

Understanding Self-Medication Practices and Their Impact on Medical and Pharmaceutical Care

Laurentiu Mandrea^{1*}, Andrea Frentiu², Daniela Frentiu²

¹Department of Teacher Training, University of Oradea, Oradea, Romania.

²School of Medical, University of Oradea, Oradea, Romania.

*E-mail ✉ laurentiu.mandrea@uoradea.ro

Abstract

This study aimed to investigate the relationship between self-medication practices, attitudes toward medical services, and personal characteristics. The study included 1,068 participants from Romania. Data was collected using a questionnaire that included questions about the participant's residence, age, gender, level of education, satisfaction with doctors, and self-medication practices. The relationship between these variables was evaluated using the Crosstab-Chi Square test. The findings show a significant relationship between personal characteristics—such as age, gender, education, and residence—and the practice of self-medication. The study emphasizes the importance of considering these personal factors in health education and policies regarding self-medication, as they influence health-related decisions. By analyzing the influence of personality traits, we could predict medical behaviors in different contexts. Understanding the reasons behind the public's skepticism or reluctance toward medical services can help improve future healthcare campaigns.

Keywords: Self-medication, Medical care, Pharmaceutical care, Personal characteristics, Health policies, Health education

Introduction

Self-medication is a widespread practice that has become increasingly common in various countries across the world, regardless of their location [1]. It refers to individuals using medications without professional consultation to treat self-diagnosed conditions or symptoms, or the continued use of medications for chronic or recurring ailments after an initial diagnosis by a healthcare provider [2-5]. This practice carries several risks, including delays in seeking medical advice, incorrect self-diagnosis, inappropriate medication selection, improper dosing or administration, potential drug interactions, and the possibility of developing drug addiction or misuse [2]. Several factors contribute to the

prevalence of self-medication, such as limited access to quality healthcare, high medical costs, time constraints, fear of or lack of trust in doctors, and inadequate health education [6-8]. Previous studies also highlight the role of over-the-counter (OTC) drug availability in encouraging self-medication [8-10]. While many studies have examined self-medication among students globally [11-15], including in Romania [16], there is a limited amount of research specifically focused on this issue in Romania [17-20]. The risks associated with self-medication must be thoroughly examined. Personal factors like age, gender, education level, and whether an individual lives in an urban or rural area, alongside their attitudes toward medical care, significantly impact self-medication practices, regardless of cultural or geographic differences. By investigating these factors, we can work toward preventing the harms of self-medication and developing effective health education policies.

This study was conducted to indirectly enhance the effectiveness of medical campaigns. It seeks to deepen the understanding of the behavioral factors driving self-medication and to increase awareness about the associated health risks. A primary objective was to

Access this article online

Website: <https://smerpub.com/>

E-ISSN: 3108-4818

Received: 11 April 2021; Revised: 27 June 2021; Accepted: 28 June 2021

How to cite this article: Mandrea L, Frentiu A, Frentiu D. Understanding self-medication practices and their impact on medical and pharmaceutical care. *Int J Soc Psychol Asp Healthc.* 2021;1(1):51-7. <https://doi.org/10.51847/Zdh3MDDbnP>

explore a specific aspect of personal traits that could be further examined to better understand self-medication practices. The study emphasizes the significance of public health education, the critical role of healthcare providers—such as doctors and pharmacists—in offering proper guidance and communication with patients, and the necessity for developing robust public health policies aimed at reducing and preventing self-medication within the population [21, 22].

Materials and Methods

This study was carried out with a sample of 1068 participants from Romania. Data collection was performed through a questionnaire that not only gathered basic demographic information about the participants but also examined various aspects of their healthcare behaviors. These included the frequency with which participants consult medical professionals, their reasons for visiting doctors, concerns or fears about doctor visits, their level of trust in healthcare providers, satisfaction with the care received, and the frequency of self-medication practices without medical consultation. The questionnaire also explored the sources from which participants obtain information about medication, health, and diseases, as well as the types of medication they use without consulting a healthcare professional.

The data was organized into four clusters for conducting a cross-tabulation analysis of the variables extracted from the questionnaire. Cluster A included basic demographic information such as gender, age, residence, and education. Cluster B focused on participants' healthcare-seeking behavior, including their frequency and reasons for visiting the doctor, as well as any fears associated with doctor visits. Cluster C contained information related to participants' trust in medical services, including their level of trust and satisfaction. Lastly, cluster D addressed self-medication practices, including frequency, sources of trusted information, and types of medications used without consulting a healthcare provider. Cross-tabulation analysis was then applied to examine the relationships between clusters B, C, and D, based on the data in cluster A.

Results and Discussion

The majority of participants (849, or 79.5%) had university-level education, while only 0.4% (4) had completed primary education and 1.6% (17) had attended gymnasium-level schooling. Due to this distribution, the

analysis predominantly focused on high-school and university education levels when exploring the data about education.

In terms of participant demographics, the study included 738 women (69.1%) and 330 men (30.1%). Regarding their place of residence, 375 (64.9%) lived in rural areas, while 693 (35.1%) resided in urban areas. Age distribution varied, with 76 participants (7.1%) aged between 14 and 18 years, 659 in the 18-25 years age group, 207 in the 25-40 years range, 78 in the 40-55 years age group, and 48 aged 55 years and above. Education levels were also diverse, with four participants (0.4%) having completed primary education, 17 (1.6%) having a gymnasium-level education, 198 (18.5%) holding a high-school diploma, and 849 (79.5%) having completed university-level education.

The study further examined various aspects of participants' attitudes toward health services.

The study also explored several aspects of participants' attitudes toward health services.

Cluster B analysis – Visiting the doctor

Circumstances for seeking medical attention

Chi-square analysis was conducted on the data from cluster B, which focused on the circumstances in which participants sought medical care (**Table 1**). This analysis was performed concerning data from cluster A, which included factors such as gender, residence, age, and education. The results showed the following:

Situations in which participants visit a doctor

- Only in emergencies: 221 (20.7%)
- Only when experiencing severe health conditions: 408 (38.2%)
- Whenever feeling unwell: 312 (29.2%)

A significant relationship was found between gender and the reasons for visiting the doctor ($\chi^2 = 37.9$, $DF = 3$, $P = 0.01$). Specifically, 16.7% of women visit the doctor only during emergencies, compared to 29.7% of men. In cases of severe health conditions, 37.8% of women and 39.1% of men seek medical attention. Regarding general health concerns, 34% of women visit a doctor, while only 18.5% of men do the same. Additionally, for minor health issues, 11.5% of women and 12.7% of men seek medical care.

The study's findings also suggest that there is no strong statistical correlation between participants' age and their

frequency of visiting a doctor, although the result is approaching the threshold of significance ($\chi^2 = 19.2$, $DF = 12$, $P = 0.08$). However, the data does reveal a trend: as age increases, participants tend to seek medical attention more often for general health concerns. Specifically, 37.5% of participants in the > 55 years age group and 32.1% in the 40-55 years age group visit the doctor for general health problems. In contrast, 22.4% of participants in the 14-18 years age group, 29.6% in the

18-25 years age group, and 27.5% in the 25-40 years age group do so.

Frequency of doctor visits

Chi-square analysis was performed on the data from cluster B, which addressed the frequency with which participants visit the doctor (**Table 1**). This analysis was conducted concerning data from cluster A, which included factors such as gender, residence, age, and education. The results are presented in **Table 1**.

Table 1. Frequency of visits to the doctor

Very rarely	Rarely	Sometimes	Often	Very often
255 (23.9%)	501 (46.9%)	249 (23%)	53 (5%)	10 (0.9%)

The analysis shows a clear correlation between gender and how often participants seek medical attention ($\chi^2 = 39.36$, $DF = 4$, $P = 0.01$). Among women, 34.3% reported visiting the doctor frequently (whether sometimes, often, or very often), whereas only 17.8% of men did the same. Furthermore, a link was identified between where participants live and the frequency of their doctor visits, with a significant relationship ($\chi^2 = 20.1$, $DF = 4$, $P = 0.01$). Rural residents (36.8%) tend to visit the doctor more often (sometimes, often, or very often) compared to just 25.1% of urban dwellers who reported similar visit frequencies. Notably, rural participants also tend to have a higher level of education.

The results of the study indicate no substantial connection between participants' age and how often they visit the doctor ($\chi^2 = 15.5$, $DF = 12$, $P = 0.21$). However, it is worth mentioning that 10.4% of those in the > 55 years age group reported visiting the doctor frequently. This figure is noticeably higher than the 6.25% observed in the other age categories (14-18 years, 18-25 years, 25-40 years, 40-55 years).

Concerns about visiting the doctor

A chi-square analysis of participants' concerns regarding doctor visits (**Table 2**) about gender, residence, age, and education revealed the following findings:

Table 2. Chi-square analysis of participants' concerns

Fears regarding the visit to the doctor	No fears	Large queue	Low professional level	Inappropriate attitude of the doctor	Large costs
Participants (%)	447 (41.9%)	249 (23.3%)	141 (13.2%)	34 (3.2%)	197 (18.4%)

The study reveals a notable connection between gender and the fear participants have about visiting the doctor ($\chi^2 = 13.13$, $DF = 4$, $P = 0.01$). Specifically, 4.1% of women express concern over the doctor's inappropriate attitude, while only 1.2% of men share this fear. Additionally, 22.7% of men report worrying about high medical costs, compared to 16.5% of women. Furthermore, 24.5% of women are apprehensive about long waiting times, while 20.6% of men report the same concern.

The data also suggests a significant relationship between participants' place of residence and their fears related to doctor visits ($\chi^2 = 16.9$, $DF = 4$, $P = 0.01$). Notably, 23.2% of rural residents fear high costs, while only 15.9% of urban dwellers have similar concerns.

Furthermore, 4.8% of rural participants are anxious about the doctor's attitude, compared to just 2.3% of urban participants. Interestingly, 14.9% of urban residents fear the doctor's lack of professionalism, whereas only 10.1% of rural residents report this fear.

A significant relationship exists between age and the fears participants have regarding doctor visits ($\chi^2 = 35.33$, $DF = 16$, $P = 0.01$). Notably, 26.1% of individuals in the 25-40 years age group and 29.2% of those aged > 55 years report fears of high costs. Additionally, 31.6% of younger participants in the 14-18 years age group are concerned about long waiting times. Interestingly, 48.7% of participants in the 14-18 years age group, as well as 47.9% of those aged > 55, report having no fears when visiting healthcare professionals.

Analysis of cluster C – trust and satisfaction with medical services

Trust in healthcare professionals

To explore participants' trust in doctors, chi-square analysis was applied to the data from cluster C, correlating it with demographic factors from cluster A (gender, age, residence, and education). The results are summarized in **Table 3**.

Trust Level	Frequency (%)
Much	430 (40.3%)
Average	477 (44.7%)
Very much	111 (10.4%)
Low	35 (3.3%)
Very low	15 (1.4%)

The results of the study show a notable connection between gender and the level of trust participants have in doctors ($\chi^2 = 21.26$, $DF = 4$, $P = 0.01$). A higher percentage of women (52.7%) report a strong level of trust in healthcare professionals, compared to 46.1% of men. On the other hand, a smaller proportion of women (3.2%) express low or very low trust in healthcare professionals, whereas a greater number of men (7.8%) share this sentiment.

Satisfaction with the attention given by the doctor

Additionally, the data indicates a relationship between the participant's place of residence and their trust in healthcare professionals ($\chi^2 = 19.05$, $DF = 4$, $P = 0.01$). Specifically, 54.9% of urban dwellers report having much or very much trust in healthcare professionals, compared to 42.9% of rural participants.

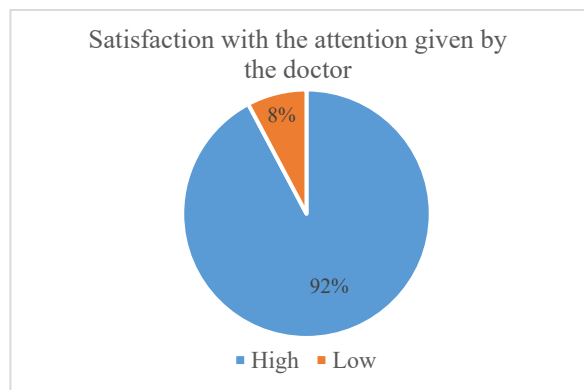


Figure 1. Satisfaction with the attention given by the doctor.

Figure 1 illustrates the satisfaction levels with the attention given by the doctor. The data indicates a high level of satisfaction, with 92% of participants expressing positive feedback, while only 8% reported low satisfaction.

Intake of medication without consulting a doctor

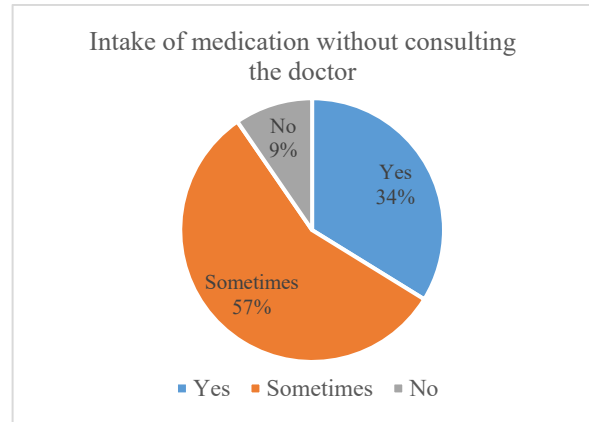


Figure 2. Intake of medication without consulting a doctor

A chi-square analysis was conducted on data from cluster D to examine participants' tendencies to take medication without seeking medical advice (**Figure 2**). This analysis considered demographic factors from cluster A, including gender, residence, age, and education.

The findings indicate a significant correlation between gender and self-medication habits ($\chi^2 = 22.76$, $DF = 2$, $P = 0.01$). Notably, 38.3% of female participants reported taking medication without consulting a doctor, whereas only 23.6% of male participants exhibited the same behavior.

Primary source of information on diseases, health, and medication

A chi-square analysis was performed on cluster D data to explore participants' primary sources of health-related information. This analysis considered demographic factors from cluster A, such as gender, residence, age, and education (**Figure 3**).

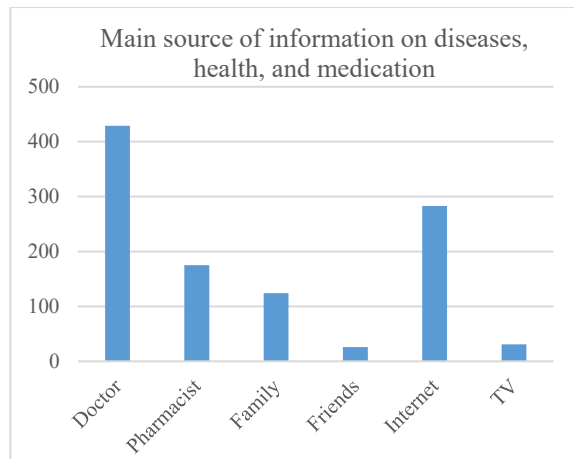


Figure 3. Main sources of information

The results revealed a significant association between gender and preferred sources of health information ($\chi^2 = 47.78$, $DF = 5$, $P = 0.01$). Comparatively, only 24.2% of women seek information from these digital and broadcast sources.

Sources of health and medical information

A significant relationship was identified between gender and the primary source of health-related information ($\chi^2 = 47.78$, $DF = 5$, $P = 0.01$). The findings indicate that 62.1% of female participants predominantly rely on doctors and pharmacists for medical guidance. In contrast, only 43.9% of male participants seek information from these professional sources, with a higher proportion (41.2%) turning to the internet and television. Among female participants, only 24.2% use these digital and broadcast sources for health-related knowledge.

Additionally, the data highlights an association between participants' place of residence and their choice of health information sources ($\chi^2 = 14.8$, $DF = 5$, $P = 0.01$). Among urban residents, 43.6% obtain medical information from doctors, while this percentage drops to 33.9% in rural areas. Conversely, 37.9% of rural participants gather health information from the internet, television, and friends, compared to 28.6% of urban residents who turn to these sources.

Age and education as determinants of health information sources

A statistically significant correlation was found between age and the preferred source of health-related information ($\chi^2 = 100.82$, $DF = 20$, $P = 0.01$). The analysis indicates that doctors are the primary source of

medical information for 46.1% of individuals aged 14-18 years, 56.4% of those aged 40-55 years, and 54.2% of participants over 55 years. However, reliance on doctors decreases among younger adults, with only 38.5% of participants aged 18-25 years and 33.8% of those aged 25-40 years using doctors as their main information source. Instead, these groups frequently turn to the internet for health-related knowledge, with 26.7% of the 18-25 years age group and 40.1% of the 25-40 years age group depending on online resources.

Similarly, the level of education is significantly associated with the choice of health information sources ($\chi^2 = 12.59$, $DF = 5$, $P = 0.02$). The data reveals that individuals with a high school education are more likely to rely on family members for medical information (14.6%) compared to those with a university education (10.8%). Meanwhile, university-educated participants exhibit a greater tendency to use the Internet for health-related information (27.6%) than those with a high school education (22.7%). Additionally, university graduates are slightly more inclined (40.4%) to seek medical advice directly from doctors compared to their high-school-educated counterparts (37.9%).

Self-medication practices among participants

An analysis of the collected data reveals that a significant proportion of participants engage in self-medication. The most commonly used medicines without professional consultation include painkillers (52.3%) and flu medications (31.1%). A smaller percentage of participants avoid taking any medication without seeking medical or pharmaceutical advice (6.9%). Additionally, 4.3% rely on plant-based remedies and vitamins, while digestive medicines (1.9%), antibiotics (1.5%), strong anti-inflammatory drugs (1%), and other types of medication (0.9%) are used less frequently.

Using chi-square analysis, a statistically significant relationship was found between gender and self-medication habits ($\chi^2 = 34.29$, $DF = 7$, $P = 0.01$). The findings indicate that 56.6% of women take painkillers without medical consultation, compared to 42.7% of men. Conversely, flu medication is more frequently taken without consulting a doctor by men (35.2%) than by women (29.3%). Additionally, men are more likely to use plant-based medicines and vitamins without medical advice (7.6%) compared to women (2.8%). Notably, 10% of male participants refrain from taking any medication without consulting a professional, whereas only 5.6% of women report the same behavior.

The study found a notable link between participants' place of residence and their use of medications (painkillers and flu medicine) without consulting a healthcare professional ($\chi^2 = 18.6$, $DF = 7$, $P = 0.01$). Among urban participants, 55.7% reported using painkillers without a doctor's advice, while 46.1% of those living in rural areas did the same. Additionally, 37.1% of rural residents admitted to using flu medications without consulting a healthcare professional, compared to only 27.8% of urban participants.

The analysis also revealed a significant relationship between age and the use of painkillers and flu medicine without professional consultation ($\chi^2 = 18.6$, $DF = 7$, $P = 0.01$). Specifically, 82.4% of participants aged 14-18 years reported using painkillers without a doctor's guidance.

Conclusion

In conclusion, the findings of this study on self-medication are drawn from an initial analysis that explores the relationship between variables grouped into four categories, with a perception based on descriptive data analysis. The primary aim of the study was to gather fundamental insights into the general landscape of self-medication practices. The data revealed that self-medication is strongly influenced by factors such as gender, place of residence, age, and education level. Understanding self-medication about these factors can provide a foundation for developing future educational policies on health matters.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Limaye D, Limaye V, Krause G, Fortwengel G. A systematic review of the literature to assess self-medication practices. *Ann Med Health Sci Res*. 2017;7:1-15.
2. Ruiz ME. Risks of self-medication practices. *Curr Drug Saf*. 2010;5(4):315-23. doi:10.2174/157488610792245966
3. Pfaffenbach G, Tourinho F, Bucarety F. Self-medication among children and adolescents. *Curr Drug Saf*. 2010;5(4):324-8. doi:10.2174/157488610792246028
4. Sergeevna SM, Efimovna LE, Irina K. Pharmaceutical consultation as a basis for drug care continuity. *Pharmacophore*. 2020;11(4):76-82.
5. Elwy AE, El-Agousa I, Azzazy AE. Taurine as a drug for protection of liver and kidney against toxicity of Dinitrotoluene on male rats (applicable study). *Int J Pharm Res Allied Sci*. 2019;8(1):102-14.
6. Afridi M, Rasool G, Rabia Tabassum R, Shaheen M. Prevalence and pattern of self-medication in Karachi: a community survey. *Pak J Med Sci*. 2015;31(5):1241-5. doi:10.12669/pjms.315.8216
7. Gualano MR, Bert F, Passi S, Stillo M, Galis V, Manzoli L, et al. Use of self-medication among adolescents: a systematic review and meta-analysis. *Eur J Public Health*. 2015;25(3):444-50. doi:10.1093/eurpub/cku207
8. Marathe PA, Kamat SK, Tripathi RK, Raut SB, Khatri NP. Over-the-counter medicines: global perspective and Indian scenario. *J Postgrad Med*. 2020;66(1):28-34. doi:10.4103/jpgm.JPGM_381_19
9. Watanabe K. Recent social background and consumer views on over-the-counter drugs and self-medication. *Yakugaku Zasshi*. 2020;140(3):423-34. doi:10.1248/yakushi.19-00117
10. Sánchez-Sánchez E, Fernández-Cerezo FL, Díaz-Jimenez J, Rosety-Rodriguez M, Díaz AJ, Ordonez FJ, et al. Consumption of over-the-counter drugs: prevalence and type of drugs. *Int J Environ Res Public Health*. 2021;18(11):5530. doi:10.3390/ijerph18115530
11. Akande-Sholabi W, Ajamu AT, Adisa R. Prevalence, knowledge and perception of self-medication practice among undergraduate healthcare students. *J Pharm Policy Pract*. 2021;14(1):49. doi:10.1186/s40545-021-00331-w
12. Tuyishimire J, Okoya F, Adebayo AY, Humura F, Lucero-Prisno III DE. Assessment of self-medication practices with antibiotics among undergraduate university students in Rwanda. *Pan Afr Med J*. 2019;33:307. doi:10.11604/pamj.2019.33.307.18139
13. Lv B, Zhou Z, Xu G, Yang D, Wu L, Shen Q et al. Knowledge, attitudes and practices concerning self-

- medication with antibiotics among university students in western China. *Trop Med Int Health*. 2014;19(7):769-79. doi:10.1111/tmi.12322
14. Chakravarthy SA, Maiya GR. Prevalence of self-medication and its associated factors among students of an engineering college in Chennai. *J Family Med Prim Care*. 2021;10(3):1204-8. doi:10.4103/jfmpe.jfmpe_1654_20
 15. Arrais PS, Fernandes ME, Pizzol TD, Ramos LR, Mengue SS, Luiza VL et al. Prevalence of self-medication in Brazil and associated factors. *Rev. Saude Publica*. 2016;50. doi:10.1590/S1518-8787.2016050006117
 16. Damian L, Lupușoru CE, Ghiciuc CM. Self-medication with antimicrobial drugs among university students in a Northeast region of Romania. *Rev Med Chir Soc Med Nat Iasi*. 2014;118(1):160-4.
 17. Voidăzan S, Moldovan G, Voidăzan L, Zazgyva A, Moldovan H. Knowledge, attitudes and practices regarding the use of antibiotics. Study on the general population of Mureș County, Romania. *Infect Drug Resist*. 2019;12:3385-96. doi:10.2147/IDR.S214574
 18. Tarciuc P, Stanescu AMA, Diaconu CC, Paduraru L, Duduciuc A, Diaconescu S. Patterns and factors associated with self-medication among the pediatric population in Romania. *Medicina (Kaunas)*. 2020;56(6):312. doi:10.3390/medicina56060312
 19. Alexa ID, Pancu AG, Moroșanu AI, Ghiciuc CM, Lupușoru CĂ, Prada GI, et al. The impact of self-medication with NSAIDs/analgesics in a north-eastern region of Romania. *Farmacia*. 2014;62(6):1164-70.
 20. Kiss JF. Istoria psihologiei în România. Tipare și factori ai evoluției în perioada totalitară și postdecembristă. Didactical and Pedagogical Publishing House. 2013.
 21. Karanikolos M, McKee M. How well is the Romanian health system performing? Some progress but still some way to go. *Manag Health*. 2011;15(1):5-8.
 22. Kiss JF. Educational policies in relation to society, students, and teachers. *J Teach Train Educ Res*. 2020;1:41-50.