-medication was carried out by our study participants are illustrated below in Figure-5.

Sources of information for getting self-medicated by a specific drug are depicted below in Table-4.

Table 4: Sources of information for self-medication in common people. (n = 317)

Source	*Frequency (%)*
Previous prescription	127 (40.14%)
Friends	105 (32.85%)
Internet	47 (15%)
Pharmacist	38 (12.01%)

Discussion

About 70% of students in our study despite being non-medical were indulged in self-medication practice. Mean age of our study participants was 22.46±0.79 years. A similar study done by Tesfaye et al., among both medical and non-medical students revealed involvement of around 69% of non-medical students relative to 59.7% of medical pupils.[15] Of the 317 study subjects practicing self-medication in current study, 56.6% were females. Contrary to our results, a study by Aslam et al., revealed male gender as one the prime predictors of self-medication with mean age of 37.1±10.1 years.[16] Another study by Syed et al., also concluded that young males were relatively more indulged in self-medication.[17] Our youngsters being more prone to self-medication should strictly be prohibited from getting drugs without valid prescription. Social media should play an optimistic role in this concern by getting public aware of this immoral attitude and its resultant harm to the individuals.

In current study about 56.6% of the study subjects indulged in self-medication practice belonged to low- and middle-income group. Likewise, a study (2011-13) carried out among Chinese people revealed that middle-income people were practicing self-medication relatively more particularly with Over-the- counter (OTC) drugs. Although such medications can safely be traded without prescription of doctors; however, lowest social class of their community was routinely indulged in self-medication with Prescription Only Medicines (POM).[18] Contrary to our study, middle age and elders of China were more likely practicing self-medication. Self-medication is quite common among Chinese and they prefer to opt for self-treatment. One of the reasons for escalated self-medication practice worldwide is convenient access to drugs with minimal healthcare costs.[19] Self-medication practice is intensifying globally despite the efforts to mitigate this public health issue.[20] This issue should seriously be curtailed by our healthcare authorities and strategic planned in order to lessen its prevalence.

In present study, about 84% and 74% of educated and illiterate study participants were indulged in self-medication. Self-medication has substantially been reported amidst COVID-19 pandemic across the globe particularly among females (p <0.001), healthcare work force (p =0.001), high school (0.04) and university educated people (p <0.001); in short, about one third of the individuals at risk of coronavirus infection were known to self-medicate themselves despite unawareness about the efficacy of drugs.[21] Another cross-sectional study among Portuguese female engineering students illustrated the likelihood of self-medication in near future.[22] Likewise, about 61% of Iranian population with adequate medical knowledge and adverse health status seemed to indulge in this risky habit.[23] Self-medication has significantly been practiced in developed regions of the globe as well apart from middle and low income countries.[24,25] The children and adolescents at Germany belonging to high social class with well-educated mothers were also found to be indulged in this risky habit.[26] Hence, self-medication practice seems to be a global issue that needs consideration of all the stakeholders for mitigating its prevalence across the globe. Running mass media campaigns for dissemination of information pertinent to this life-threatening habit is substantially demanded. Regional drug regulatory authorities should periodically assess the drugs conveniently available to common man for self-medication in accordance with guidelines drafted by World Health Organization.[27]

Around 12.4% of our study population did not get their symptoms relieved with self-medication and 4.2% complained of resultant side effects. Similarly, a community-based study by Sridhar et al., carried out in United Arab Emirates revealed suffering with complications in response to self-medication among 19 study subjects.[28] Self-medication practice in current study is attributed to body aches (11.6%), fever (10.5%), headache (9.4%) and flu (9.1%). Likewise, according to a Syrian study, principal indications for self-medication were headache (28.7%), cough or flu (16%) and body ache (14%).[29] Another study among urban inhabitants of an Asian country disclosed fever (31%), headache (19%) and abdominal pain (16.7%) as the predominant healthcare illnesses for provoking self-medication.[30] Almost 60% of the Omani population agreed with the safety of the medications prescribed by their practitioner.[31] Our general community is likely to face adverse effects of self-prescribed medicines that are usually taken by them taking into account their past experiences and beliefs.[32] Although people pursued for self-medication with trivial healthcare problems, they may confront with grave consequences even with minimal difference of dosage. Apart from various drug attributes like pharmacokinetics and pharmacodynamics, different patient related parameters are also to be taken into account for optimizing the drug dosage.[33] Having right drug for the right patient in optimal dosage is imperative for his well-being and this can only be accomplished by prohibiting self-medication practice.

Predominant source of information for igniting self-medication in our study was previous prescription of doctor (40.14%) followed by friends (32.8%) and social network (15%). On the other hand, a study by Rahimisadegh et al., among university students highlighted internet and mass media as the foremost medium for dispersion of information about drugs.[30] On the other hand, medical students self-medicate themselves due to their knowledge about pharmacokinetics and mechanism of action of drugs.[34] There is no harm in responsible self-medication that is aimed to reduce the cost of travelling or wastage of resources. However, self-medication is not safe at all and associated with likelihood of delay in diagnosis, harmful drug reactions, inappropriate dosage that eventually may end in drug dependence or abuse.[12] In addition to dissemination of information pertinent to adversity of self-medication by social media, Ministry of Health should also play pivotal role by banning the sale of unprescribed drugs.[35] This initiative by governing bodies of our country would definitely bring an enormous transformation in current scenario by prohibiting the unnecessary use of medicines.

Self-medication is commonly practiced by young adult females due to false interpretation of their presenting complaints and their connection with previous illness apart from easy access to medicines. In addition to creating awareness about the hazards of self-medication, drug regulatory authorities should work vigilantly to seize this illegitimate practice in the good will of the community.

Conflict of interest: None declared.

References

1. Bennadi D. Self-medication: A current challenge. J Basic Clin Pharm 2014; 5(1): 19-23.
2. Vizhi SK, Senapathi R. Evaluation of the perception, attitude and practice of self-medication among business students in 3 select Cities, South India. IJEIMS 2010; 1(3): 40-4.
3. Pagán JA, Ross S, Yau J, Polsky D. Self-medication and health insurance coverage in Mexico. Health Policy 2006; 75(2): 170-7.
4. World Health Organization. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva 2000. . (Accessed on 15th October 2023) Available from URL:https://apps.who.int/iris/bitstream/handle/10665/66154/WHO_EDM_QSM_00.1_eng.pdf.
5. Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self-medication. Drug Saf 2001; 24: 1027-37.
6. Ganguly NK, Arora NK, Chandy SJ, Fairoze MN, Gill JP, Gupta U, et al. Global antibiotic resistance partnership (GARP): India Working Group. Rationalizing antibiotic use to limit antibiotic resistance in India. Indian J Med Res 2011; 134(4): 517.
7. Pan H, Cui B, Zhang D, Farrar J, Law F, Ba-Thein W. Prior Knowledge, Older Age, and Higher Allowance Are Risk Factors for Self-Medication with Antibiotics among University Students in Southern China. PLoS One 2012; 7(7):e41314.
8. Aziz MM, Masood I, Yousaf M, Saleem H, Ye D, Fang Y. Pattern of medication selling and self-medication practices: A study from Punjab, Pakistan. PLoS One 2018; 13: e0194240.
9. Yasmin F, Asghar MS, Naeem U, Najeeb H, Nauman H, Ahsan MN, et al. Self-medication practices in medical students during COVID-19 pandemic: A cross-sectional analysis. Front Public Health 2022; 10: 803937.
10. Chew-Graham CA, Rogers A, Yassin N I wouldn't want it on my CV or their records': medical students' experiences of help-seeking for mental health problems. Med Educ 2003;37: 873-80.

11. Afridi MI, Rasool G, Tabassum R, Shaheen M, Siddiquallh, Shujauddin M. prevalence and pattern of self-medication in Karachi: A community survey. Pak J Med Sci 2015; 31(5): 1241-5.
12. Ruiz ME. Risks of self-medication practices. Curr Drug Saf 2010; 5(4): 315-23.
13. Azhar H, Tauseef A, Usman T, Azhar Y, Ahmed M. Prevalence, attitude and knowledge of self-medication during Covid-19 disease pandemic. Pak J Med Health Sci. 202;15(5):902-5.
14. Tesfaye ZT, Ergena AE, Yimer BT. Self-medication among medical and non-medical students at the University of Gondar, Northwest Ethiopia: A cross-sectional study. Scientifica 2020: 2020:4021586.
15. Aslam A, Zin CS, Jamshed S, Rahman NSA, Ahmed SI, Pallos P, et al. Self-Medication with Antibiotics: Prevalence, Practices and Related Factors among the Pakistani Public. Antibiotics 2022; 11**:** 795.
16. Syed N, Naseer M, Memon MQ, Rani K. Prevalence of self-medication and its practice among the medical and non-medical students. JLUMHS 2014; 13(2): 79-82.
17. Chang J, Wang Q, Fang Y. Socioeconomic differences in self-medication among middle-aged and older people: data from the China health and retirement longitudinal study. BMJ Open 2017; 7(12): e017306.
18. Kayalvizhi S, Senapathi DR. Evaluation of the perception, attitude and practice of self-medication among business students in 3 select cities, South India. IJEIMS 2010; 1(3): 40-4.
19. Haider S, Thaver IH. Self-medication or self-care: implication for primary health care strategies. J Pak Med Assoc. 1995; 45(11): 297-8.
20. Sadio AJ, Gbeasor-Komlanvi FA, Konu RY, Bakoubayi AW, Tchankoni MK, Bitty-Anderson AM, et al. Assessment of self-medication practices in the context of the COVID-19 outbreak in Togo. BMC Public Health 2021; 21(58): 1-9.
21. Alves RF, Precioso J, Becona E. Knowledge, attitudes and practice of self-medication among university students in Portugal: A cross-sectional study. Nordic Studies on Alcohol and Drugs 2021; 38(1): 50-65.
22. Kamran A, Sharifirad G, Shafaeei Y, Mohebi S. Association between self-medication, health literacy and self-perceived health status: A community-based study. Int J Prev Med 2015; 6(1): 66.
23. WHO guidelines for the regulatory assessment of medicinal products for use in self-medication: general information. WHO Drug Info 2000; 14(1) :18-26.
24. Garofalo L, Di Giuseppe G, Angelillo IF. Self-medication practices among parents in Italy. Bio Med Res Int 2015; 2015: 580650.
25. Eticha T, Mesfin K. Self-medication practices in Mekelle, Ethiopia. PLoS ONE 2014; 9(5): e97464.
26. Du Y, Knopf H. Self-medication among children and adolescents in Germany: results of the National Health Survey for Children and Adolescents (KiGGS). Br J Clin Pharmacol 2009 Oct; 68(4): 599-608.
27. Sridhar SB, Sahriff A, Dallah L, Anas D, Ayman M, Rao PG. Assessment of Nature, Reasons, and Consequences of Self-medication Practice among General Population of Ras Al-Khaimah, UAE. Int J Appl Basic Med Res 2018; 8(1):3-8.
28. Abdelwahed RNK, Jassem M, Alyousbashi A. Self-medications, prevalence and associated factors among Syrian adult patients: A cross-sectional study. J Environ Public Health 2022: 9274610.
29. Selvaraj K, Kumar SG, Ramalingam A. Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. Perspect Clin Res 2014; 5(1): 32-6.
30. Rahimisadegh R, Sharifi N, Jahromi VK, Zahedi R, Rostayee Z, Asadi R. Self-medication practices and their characteristics among Iranian university students. BMC Pharmacol Toxicol 2022; 23(60): 1-8.
31. Jose J, Jimmy B, Al-Mamari MNS, Al-Hadrami TSN, Al-Zadjali HM. Knowledge, beliefs and behaviours regarding the adverse effects of medicines in an Omani population. Sultan Qaboos Uni Med J 2015; 15: 234-40.
32. Al-Saadoon M. Adverse Effects of Medicines: Is the Omani population safe? Sultan Qaboos Univ Med J 2015 May; 15(2): e149-151.
33. Tyson RJ, Park CC, Powell JR, Patterson JH, Weiner D, Watkins PB, et al. Precision Dosing Priority Criteria: Drug, Disease, and Patient Population Variables. Front Pharmacol 2020; 11: 420.
34. Araia ZZ, Gebregziabher NK, Mesfun AB. Self medication practice and associated factors among students of Asmara College of Health Sciences, Eritrea: a cross sectional study. J of Pharm Policy and Pract 2019; 12(3): 1-9.
35. Khan J, Karatas Y, Khan Z. Self-medication in Pakistan: Urgent need for medical education and policy implementation. Pak J Med Dentistry 2021; 10(4): 104-5.