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RESEARCH ARTICLE

Self-medicating with anxiety drugs: Knowledge, attitudes, and practices among Saudi Arabia population

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Abstract

Background: The self-medication of anxiety drugs has emerged as a critical public health issue globally, particularly in regions where access to mental health services is limited. Within Saudi Arabia, the unsupervised use of these medications has become increasingly prevalent, presenting risks such as dependency, adverse reactions, and improper management of mental health conditions.

Objectives: This research aims to explore the knowledge, attitudes, and practices related to the self-medication of anxiety drugs among Saudi Arabia's population. The study assesses public awareness levels, examines prevailing attitudes, and identifies common practices. It also proposes actionable public health interventions to address the identified gaps.

Methods: A cross-sectional quantitative approach was adopted, surveying 2,023 randomly selected participants. Data collection involved an online questionnaire encompassing demographics, awareness levels, behaviors surrounding self-medication, and sources of medications. The data were analyzed using SPSS (version 26), employing descriptive statistics, chi-square tests, cluster analysis, and logistic regression.

Results: The results indicate that 89.9% of participants recognized anxiety medications, with Diazepam being the most commonly identified. However, 40.5% perceived these drugs as safe for use without a prescription. Notably, 29.8% engaged in self-medication, predominantly sourcing drugs from pharmacies without prescriptions (24.7%). Additionally, 35.6% of those who self-medicated experienced adverse effects. Cluster analysis revealed three distinct groups based on knowledge and attitudes, offering insight into tailored interventions.

Conclusions: The findings underscore significant gaps in public knowledge, attitudes, and practices regarding the self-medication of anxiety drugs in Saudi Arabia. Recommendations include implementing targeted educational campaigns, enhancing prescription regulations, and expanding access to mental health services. Future research should focus on the cultural and socioeconomic determinants driving these behaviors.

Keywords: Self-medication, Anxiety drugs, Public awareness, Attitudes, Saudi Arabia, Public health interventions, Mental health, Addiction risks, Healthcare access, Prescription safety

Introduction

Self-medication with anxiety drugs has emerged as a significant public health challenge on a global scale, particularly in regions with limited healthcare access and inadequate mental health support. The unsupervised use of these medications raises concerns due to risks such as dependency, adverse reactions, and the mismanagement of underlying psychological conditions. This study examines the knowledge, attitudes, and practices surrounding the self-medication of anxiety drugs among the Saudi population.

2000-2010

The early 2000s witnessed an increasing focus on the rising trend of self-medication with psychiatric drugs. Much of this was driven by widespread misconceptions regarding the safety and efficacy of over-the-counter anxiety medications, particularly in areas with limited access to mental health services.

2011-2020

During this period, awareness about the dangers of self-medication with drugs such as benzodiazepines grew significantly. Key studies emphasized the risks of dependency and overdose, especially among populations with inadequate knowledge about safe medication practices (Brown et al., 2022). However, public health campaigns aimed at mitigating these risks produced mixed results, highlighting the need for targeted interventions.

2021-Present

The COVID-19 pandemic profoundly affected global mental health, leading to a marked increase in the use of anxiety medications. In Saudi Arabia, the prevalence of self-medication rose as individuals sought to manage pandemic-induced stress and anxiety. This study builds on this context to explore current knowledge, attitudes, and practices related to the self-medication of anxiety drugs.

Research objectives

- To evaluate the public's knowledge of anxiety drugs in Saudi Arabia.
- To investigate attitudes toward self-medication for anxiety-related issues.
- To examine self-medication practices, including the sources and frequency of medication use.
- To propose evidence-based public health interventions aimed at minimizing the risks associated with self-medication.

Research Methodology

Research design and population

This study adopts a quantitative, cross-sectional design to explore self-medication with anxiety drugs among adults aged 18 and above in Saudi Arabia. The target population includes individuals who have used or considered using anxiety medications without a prescription. The focus is to assess their knowledge, attitudes, and self-medicating practices.

Sample size and sampling technique

To ensure a representative sample, the study aimed for a sample size of at least 380 participants, as suggested by Israel (1992). However, to enhance demographic diversity and reliability, data collection was extended to include 1,000 participants. A random sampling method was employed to recruit respondents.

Data collection methods

Data were gathered through an online questionnaire, carefully designed and reviewed by experts in health informatics and mental health. The questionnaire included sections addressing demographics, awareness of anxiety medications, self-medication behaviors, and sources of drugs. It was distributed using various social media platforms to maximize reach and accessibility.

Data analysis

Analysis was conducted using SPSS version 26.0. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data. Inferential statistical tests, including chi-square analyses, were performed to examine relationships between demographic variables and self-medication behaviors.

Ethical considerations

All participants provided informed consent electronically. The study ensured the confidentiality and anonymity of responses, which were used exclusively for research purposes. Ethical approval was secured from the relevant institutional review board prior to data collection.

Results

The study included 2,023 participants. As shown in tab. 1, the gender distribution was nearly balanced, with 54.5% males and 45.5% females. The majority of participants were aged 18 years-24 years (39.6%), followed by 25 years-34 years (36.1%), 35 years-44 years (15.9%), and 45 years or older (8.4%). Regarding education level, 45.5% had a bachelor's degree, 22.2% had a high school education, 15.6% held a diploma, and 16.7% had advanced degrees (master's or PhD). Notably, 29.8% of participants reported having a diagnosed mental health condition, while 70.2% did not.

Table 1. **Demographic information.**

Question	Category	Frequency	Percentage %
What is your gender?	Male	1102	54.50%
	Female	921	45.50%
What is your age? (Years)	18-24	800	39.60%
	25-34	730	36.10%
	35-44	320	15.90%
	45 and above	173	8.40%
What is your highest level of education?	High school	450	22.20%
	Diploma	315	15.60%
	Bachelor's degree	920	45.50%
	Master's degree	200	9.90%
	PhD	138	6.80%
Do you have any diagnosed mental health conditions?	Yes	602	29.80%
	No	1418	70.20%

As highlighted in tab. 2, most participants (89.9%) reported being aware of medications used to treat anxiety. Diazepam was the most recognized drug (49.4%), followed by Alprazolam (39.6%), Lorazepam (34.6%), and Clonazepam (29.6%). However, 19.8% were unsure about specific drugs. When asked about the safety of anxiety drugs without a prescription, 40.5% believed it was safe, while 45.5% disagreed, and 14% were unsure.

Table 2. **Knowledge of anxiety drugs.**

Question	Category	Frequency	Percentage %
Have you heard of medications used to treat anxiety?	Yes	1820	89.90%

	No	203	10.10%
	Diazepam	1000	49.40%
	Alprazolam	800	39.60%
Familiar anxiety drugs	Lorazepam	700	34.60%
	Clonazepam	600	29.60%
	Not sure	400	19.80%
	Yes	820	40.50%
Do you believe anxiety drugs can be used safely without a prescription?	No	920	45.50%
	Not sure	283	14%

As presented in tab. 3, the majority of participants (55.9%) did not believe that self-medicating with anxiety drugs was safe, while 25.7% believed it was, and 18.4% were unsure. The main reasons for considering self-medication included immediate relief from symptoms (44.5%), difficulty accessing healthcare (39.6%), and high consultation costs (37.1%). A significant proportion (80.1%) believed anxiety drugs were addictive, and only 15.8% would recommend self-medicating to others.

Table 3. **Attitudes toward self-medication.**

Question	Category	Frequency	Percentage %
	Yes	520	25.70%
Do you think self-medicating is safe?	No	1130	55.90%
	Not sure	373	18.40%
	Difficulty accessing healthcare	800	39.60%
	High cost of consultations	750	37.10%
Reasons for considering self-medicating	Immediate relief from symptoms	900	44.50%
	Advice from friends/family	450	22.20%
	Other	200	9.90%
	Yes	1620	80.10%
Do you believe anxiety drugs are addictive?	No	203	10.10%
	Not sure	200	9.90%
	Yes	320	15.80%
Would you recommend self-medicating?	No	1430	70.70%
	Not sure	273	13.50%

Approximately 29.8% of participants reported having self-medicated, as shown in tab. 4. Pharmacies without a prescription were the most common source (24.7%), followed by friends or family (19.8%). Most participants who self-medicated did so rarely (29.6%), while 19.8% self-medicated monthly, and 14.8% weekly. Among those who self-medicated, 35.6% experienced adverse effects.

Table 4. **Practices of self-medicating.**

Question	Category	Frequency	Percentage %
Have you self-medicated?	Yes	602	29.80%
	No	1418	70.20%
Where did you obtain the medication?	Pharmacy without prescription	500	24.70%
	Friends or family	400	19.80%
	Online purchase	300	14.80%
	Other	150	7.40%
How frequently do you self-medicate?	Daily	200	9.90%
	Weekly	300	14.80%
	Monthly	400	19.80%
	Rarely	600	29.60%
Have you experienced adverse effects?	Yes	720	35.60%
	No	1300	64.40%

The sources of information about anxiety drugs are summarized in fig. 1. The majority (54.4%) relied on doctors, followed by social media (34.6%) and friends or family (22.2%).

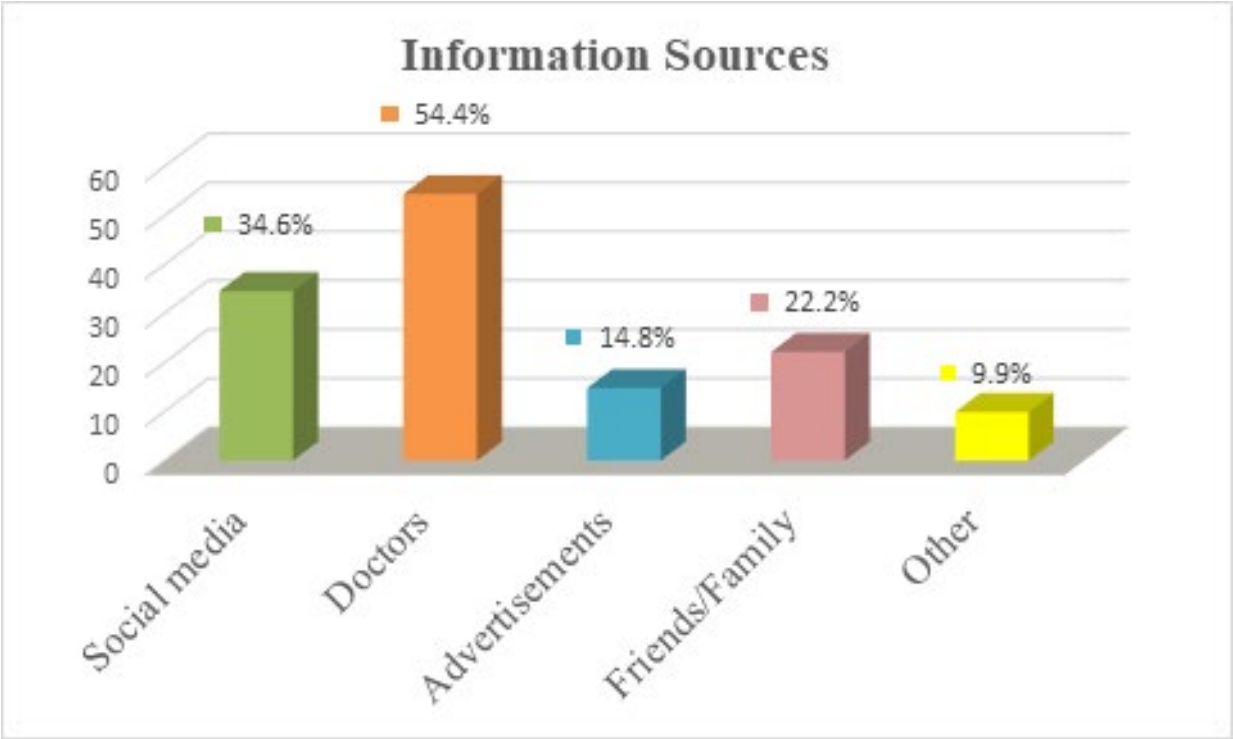

Figure 1. **Information sources.**

Confidence in these sources varied fig. 2, with 39.6% being somewhat confident and 29.6% very confident, while 19.8% remained neutral, and 11% expressed no confidence.

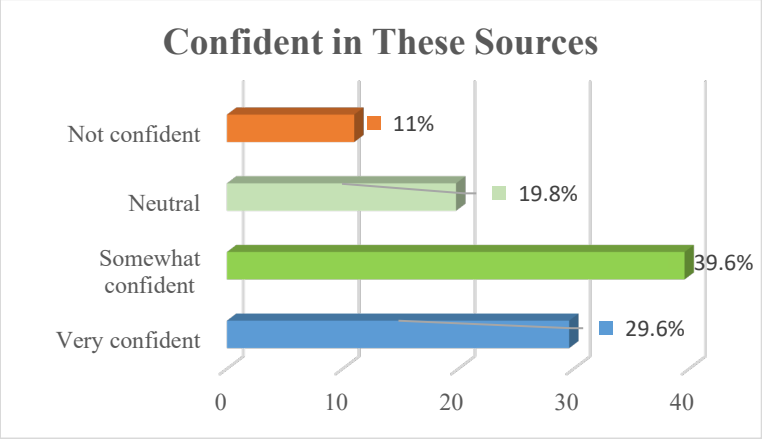

Figure 2. **Confident in these sources.**

As shown in tab. 5, the comparative analysis revealed no significant differences in knowledge or attitudes based on gender (p=0.992), age group (p=0.405), or education level (p=0.166).

Table 5. **Comparative analysis results.**

Variable	Statistical Test	p-value	Significance
Gender	t-test	0.992	Not Significant
Age Group	ANOVA	0.405	Not Significant
Education Level	ANOVA	0.166	Not Significant

The cluster analysis in tab. 6 identified three groups:

- Cluster 0: Moderate knowledge (M=5.54) and high positive attitudes (M=8.16), comprising 776 participants.
- Cluster 1: High knowledge (M=8.00) but low positive attitudes (M=3.81), comprising 607 participants.
- Cluster 2: Low knowledge (M=3.04) and low positive attitudes (M=3.79), comprising 640 participants.

Table 6. **Cluster analysis results.**

Cluster	Knowledge Mean	Attitude Mean	Cluster Size
0	5.54	8.16	776
1	8	3.81	607
2	3.04	3.79	640

Post-HOC analysis results

The post-hoc analysis results are presented in tab. 7 and 8. For knowledge scores, all pairwise comparisons between clusters were statistically significant (p<0.001). For attitudes, significant differences were found between Cluster 0 and the other two clusters, but not between Clusters 1 and 2.

Table 7. **Knowledge score: Tukey's HSD test.**

Group 1	Group 2	Mean Difference	p-value	Lower Bound	Upper Bound	Significant (Reject Null)
Cluster 0	Cluster 1	2.46	<0.001	2.2	2.71	Yes
Cluster 0	Cluster 2	-2.5	<0.001	-2.76	-2.24	Yes
Cluster 1	Cluster 2	-4.96	<0.001	-5.23	-4.69	Yes

Table 8. **Attitude score: Tukey's HSD test.**

Group 1	Group 2	Mean Difference	p-value	Lower Bound	Upper Bound	Significant (Reject Null)
Cluster 0	Cluster 1	-4.35	<0.001	-4.62	-4.08	Yes
Cluster 0	Cluster 2	-4.38	<0.001	-4.64	-4.11	Yes
Cluster 1	Cluster 2	-0.03	0.899	-0.29	0.24	No

The logistic regression analysis tab. 9 revealed no significant predictors of self-medication. Neither knowledge score (p=0.428) nor attitude score (p=0.379) was associated with the likelihood of self-medication. Similarly, belonging to Cluster 1 or Cluster 2 did not significantly influence self-medication behavior compared to Cluster 0.

Table 9. **Logistic regression results.**

Predictor	Coefficient (β)	Std. Error	z-value	p-value	95% Confidence Interval	Significant (p<0.05)
Constant	-1.38	0.33	-4.19	0	(-2.03, -0.74)	Yes
Knowledge Score	0.02	0.03	0.79	0.428	(-0.03, 0.08)	No
Attitude Score	0.03	0.03	0.88	0.379	(-0.04, 0.10)	No
Cluster 1	0.16	0.2	0.82	0.414	(-0.23, 0.55)	No
Cluster 2	0.27	0.2	1.34	0.181	(-0.13, 0.67)	No

Discussion

Knowledge of anxiety drugs

This study offers valuable insights into the levels of awareness among the Saudi population regarding anxiety medications. Although a high level of awareness was observed, with Diazepam being the most recognized, misconceptions remain prevalent. For instance, many participants believed that these medications could be used safely without a prescription. These findings align with prior research, such as that by (Alhur et al. 2024), which highlighted significant gaps in understanding the risks and appropriate usage of psychotropic medications. Similarly, (Brown et al. 2022) emphasized the global trend of psychotropic drug misuse, often driven by inadequate education about potential dependency and adverse effects. Addressing these misconceptions through targeted educational initiatives is essential to promote safer practices.

Attitudes toward self-medication

Despite the majority of participants perceiving self-medication as unsafe, the motivation for immediate symptom relief was a key driver. This observation mirrors the findings of (Alhur et al. 2023), who identified convenience and accessibility as major factors outweighing safety concerns in self-medication practices within Saudi Arabia. Additionally, while many participants acknowledged the addictive potential of anxiety drugs, this awareness did not always translate into safer practices. This discrepancy between knowledge and behavior is consistent with findings by (James et al. 2020), who noted that individuals often justify self-medication despite recognizing associated dangers. Public health campaigns focusing on the consequences of self-medication and improving mental health service accessibility are crucial to bridging this gap.

Practices of self-medication

The study highlights a significant prevalence of self-medication, with pharmacies without prescriptions being the most common source. These findings are consistent with (Alhur et al. (2023), who identified regulatory gaps as enablers of unauthorized access to medications. Furthermore, the adverse effects experienced by a considerable portion of self-medicating participants underscore the potential health risks. These observations align with (Abou-Auda 2003), who

emphasized the public health implications of unregulated drug availability. Addressing these challenges necessitates stricter enforcement of prescription regulations and comprehensive public education on the risks of self-medication.

Information sources and confidence

Healthcare professionals, particularly doctors, were the most trusted sources of information on anxiety drugs. However, a substantial reliance on social media raises concerns about misinformation, a finding consistent also observed that while the internet offers convenient access to information, it often lacks credibility. Enhancing digital health literacy and ensuring the quality of online health information are critical measures to mitigate misinformation risks.

Comparative and cluster analyses

The absence of significant differences in knowledge or attitudes based on demographic factors such as gender, age, or education contrasts with prior studies, such as (Alhur et al. 2024), which identified education as a significant determinant of psychotropic medication awareness. Cluster analysis revealed three distinct groups, each requiring tailored interventions. For instance, Cluster 1, characterized by high knowledge but low positive attitudes, would benefit from campaigns emphasizing the dangers of self-medication. In contrast, Cluster 2, with low knowledge and attitudes, necessitates foundational education to improve both domains.

Integration with prior research

The findings are consistent with broader research on self-medication and public health. (Alhur et al. 2024) emphasized the influence of cultural and socioeconomic factors on medication behaviors, calling for tailored interventions. Similarly, (Michael et al. 2014) highlighted the need to address knowledge-practice gaps in the context of antibiotic resistance. Enhancing digital health literacy, as recommended, remains a critical component of public health strategies.

Public health implications

The study underscores the necessity of a comprehensive approach to mitigate self-medication risks. Key strategies include:

Educational campaigns: Addressing misconceptions and promoting awareness of the risks associated with self-medication.

Regulatory enforcement: Strengthening prescription controls to reduce unauthorized drug access.

Healthcare accessibility: Tackling economic and logistical barriers to professional mental health support.

Conclusions

This research identifies significant gaps in the knowledge, attitudes, and practices related to self-medication with anxiety drugs among the Saudi population. Despite high awareness, widespread misconceptions and risky behaviors pose serious public health concerns. The findings highlight the importance of integrating educational initiatives, regulatory measures, and improved mental health services to mitigate these risks. Future research should explore the cultural and socioeconomic factors influencing self-medication and assess the effectiveness of tailored interventions.

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