

Epidemiological Insights into Self-Medication Practices: A Study Among Residents in Selected Emirates of the UAE

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ABSTRACT

Background: Self-medication is a growing public health concern in the UAE. It is influenced by the country's diverse population and cultural practices. Defined as using medications without medical consultation, self-medication carries risks such as misuse, antibiotic resistance, and negative health outcomes. This study aimed to assess the prevalence, motivations, and socio-demographic determinants of self-medication, focusing on the use of non-prescriptive antibiotics, to inform interventions for safer practices.

Methodology: A community-based cross-sectional study was conducted over six months (June–December 2023) in Dubai and Ras Al Khaimah. A structured, anonymous questionnaire was administered to 330 participants selected through non-probability consecutive sampling. Data was analyzed using SPSS version 29, with descriptive and inferential statistics applied, including chi-square and logistic regression tests, with $p < 0.05$ considered statistically significant.

Results: Of the participants, 77.4% practiced self-medication, primarily for fever (89.7%) and cough/cold (85.5%). Antipyretics (92.7%) and analgesics (68.8%) were the most common drugs used, with pharmacies being the primary source (77.3%). Significant predictors of self-medication included education level, family structure, absence of a doctor in the family, and lack of health insurance. Self-medication is prevalent in UAE society.

Conclusion: Regulatory measures, public education, and improved healthcare access are needed to mitigate risks and promote safe practices.

Keywords: Self-medication, Non-prescriptive antibiotics, Socio-demographic factors, Healthcare access

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INTRODUCTION

Self-medication has been one of the major public health issues in countries where populations are diverse, such as the United Arab Emirates (UAE).¹ By definition, self-medication refers to the use of a drug without consulting a medical doctor, generally for minor ailments or as a time-saving measure.² While self-medication is coveted for immediate relief and reducing the load on the healthcare system, the practice has significant risks including misuse of medicines, antibiotic resistance, and other health dangers related to this.³ Gaining insight into the various trends and underlying factors that drive the self-medication phenomenon holds significant importance, as it can aid in developing interventions designed to foster safer and more responsible medication practices among individuals.⁴

The population of the UAE is remarkably diverse, consisting of local Emirati citizens alongside a considerable number of expatriates, which complicates the practice of self-medication in the country.⁵ Primary factors that shape individuals' attitudes towards self-medication encompass healthcare accessibility, costs, cultural beliefs, and levels of education.⁶ Additionally, a notable dependence on over-the-counter medications and guidance from non-professional sources underscores the importance of analyzing the social, demographic, and behavioral aspects that influence this conduct.⁷ Recent studies conducted in the UAE, particularly in Dubai and Abu Dhabi, have highlighted rising concerns over inappropriate antibiotic use and increasing antibiotic resistance patterns.^{8,9} Yet, there remains a notable gap in data from northern emirates such as Ras Al Khaimah and Dubai's suburban zones, where regulatory oversight and public awareness may differ from the capital.

The research concentrated on self-medication practices in two emirates: Dubai, recognized for its urbanization and multicultural demographic, and Ras Al Khaimah, which is smaller and displays somewhat different population characteristics. The current study examined the prevalence, motivations, and types of self-medication to evaluate its effects on community health and to formulate strategies aimed at reducing the risks associated with the use of non-prescribed medications. Furthermore, the study explored how demographic and socio-economic factors, such as age, gender, education, family structure, and health insurance, influence self-medication behaviors.

METHODOLOGY

Study Design and Setting: This research was a community-based cross-sectional study conducted among local and expatriate populations residing in the emirates of Dubai and Ras Al Khaimah within the United Arab Emirates (UAE). The study spanned six

months, from June 2023 to December 2023, providing a comprehensive overview of the population's self-medication practices during this period.

Study Population and Sampling: The study targeted individuals aged 18 years and above living in Dubai and Ras Al Khaimah. The estimated accessible population was approximately 20,000. Using data from a prior study by Abdeulmula R et al.⁸, which reported a 31.7% prevalence of non-prescriptive antibiotic use among UAE residents, the required sample size was calculated with OpenEpi software. Considering a 95% confidence interval and a design effect of 1, the calculated sample size was 326 participants. To ensure equal representation, the researchers aimed to recruit approximately 165 participants from each emirate, ultimately achieving a total sample size of 330 participants. A non-probability consecutive sampling technique was employed for participant recruitment, due to feasibility constraints and the need for rapid data collection across diverse population groups in selected Emirates.

Data Collection Tool and Procedure: An anonymous, self-administered questionnaire served as the primary data collection tool. The questionnaire was developed based on previous literature. It was reviewed by two subject matter experts in public health and pharmacy for face and content validity. A pilot test was conducted among 25 participants (not included in the final analysis) to assess clarity, structure, and reliability. Minor modifications were made based on feedback, such as simplifying technical terms. Face-to-face interviews were conducted to enhance understanding and allow participants to seek clarification on questionnaire items. The questionnaire consisted of two sections. The first section gathered socio-demographic details, including age, gender, nationality, education level, occupation, and marital status. The second section focused on self-medication practices, with questions addressing the frequency of self-medication, reasons for self-medicating, sources of non-prescriptive antibiotics, and participants' knowledge and attitudes toward the practice. Participants were asked about their self-medication behaviors within the past 12 months preceding the survey to ensure recall accuracy and consistency with previous epidemiological studies. To ensure cultural and linguistic appropriateness for Emirati participants, the questionnaire was translated into Arabic using the WHO-recommended forward and back-translation method. Independent bilingual translators conducted the forward translation, and a separate team performed the back-translation. Discrepancies were resolved through consensus, ensuring semantic and conceptual equivalence.

Ethical Considerations: Ethical approval for the study was secured from the Ministry of Health and Prevention (MOHAP) Research Ethics Committee on June 15, 2023, with the reference number MOHAP/REC/2022/19-2023-UG-M. All participants were provided with detailed information about the

study's purpose, procedures, and their rights prior to participation. Written informed consent was obtained before data collection. Confidentiality was ensured by assigning unique identification codes to each participant, with no personal identifiers recorded. All data were stored securely and accessed only by the research team.

Data Analysis: The collected data were entered into SPSS version 29 for Windows for statistical analysis. The dataset was thoroughly reviewed for completeness and accuracy, with incomplete or inconsistent responses identified and addressed. Descriptive statistics, including frequency counts, percentages, means, and standard deviations, were used to summarize socio-demographic characteristics and self-medication practices. Inferential statistical tests, such as the chi-square test, were employed to assess associations between categorical variables. Logistic regression models provided adjusted odds ratios (ORs) and 95% confidence intervals (CIs) to evaluate the strength and direction of associations. All analyses were conducted with a significance level set at $p < 0.05$. The results were presented using tables and graphs to highlight key findings and trends.

RESULTS

Majority of the study participants were expatriates, while locals constituted a smaller proportion. Most participants were young adults, primarily between 18 to 25 years, followed by those aged 25 to 35 years. The gender distribution was nearly equal. Regarding education, a considerable proportion had either a graduate or postgraduate degree, while others had completed high school or a diploma. More than half of the participants were earning, while the rest were non-earning. Family structures varied, with nuclear and joint families being more common, whereas three-generation households were less frequent. A notable proportion reported having a doctor in the family. Additionally, most participants had health insurance, but a considerable number remained uninsured.

The table 2 summarizes the self-medication practices among the study participants. Over three fourth of the study participants practiced any form of self-medication. Fever (89.7%) and cough and cold (85.5%) are the most common symptoms for which self-medication is practiced. Antipyretics (92.73%) and analgesics (68.79%) are the most frequently used drug types. The primary reasons for self-medication include time-saving (74.2%) and treating minor ailments (60.9%). Pharmacies (77.3%) are the main source for obtaining medications. Key considerations during self-medication include monitoring dose and frequency (82.4%) and checking expiry dates (74.2%). This data highlights the prevalent trends and considerations in self-medication among the participants.

Table 1: Sociodemographic profile of study participants

Variable	Participants (%)
Type	
Locals	91 (27.58)
Expats	239 (72.42)
Age group	
18 to 25	167 (50.61)
25 to 35	87 (26.36)
35 to 45	51 (15.45)
> 45	25 (7.58)
Gender	
Males	163 (49.39)
Females	167 (50.61)
Education	
Illiterate	0 (0)
Up to high school	77 (23.33)
Diploma	75 (22.73)
Graduate	95 (28.79)
Post graduate	83 (25.15)
Earning status	
Non-earning	149 (45.15)
Earning	181 (54.85)
Type of family	
Nuclear	143 (43.33)
Joint	133 (40.3)
3 generation	54 (16.36)
Doctor in family	
Yes	124 (37.58)
No	206 (62.42)
Health Insurance	
Yes	233 (70.61)
No	97 (29.39)

The table 3 presents an analysis of self-medication practices among participants based on various demographic and socio-economic variables. Among participants up to 25 years old, 72.2% reported practicing self-medication, whereas this practice was more prevalent among those above 25 years, with 84% engaging in self-medication ($p = 0.011$). Gender differences were notable, with 82.6% of females practicing self-medication compared to 72.3% of males ($p = 0.026$). Educational attainment also influenced self-medication practices. Participants with education up to high school had a lower prevalence of self-medication (64.9%) compared to those with a diploma or higher education (81.4%) ($p = 0.005$). Citizenship status did not show a significant difference, with 80.2% of citizens and 76.5% of expatriates practicing self-medication ($p = 0.47$). Family structure played a role as well; self-medication was most common in joint families (85.6%), followed by nuclear families (72.1%) and three-generation families (72.7%) ($p = 0.017$). The presence of a doctor in the family was a significant factor, as only 60.4% of those with a doctor in the family practiced self-medication, compared to 87.8% of those without a doctor in the family ($p < 0.0001$). Health insurance status also showed a strong association with self-medication practices. Participants without health insurance were more likely to self-medicate (93.8%) compared to those with health insurance (70.8%) ($p < 0.0001$).

Following bivariate analysis, multiple logistic regression model was prepared and significant variables of bivariate analysis were entered in the model as depicted in table 4.

A multivariate logistic regression model was used to identify independent predictors of self-medication. The model included variables that were statistically significant in bivariate analysis. The enter method was employed for variable inclusion. Assumptions for logistic regression—including absence of multicollinearity, and independence of observations—were checked. Variables like age, education, gender, presence of doctor in family, type of family and availability of health insurance were included as predictor variables.

Individuals with a diploma and above are 1.91 times more likely to engage in self-medication compared to those with only a high school education, with a p-value of 0.047 indicating statistical significance.

Those from joint families are 3.27 times more likely to practice self-medication than those from 3rd generation families, with this finding also statistically significant (p-value = 0.01). Conversely, individuals without a doctor in the family are 2.01 times more likely to self-medicate compared to those with a doctor in the family, with a p-value of 0.02. Importantly, having health insurance is associated with a significantly lower likelihood (0.34 times) of self-medication, supported by a highly significant p-value of 0.000. Model fit was evaluated using Nagelkerke R^2 (0.46) and the Hosmer-Lemeshow goodness-of-fit test ($\chi^2 = 6.21$, $p = 0.624$), indicating good model fit.

Table 2: Distribution of study participants according to various aspects of self-medication practices

Aspect	Participants(%)
Practice of self-medication	256 (77.4)
Symptoms for which self-medication is practiced	
Fever	230 (89.7)
Cough and cold	219 (85.5)
Headache & body ache	178 (69.7)
Diarrhea & Vomiting	109 (42.7)
Sore throat	70 (27.3)
Skin allergy	54 (21.2)
Insomnia	23 (9.1)
Others (Dental pain, ulcers, etc.)	41 (16.1)
Type of drugs used for self-medication	
Antipyretics	237 (92.7)
Analgesics	176 (68.8)
Antibiotics	140 (54.8)
Antihistamines	80 (31.2)
Antidiarrheals	40 (15.7)
Others(Antispasmodics, antiemetics, etc.)	36 (13.9)
Reasons for self-medication	
Time saving	190 (74.2)
Minor ailments	156 (60.9)
High fees of doctors	116 (45.2)
Advice from pharmacist/friend	52 (20.3)
Confidence in self-diagnosis	43 (16.7)
No trust in doctors	10 (3.9)
Source of self-medication	
Pharmacy	198 (77.3)
Friends and family members	105 (40.9)
Online	19 (7.3)
MR/free physician sample	16 (6.4)
Considerations followed during self-medication	
Dose & frequency	211 (82.4)
Expiry date	190 (74.2)
Adverse effects of drug	179 (70)
Importance of completing course	45 (17.6)

Table 3: Association of sociodemographic variables with practice of self-medication among study participants

Variable	Practice of self-medication		Total	p value	OR (CI)
	Yes (%)	No (%)			
Age					
Up to 25 years	130 (72.2)	50 (27.8)	180	0.011	0.50 (0.29-0.85)
Above 25 years	126 (84)	24 (16)	150		Ref
Gender					
Male	118 (72.3)	45 (27.7)	163	0.026	0.55 (0.33-0.93)
Female	138 (82.6)	29 (17.4)	167		Ref
Education					
Up to high school	50 (64.9)	27 (35.1)	77	0.005	0.42 (0.24-0.74)
Diploma & higher	206 (81.4)	47 (18.6)	253		Ref
Citizenship status					
Citizen	73 (80.2)	18 (19.8)	91	0.47	1.24 (0.68-2.25)
Expatriate	183 (76.5)	56 (23.5)	239		Ref
Type of family					
Nuclear	103 (72.1)	40 (27.9)	143	0.017	0.43 (0.24-0.80) (Nuclear vs Joint)
Joint	113 (85.6)	19 (14.4)	132		0.97 (0.48-1.94) (Nuclear vs three generation)
Three generation	40 (72.7)	15 (27.3)	55		
Doctor in family					
Yes	75 (60.4)	49 (39.6)	124	<0.0001	0.21 (0.12-0.37)
No	181 (87.8)	25 (12.2)	206		Ref
Health Insurance					
Yes	165 (70.8)	68 (29.2)	233	< 0.0001	0.16 (0.07-0.38)
No	91 (93.8)	6 (6.2)	97		Ref

Table 4: Multiple Logistic Regression model denoting predictor (significant) variables of practice of self-medication among study participants

Variable	Coeff (B)	SE	Odds Ratio (Exp (B))	95% CI	p value
Education groups					
Up to high school			Ref		
Diploma and above	0.606	0.33	1.91	1.08-3.52	0.047
Type of family					
3rd generation			Ref		
Nuclear	0.077	0.40	1.08	0.49-2.37	0.847
Joint	1.184	0.46	3.27	1.33-8.04	0.01
Doctor in family					
Yes			Ref		
No	0.69	0.30	2.01	1.12-3.62	0.02
Health Insurance					
No			Ref		
Yes	- 1.089	0.30	0.34	0.19-0.61	< 0.001

Nagelkerke R square value= 0.46

Note: The multivariate analysis was conducted using a multiple logistic regression model. Variables that were found to be statistically significant ($p < 0.05$) in bivariate analysis were included. The method used was enter (forced entry) method in SPSS version 29. Nagelkerke R^2 value was 0.46, indicating moderate model fit.

DISCUSSION

This study highlights the widespread practice of self-medication among residents of Dubai and Ras Al Khaimah, UAE, revealing notable trends and connections to socio-demographic factors. The prevalence of self-medication behaviors, observed in over seventy-five percent of the participants, aligns with findings from similar research in both Middle Eastern and global contexts. For example, research carried out in Saudi Arabia¹⁰ and UAE⁸ reported high self-medication prevalence rates, suggesting a regional trend influenced by cultural and healthcare system factors. Similarly, A 2024 cross-sectional study¹¹ in Jordan reported that 56.9% of the general public engaged in self-medication, with higher prevalence observed among individuals aged 36–40 and over 51, those who were married or divorced, employed, and with chronic diseases, aligning with the demographic trends observed in our study.

The high prevalence of self-medication for ailments such as fever (89.7%) and coughs and colds (85.5%) mirrors findings from studies conducted in neighboring countries.¹² A study in Saudi Arabia similarly reported fever and respiratory symptoms as the leading conditions for which individuals self-medicate.¹³ The extensive use of antipyretics (92.73%) and analgesics (68.79%) in our study corresponds with trends observed in ten different Arab countries in a multinational cross-sectional study, which reported that 86% of participants engaged in self-medication with analgesics, and 65.1% used antipyretics during the COVID-19 pandemic.¹⁴

However, the use of antibiotics by over half of the participants (54.85%) is particularly concerning. Similar findings have been reported in Libya and Egypt, where over half respondents admitted to using antibiotics without prescriptions.^{15,16} This behavior contributes to the global threat of antimicrobial resistance (AMR), a public health crisis recognized by the WHO. A comparative study in Europe found

lower antibiotic misuse rates due to stricter regulations and greater public awareness.¹⁷ These disparities underscore the need for stricter antibiotic stewardship programs in the UAE.

Our findings show that age, gender, and education significantly influence self-medication behaviours. The higher likelihood of self-medication among female echoes findings from studies in India, where women were more inclined to manage family health needs through self-medication.¹⁸ Education emerged as a key determinant, with participants holding higher educational qualifications exhibiting greater tendencies to self-medicate. This parallels findings from Iran, where higher health literacy correlated with increased self-medication practices.¹⁹ Similarly, other studies found that factors like education and economic status have a big impact on people's health-related choices.^{20,21} This highlight how education and financial challenges shape healthcare decisions across different areas of health. Interestingly, citizenship status (local vs. expatriate) was not a significant predictor of self-medication practices ($p = 0.47$), despite the UAE's highly diverse population composition. This may be attributed to the widespread availability of over-the-counter medications and relatively uniform access to community pharmacies across both local and expatriate populations.⁵

However, while education enables access to medical knowledge, it may also foster overconfidence, leading to inappropriate medication use. Our study identified family structure as a significant factor, with joint families demonstrating the highest prevalence of self-medication (85.6%). This finding resonates with research from other countries, where collective health decision-making in extended families encouraged self-medication.²² Interestingly, participants with a family member working as a healthcare professional were less likely to self-medicate ($p < 0.0001$). Similar trends have been observed in studies from Jordan, suggesting the protective influence of professional guidance in discouraging risky medi-

cation practices.²³ Uninsured participants in this study were significantly more likely to self-medicate, highlighting the role of financial barriers in shaping health-seeking behaviors. This finding aligns with research from Nigeria and Sudan, where cost-related barriers led to higher self-medication rates.^{24,25} The high consultation fees cited by 45.2% of participants in our study mirror findings from other UAE-based studies, emphasizing the importance of improving healthcare affordability to reduce self-medication practices.²⁶

Pharmacies were the primary source of medications for self-medication (77.3%), consistent with studies in India¹⁸. While participants demonstrated a relatively high level of safety awareness (82.4% monitored dosage; 74.2% checked expiry dates), adherence to completing antibiotic courses was notably low (17.6%). This low rate of antibiotic course completion (17.6%) observed in this study is a major concern, particularly in the context of rising antimicrobial resistance (AMR) within the UAE. The UAE Ministry of Health and Prevention (MOHAP) has prioritized AMR containment through its National Action Plan (NAP) on Antimicrobial Resistance, launched in line with WHO's global action plan.²⁷ However, the persistence of poor adherence to antibiotic courses, as highlighted by our findings, suggests a gap between policy and public practice. Similar challenges have been reported in Egypt, underscoring the urgent need for public education on the dangers of incomplete antibiotic use.²⁸

These findings have huge implications for public health. The UAE should reinforce its regulatory framework to regulate the sale of prescription-only drugs, including antibiotics. Public health campaigns should be run across the multicultural population in the UAE to spread awareness regarding the dangers of self-medication and to encourage safe practices. Interventions such as stricter pharmacy regulation enforcement, culturally tailored multilingual public awareness campaigns, and pharmacist-led education at the point of sale are recommended. These measures can reduce inappropriate self-medication and support national efforts against antimicrobial resistance in the UAE.

This study has several limitations. First, the reliance on self-reported data introduces the possibility of recall bias, particularly for questions about medication use over the past 12 months. This may have led to underreporting or overreporting of self-medication practices. Second, the study focused only on two emirates Dubai and Ras Al Khaimah which limits the national generalizability of the findings, especially given the demographic and healthcare access differences across the UAE. Third, the use of a non-probability consecutive sampling method may have introduced selection bias, as individuals more accessible or willing to participate might not represent the broader population. Longitudinal designs adopted for future research should encompass larger samples

representative of the population to clearly explain self-medication practice.

STRENGTHS AND LIMITATIONS

The sample size is decent, and the use of statistical analysis strengthens the findings. Plus, the study focuses on both locals and expatriates, making the results more relevant to the UAE's diverse population. However, since the study relies on self-reported data, there's always a chance of bias in how people recall or report their medication habits. The non-probability sampling method also limits how much we can generalize these findings. Finally, focusing on only two emirates means we might be missing variations in self-medication behaviors across the entire country.

CONCLUSION

This study confirms the high prevalence of self-medication in the UAE, which is in line with regional and global trends. The findings of the study have significant policy ramifications for public health policy in the UAE. Specific policy interventions include enforcing regulations against the OTC sale of antibiotics without prescription and periodic audits of community pharmacies. Targeted educational activities are also suggested, particularly within expatriate populations, through multilingual media campaigns, occupational outreach, and community pharmacies. Providing mandatory brief counseling on the use of medication, including OTC medications, is also recommended. These implementable tactics go beyond the general recommendation of multi-intervention tactics and are consistent with the UAE's national antimicrobial resistance targets. The present study provides region-specific data on self-medication practices and its correlates and provides an action-oriented framework for policy planning and health education programming within different populations.

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REFERENCES

- Hasan S, Farghadani G, AlHaideri SK, Fathy MA. Pharmacist Opportunities to Improve Public Self-Medicating Practices in the UAE. *Pharmacology & Pharmacy*, 2016; 7, 459-471. doi: 10.4236/pp.2016.711052.
- World Health Organization. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva: World Health Organization; 2000 [cited 2024 Dec 17]. Available from: <https://iris.who.int/handle/10665/66154>
- Ruiz ME. Risks of self-medication practices. *Curr Drug Saf*. 2010 Oct;5(4):315-23. DOI: <https://doi.org/10.2174/157488610792245966> PMID:20615179
- Lukovic JA, Miletic V, Pekmezovic T, Trajkovic G, Ratkovic N, Aleksic D, et al. Self-medication practices and risk factors for self-medication among medical students in Belgrade, Serbia. *PLoS One*. 2014;9(12):e114644. DOI: <https://doi.org/10.1371/journal.pone.0114644> PMID:25503967
- Shehnaz SI, Khan N, Sreedharan J, Arifulla M. Drug knowledge of expatriate adolescents in the United Arab Emirates and their attitudes towards self-medication. *Int J Adolesc Med Health*. 2014;26(3):423-31. doi: 10.1515/ijamh-2013-0315.
- Shaghghi A, Asadi M, Allahverdipour H. Predictors of Self-Medication Behavior: A Systematic Review. *Iran J Public Health*. 2014 Feb;43(2):136-46. PMID: 26060736; PMCID:
- Cîrstea SD, Moldovan-Teseliu C, Iancu AI. Analysis of factors that influence OTC purchasing behavior. In: Vlad S, Roman N, editors. *International Conference on Advancements of Medicine and Health Care through Technology*. Cham: Springer; 2017: 59; p. 303-308. DOI: https://doi.org/10.1007/978-3-319-52875-5_63
- Abduelkarem AR, et al. Prevalence of self-medication with antibiotics among residents in United Arab Emirates. *Infect Drug Resist*. 2019 Nov 7;12:3445-3453. DOI: <https://doi.org/10.2147/IDR.S224720> PMID:31807035 PMCID:PMC6850897
- Abasaheed A, Vlcek J, Abuelkhair M, Kubena A. Self-medication with antibiotics by the community of Abu Dhabi Emirate, United Arab Emirates. *J Infect Dev Ctries*. 2009 Aug 30;3(7):491-7. doi: 10.3855/jidc.466. PMID: 19762966.
- Thekkiniyakath Ali AS, Alsheraih AA, Ibrahim Alghamdi SS, Sulaiman Alsuwaylihi R, Sulaiman Alenazi S, Saad Bin Hussain L. A Cross-Sectional Study on Self-Medication Prevalence and Usage Patterns: An Alarming Concept Among the Saudi Population. *Cureus*. 2023 Jun 14;15(6):e40436. DOI: <https://doi.org/10.7759/cureus.40436>
- Abuhamdah SMA, Naser AY. Self-medication practice among the general public in Jordan: a cross-sectional study. *Front Public Health*. 2024 Oct 17;12:1433464. doi: 10.3389/fpubh.2024.1433464. PMID: 39484352.
- Al-Ghamdi S, Alfauri TM, Alharbi MA, Alsaihati MM, Alshaykh MM, Alharbi AA, Aljaizani NS, Allehiby IA, Alzahrani MA, Alharbi AS. Current self-medication practices in the Kingdom of Saudi Arabia: an observational study. *Pan Afr Med J*. 2020 Sep 14;37:51. DOI: <https://doi.org/10.11604/pamj.2020.37.51.24098> PMID:33209178 PMCID:PMC7648480
- Kumar G, Almaghaslah D, Almanasef M, Vasudevan R, Alqahtani A, Chinnadhurai M, Joy N. A Study of Prescribing Patterns for Non-Steroidal Anti-Inflammatory Drugs in a Tertiary Care Teaching Hospital. *Indian Journal of Pharmaceutical Sciences*. 2021;83(2):364-70. DOI: <https://doi.org/10.36468/pharmaceutical-sciences.774>
- Abdelwahed AE, Abd-Elkader MM, Mahfouz A, Abdelmawla MO, Kabeel M, Elkot AG, Hamad MR, Ibrahim RAE, Ghallab MMI; Collaborators group; Hamza N. Prevalence and influencing factors of self-medication during the COVID-19 pandemic in the Arab region: a multinational cross-sectional study. *BMC Public Health*. 2023 Jan 27;23(1):180. DOI: <https://doi.org/10.1186/s12889-023-15025-y> PMID:36707840
- Elden NMK, Nasser HA, Alli A, Mahmoud N, Shawky MA, Ibrahim AAEA, Fahmy AK. Risk Factors of Antibiotics Self-medication Practices among University Students in Cairo, Egypt. *Open Access Maced J Med Sci*. 2020 Feb. 5 [cited 2025 May 24];8(E):7-12. DOI: <https://doi.org/10.3889/oamjms.2020.3323>
- Atia A, Alzlitni N, Zbida S. Self-medication's knowledge and practice in adults attending pharmacies in Tripoli, Libya. *Journal of medical pharmaceutical and allied sciences*, 2023; 12(1):5720–5723. Doi: 10.55522/jmpas.V12I2.4748.
- Limaye D, Limaye V, Fortwengel G, Krause G. Self-medication practices in urban and rural areas of western India: a cross sectional study. *Int J Community Med Public Health*. 2018 Jun.;5(7):2672-85. DOI: <https://doi.org/10.18203/2394-6040.ijcmph20182596>
- Kamran A, Sharifirad G, Shafaei Y, Mohebi S. Associations between Self-medication, Health Literacy, and Self-perceived Health Status: A Community-Based Study. *Int J Prev Med*. 2015 Jul 20;6:66. doi: 10.4103/2008-7802.161264.
- Alhomoud F, Aljamea Z, Almahasnah R, Alkhalifah K, Basalelah L, Alhomoud FK. Self-medication and self-prescription with antibiotics in the Middle East-do they really happen? A systematic review. *Int J Infect Dis*. 2017;57:3-12. DOI: <https://doi.org/10.1016/j.ijid.2017.01.014> PMID:28111172
- Khalafallah O, Alqassas M, Bashir A, Elhadi A. Prevalence and factors associated with self-medication in Sudan: a cross-sectional study. *J Pharm Policy Pract*. 2023;16(1):1-10. DOI: 10.1186/s40545-023-00547-3
- Skordis J, Pace N, Vera-Hernandez M, Rasul I, Fitzsimons E, Osrin D, Manandhar D, Costello A. Family networks and healthy behaviour: evidence from Nepal. *Health Econ Policy Law*. 2019 Apr;14(2):231-248. DOI: <https://doi.org/10.1017/S1744133118000130> PMID:29785890
- Al-Qerem W, Bargooth A, Jarab A, Akour A, Abu Heshmeh S. Information sources, attitudes, and practices of Self-Medication by Jordanian patients: A cross-sectional study. *Saudi Pharm J*. 2023 Apr;31(4):482-491. DOI: <https://doi.org/10.1016/j.jsps.2023.01.015> PMID:37063441
- Wegbom AI, Edet CK, Raimi O, Fagbamigbe AF, Kiri VA. 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*. 2021 Jun 4;9:606801. doi: 10.3389/fpubh.2021.606801. PMID: 34150693; PMCID: PMC8213209.
- Isameldin, E., Awadallah Saeed, A., Mohamed Hassan, T., & Awad Mousnad, M. Self-medication Practice among patients living in Soba-Sudan. *Health and Primary Care*, 2020; 4: 1-5. DOI: <https://doi.org/10.15761/HPC.1000179>
- Buabeid, M. A., Palaian, S., Ashames, A., & Hassan, N. Self-care behaviors and safety concerns toward self-medication among the general public in Ajman, United Arab Emirates: An exploratory survey. *Journal of Datta Meghe Institute of Medical Sciences University*. 2022; 17(3): 624-631. DOI: https://doi.org/10.4103/jdmimsu.jdmimsu_404_21
- Ministry of Health and Prevention (MOHAP), United Arab Emirates. National Strategy and Action Plan for Combatting Antimicrobial Resistance (NAP-AMR) 2019-2023 [Internet]. Dubai: MOHAP; 2019 Mar [cited 2025 May 5]. Available from: https://cdn.who.int/media/docs/default-source/antimicrobial-resistance/amr-spc-npm/nap-library/uae_nap-amr-english.pdf
- Talaat M, Saied T, Kandeel A, El-Ata GA, El-Kholy A, Hafez S, Osman A, Razik MA, Ismail G, El-Masry S, Galal R, Yehia M, Amer A, Calfee DP. A Point Prevalence Survey of Antibiotic Use in 18 Hospitals in Egypt. *Antibiotics* (Basel). 2014 Sep 10;3(3):450-60. DOI: <https://doi.org/10.3390/antibiotics3030450> PMID:27025755 PMCID:PMC4790372