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PREVALENCE OF PSYCHIATRIC MEDICATIONS USE AMONG MEDICAL STUDENTS IN KSA

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Abstract

Background: The usage of psychiatric medications has recently increased among medical students as a result of the rising prevalence of psychiatric symptomatology in this population. This comprises analgesics, sedatives, stimulants, opioids, antidepressants, and anxiolytics.

Objectives : To assess prevalence level of psychiatric medication, use among medical students in KSA.

Methods: A cross-sectional study was conducted in Saudi Arabia; The study's population are medical student in Saudi Arabia. Validated self-administered questionnaire was randomly distributed among consenting medical student participants. The questionnaire consisted of 26 questions assessing the level of prevalence of psychiatric medications among medical students, the type of medications used, indication, the duration of their use, and the side effect associated with their use. Data was entered and analyzed by using IBM Statistical Package for the Social Sciences (SPSS) version 23.0.

Results: The study included 480 participants, 60% were females and 40% were males. One quarter of participants use psychiatric medications now or used it before. The majority of respondents (35.0%) reported using these medications within the past 3 months, with a smaller percentage (9.2%) reporting usage three times in a lifetime. Depression was the most common indication for medication use (68.3%), followed by anxiety (59.2%), while bipolar disorder, ADHD, and other indications were reported less

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frequently (5.8% or less). More than half of the respondents (50.8%) reported an increase in medication dosage after use, and a slight majority (55.0%) reported changing their treatment plan more than once. 75.0% of respondents began using medication after entering medical college, with varying percentages of respondents beginning medication use in different years, the highest being in the third year (25.8%) and the lowest in the sixth year (3.3%).

Conclusion: In conclusion, psychiatric medication use is relatively common among medical students in KSA. There is a significant correlation between age, marital status, gender, monthly income, and academic year in psychiatric medication usage. Age increases the per-centage of individuals using psychiatric medications, while single individuals have higher us-age rates. Gender also plays a role, with females having higher usage rates. However, no significant relationship exists between location or student GPA with psychiatric medication usage.

Keywords: Psychiatric Medication, Psychiatric Symptomatology, Medical Students, Saudi Arabia.

Introduction :

Psychotropic medications are defined, according to the World Health Organization, as substances that, when taken in or administered into one's system, affect mental processes, e.g., perception, consciousness, cognition, mood, and emotions. These medications can be used to treat the symptoms of mental disorders, reduce disability, and prevent relapse. Anti-psychotics, anti-depressants, mood stabilizers, and anti-epileptic medications comprise the main categories of psychotropic medications [1].

Medical students may experience a great deal of psychological stress as a result of the pressure they are under, which can then result in serious psychotic disorders like anxiety, stress, and depression, as well as attention deficit. The student's physical and mental health may deteriorate over time because of the pressure placed on them by their coursework [2]. As a result, they suffer more than their peers with other majors [3].

Approximately 34.6% of 146 Istanbul University final-year medical students reported using prescription psychiatric medications, according to research published in 2023 [4]. At Guilan University of Medical Sciences, out of 160 students, 20% admitted taking benzodiazepines, while 27.5% reported using SSRIs [5]. Also,3183 medical students and recent graduates from all eight Czech medical colleges participated in a study to better understand the sources of stress. Anxiolytic or antidepressant use was supported by 14.84% of respondents, according to the survey [6]. In 2022, research conducted in Saudi Arabia, conducted on medical and nonmedical use of psychiatric medications among medical students in Riyadh suggests that 20% of medical students in Riyadh had used some psychiatric medications throughout their life, whereas 15% used some psychiatric medications in the past 12 months. Antidepressants are the most used (57%), followed by opioids (24%) and anxiolytics (15%) [7].

Another recent study conducted on emotional distress and psychiatric medications use among medical students shows that 52.6% of the students have depression, 61.7% have anxiety, and 78.5% have developed stress symptoms. There were no gender differences in the usage of psychiatric and stimulant medicines [8]. Among healthcare professionals, substance usage has been associated with symptoms of

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burnout, depression, and anxiety [9]. In all places, there were 28.0% of medical students who reported having depression [10].

Studies have been published on the use of prescribed psychotropic medications among medical students. The reported prevalence of psychotropic medications usage was found to be 30.4% were taking it, and 41.4% of medical students had used it at some time in their lives. This prevalence increased over the course, and 90.7% of the medications were prescribed at regular medical consultations (85.5% by psychiatrists) [11]. According to a study in 2017 conducted in Pakistan, Abbottabad suggests that 21.49% of medical students had either used psychoactive substances in the past or now, most of them were males (71.33%) [12]. The main purpose of the study is to assess the prevalence rate of psychiatric medication among medical students in Saudi Arabia.

Materials and Methods:

Study design and Study setting:

This study was a cross-sectional questionnaire survey, based on a structured questionnaire that was developed by authors.

Participants, recruitment, and sampling procedure:

The cross-sectional survey was carried out from August 2023 to March 2024 conducted in kingdom of Saudi Arabia (KSA) targeting medical students across the kingdom

Inclusion and Exclusion criteria:

we included medical students in Saudi Arabia and from different years and different universities, and we excluded students from other colleges and medical students outside Saudi Arabia.

Sample size:

Using the Raosoft calculator, the sample size was calculated with a 95% confidence level and a 5% optimum allowable margin of error. The sample size required was 377 individuals.

Method for data collection and instrument (Data collection Technique and tools):

The study population will include undergraduate students in their first through fifth years. The medical students from the various medical institutions in Saudi Arabia will get an online form. For this study, demographic and educational characteristics such as age, sex, location, grade point average (GPA), marital status, socioeconomic status, disease status and weekly study hours was considered.

Analyzes and entry method:

Using the "Microsoft Office Excel Software" software (365) for Windows, data was input on the computer. Then, the data was uploaded to the SPSS (Statistical Package for Social Sciences) version 23 was used for analyzing the data. The independent sample t-test and one-way ANOVA test were applied since the data were regularly distributed. Odds ratios (OR) with 95% confidence intervals (CI) were calculated using univariate and adjusted data. P-values below 0.05 were regarded as significant.

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Results:

Table (1) shows that the majority of individuals fall within the 21-25 age bracket, comprising 67.1% of the sample, followed by the 18-20 age group at 27.5%. In terms of gender, females represent 60% of the population, while males make up the remaining 40%. Geographically, the Western region has the highest representation at 40.6%, followed by the Central region at 23.8%. Concerning academic performance, the most significant proportion of individuals achieved a GPA between 3.75 and 4.49, accounting for 37.1% of the sample. Furthermore, most respondents reported a monthly income of less than 5000, constituting 53.1% of the population. Regarding marital status, the vast majority of individuals are single, making up 94.6% of the sample. Lastly, the distribution across academic years indicates a relatively even spread, with the fifth and sixth years having the highest representation at 21.3% and 18.8%, respectively.

Table (1): Sociodemographic characteristics of participants (n=480)

Parameter		**No.**	**Percent**
Age	18_20	132	27.5
	21_25	322	67.1
	26_30	20	4.2
	more than 30	6	1.3
Gender	Male	192	40.0
	Female	288	60.0
Location	Central	114	23.8
	Eastern	108	22.5
	Northern	10	2.1
	Southern	53	11.0
	Western	195	40.6
GPA out of 5	<2.75	5	1.0
	2.75-3-74	35	7.3
	3.75-4.49	178	37.1

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	4.5-4.75	123	25.6
	>4.75	110	22.9
	GPA is out of 4	29	6.0
GPA out of 4	1.75-2.74	2	0.4
	2.75-2.99	8	1.6
	3-3.49	6	1.2
	3.5-3.75	6	1.2
	>3.75	7	1.4
Monthly income	Less than 5000	255	53.1
	5000-10000	62	12.9
	11000-15000	59	12.3
	16000-20000	45	9.4
	More than 20000	59	12.3
Marital Status	married	24	5.0
	single	454	94.6
	divorced	1	.2
	widowed	1	.2
Academic year	Intern	31	6.5
	First year	35	7.3
	Second year	61	12.7
	Third year	84	17.5
	Fourth year	77	16.0
	Fifth year	102	21.3
	Sixth year	90	18.8

As illustrated in figure (1), one quarter of participants (n= 120, 25%) use psychiatric medications now or used it before.

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Figure 1: Prevalence of psychiatric medications use among participants (n= 480).

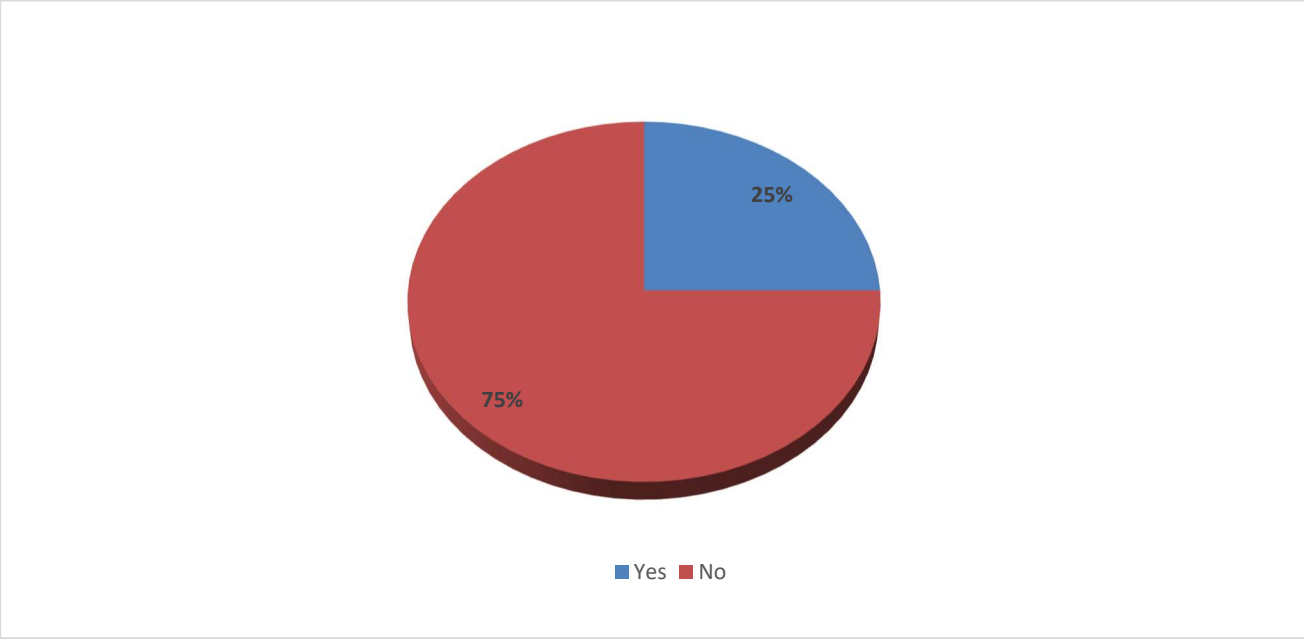

Table (2) shows that the majority of respondents (35.0%) reported using these medications within the past three months, with a smaller percentage (9.2%) reporting usage three times in a lifetime. Depression was the most common indication for medication use (68.3%), followed by anxiety (59.2%), while bipolar disorder, ADHD, and other indications were reported less frequently (5.8% or less). Psychiatrist were the primary prescribers (64.2%), with general physicians and family medicine physicians having lower reported percentages (8.3% and 11.7%, respectively). A significant majority of respondents (76.7%) reported experiencing side effects, including poor concentration (32.5%), sleep problems (40.8%), and weight gain (33.3%). More than half of the respondents (50.8%) reported an increase in medication dosage after use, and a slight majority (55.0%) reported changing their treatment plan more than once. Additionally, a notable portion of respondents (45.8%) expressed an intention to cut or decrease their medication's dosage. Interestingly, 75.0% of respondents began using medication after entering medical college, with varying percentages of respondents beginning medication use in different years, the highest being in the third year (25.8%) and the lowest in the sixth year (3.3%).

Table (2): Determinants of psychiatric medications use among participants who use psychiatric medications (n= 120).

Parameter	**No.**	**%**

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Duration of *psychiatric medications* use	one time in lifetime	29	24.2
	2 times in lifetime	18	15.0
	3 times in lifetime	11	9.2
	More than 4 times in lifetime	20	16.7
	Past 3 months	42	35.0
Indication to use psychiatric medications	Depression	82	68.3
	Anxiety	71	59.2
	Panic Attacks	27	22.5
	Insomnia	29	24.2
	Weight loss	6	5.0
	obsessive-compulsive disorder	6	5.0
	Compulsion	3	2.5
	Bipolar disorder	7	5.8
	Attention deficit hyperactivity disorder	15	12.5
	Other	11	9.2
The doctor who prescribed psychiatric medications was	General physician	10	8.3
	Family medicine physician	14	11.7
	Psychiatric physician	77	64.2

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	Without prescription	12	10.0
	Other	7	5.8
Used any of the following antidepressant	(Fluoxetine) Prozac	49	40.8
	(Amitriptyline Hydrochloride) Saroten Retard	9	7.5
	(Paroxetine) Axor / Paxitab	12	10.0
	(Fluvoxamine Maleate) Faverin	16	13.3
	(Sertraline) Riasertal / Lustral/ Setral	16	13.3
	Other	58	48.3
Used any of the following Anti-anxiety medications	(Clonazepam) Rivotril	8	6.7
	(Lorazepam) Ativan	14	11.7
	(Alprazolam) Xanax	13	10.8
	(Diazepam) Stesolid / Diapam / Valium	11	9.2
	(Bromazepam) Lexotanil	5	4.2
	Other	85	70.8
Used any of the following Anti-psychotic medications	Haloperidol (Haldol / Sylador)	8	6.7
	(Pimozide) Orap Forte	6	5.0
	(Trifluoperazine) Stelazine	11	9.2
	(Fluphenazine Decanoate) Fluphenazine Decanoate	6	5.0

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	(Aripiprazole) Abilify Maintena / Aripex / Oryva / Zolinda	7	5.8
	Other	93	77.5
Used any of the following opioids or pain medications	(Nalaxone) Targinact	11	9.2
	(Oxycodone) Oxycontin	8	6.7
	(Tramadolhydrochloride) Tramadol	11	9.2
	(Triprolidine,Pseudoephedrine,Codeine) Actifed Compound Linctus	6	5.0
	(Dextromethorphan, Guaifenesin) Robitussin-Dm Syrup	2	1.7
	Other	94	78.3
Have any side effects	Yes	92	76.7
	No	28	23.3
Side effects	Nausea	25	20.8
	Lose of appetite	29	24.2
	Poor concentration	39	32.5
	Sleep problems	49	40.8
	Nausea	25	20.8
	Weakness	21	17.5

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	Mood change	29	24.2
	Rapid of irregular heart beat sensation	19	15.8
	Thoughts of harming yourself	17	14.2
	Change in taste	6	5.0
	Rash or itching	3	2.5
	Feeling tense	15	12.5
	Gain of weight	40	33.3
	Vomiting	15	12.5
	Other	34	28.3
Increase the medication's given dosage after using it for a while	Yes	61	50.8
	No	59	49.2
Changed treatment plan more than once	Yes	66	55.0
	No	54	45.0
Plan to cut or decrease the medication's dosage	Yes	55	45.8
	No	30	25.0
	Don’t know	35	29.2
Begin using this medication	-before entering college of medicine.	30	25.0

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	-after entering college of medicine.	90	75.0
Year you begin using this medication if you began using them after starting in medical college	-intern	3	2.5
	-first	26	21.7
	-second	20	16.7
	-third	31	25.8
	-forth	22	18.3
	-fifth	14	11.7
	-sixth	4	3.3

In Table (3), a significant percentage of respondents feel productive and confident while taking psychiatric medication, with 36.7% strongly agreeing and 20.8% agreeing. However, there is also a notable portion, with 32.5% being neutral and 10% strongly disagreeing. Concerningly, 30.8% of respondents expressed worry about being dependent on these medications. On a positive note, the majority (51.7%) feel in control of themselves and assert that they will not use these medications without a physician's prescription.

Table (3): Shows attitude of participants towards psychiatric medications. (n=120)

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
While taking my psychiatric medication, I feel productive and confident.	44 36.7 %	25 20.8 %	39 32.5 %	7 5.8 %	5 4.2%
Being dependent on these medications worries me	37 30.8 %	27 22.5 %	33 27.5 %	11 9.2 %	12 10.0%

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I am in control of myself, and I won't use thes medications without a physician's prescription	62 51.7 %	30 25.0 %	16 13.3 %	8 6.7 %	4 3.3%

Table (4) shows that there is a statistically significant relationship between age and psychiatric medication usage (P = 0.001). The percentage of individuals using psychiatric medications increases with age. There is a statistically significant relationship between marital status and psychiatric medication usage (P = 0.007). Single individuals have a higher percentage of medication usage compared to married, divorced, or widowed individuals. There is a statistically significant relationship between gender and psychiatric medication usage (P = 0.031). Female individuals have a higher percentage of medication usage compared to male individuals. There is no statistically significant relationship between location and psychiatric medication usage (P = 0.148). The percentage of medication usage varies across different regions, but the overall relationship is insignificant. A statistically significant relationship exists between GPA and psychiatric medication usage (P = 0.001). Individuals with lower GPAs have a higher percentage of medication usage. There is no statistically significant relationship between monthly income and psychiatric medication usage (P = 0.056). While there are differences in medication usage across income levels, the overall relationship is not significant. There is a statistically significant relationship between academic year and psychiatric medication usage (P = 0.004). The percentage of medication usage varies across different academic years. These observations provide insights into the factors associated with psychiatric medication usage in the sample population.

Table (4): Use of psychiatric medications in association with sociodemographic characters of participants (n=480).

		Used psychiatric medications in the past or now		**Total (N=480)**	**P value**
		Yes	No		
Age	18_20	17	115	132	**0.001**
		3.5%	24.0%	27.5%	
	21_25	87	235	322	
		18.1%	49.0%	67.1%	
	26_30	13	7	20	
		2.7%	1.5%	4.2%	
	more than 30	3	3	6	

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		0.6%	0.6%	1.3%	
Marital status	Single	107	347	454	**0.007**
		22.3%	72.3%	94.6%	
	Married	11	13	24	
		2.3%	2.7%	5.0%	
	Divorced	1	0	1	
		0.2%	0.0%	0.2%	
	widow	1	0	1	
		0.2%	0.0%	0.2%	
Gender	Male	38	154	192	0.031
		7.9%	32.1%	40.0%	
	Female	82	206	288	
		17.1%	42.9%	60.0%	
Location	Central	32	82	114	**0.148**
		6.7%	17.1%	23.8%	
	Eastern	30	78	108	
		6.3%	16.3%	22.5%	
	Northern	5	5	10	
		1.0%	1.0%	2.1%	
	Southern	9	44	53	
		1.9%	9.2%	11.0%	
	Western	44	151	195	
		9.2%	31.5%	40.6%	
GPA out of 5	<2.75	3	2	5	**0.001**
		0.6%	0.4%	1.0%	
	2.75-3-74	14	21	35	
		2.9%	4.4%	7.3%	

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	3.75-4.49	57	121	178	
		11.9%	25.2%	37.1%	
	4.5-4.75	28	95	123	
		5.8%	19.8%	25.6%	
	>4.75	13	97	110	
		2.7%	20.2%	22.9%	
	GPA is out of 4	5	24	29	
		1.0%	5.0%	6.0%	
GPA out of 4	1.75-2.74	0	2	2	**0.811**
		0.0%	0.4%	0.4%	
	2.75-2.99	1	7	8	
		0.2%	1.5%	1.7%	
	3-3.49	2	4	6	
		0.4%	0.8%	1.3%	
	3.5-3.75	1	5	6	
		0.2%	1.0%	1.3%	
	>3.75	1	6	7	
		0.2%	1.3%	1.5%	
Monthly income	Less than 5000	51	204	255	**0.056**
		10.6%	42.5%	53.1%	
	5000-10000	18	44	62	
		3.8%	9.2%	12.9%	
	11000-15000	22	37	59	
		4.6%	7.7%	12.3%	
	16000-20000	13	32	45	
		2.7%	6.7%	9.4%	
	More than 20000	16	43	59	

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		3.3%	9.0%	12.3%	
Academic year	Intern	15	16	31	**0.004**
		3.1%	3.3%	6.5%	
	First year	5	30	35	
		1.0%	6.3%	7.3%	
	Second year	8	53	61	
		1.7%	11.0%	12.7%	
	Third year	16	68	84	
		3.3%	14.2%	17.5%	
	Fourth year	21	56	77	
		4.4%	11.7%	16.0%	
	Fifth year	29	73	102	
		6.0%	15.2%	21.3%	
	Sixth year	26	64	90	
		5.4%	13.3%	18.8%	

Discussion:

Research on the prevalence of psychiatric medication use among medical students in KSA is still relatively limited, but existing studies suggest that the use of such medications is not uncommon. A study conducted on King Saud University Medical Students found that 17% of medical students in KSA reported using psychiatric medications, with the most commonly used medications being sedatives [3]. This finding is consistent with research conducted in other countries, which has also found high rates of psychiatric medication use among medical students.

According to our study results, 25% of our sample are currently using or have used psychiatric medications before. Depression was the most common indication for medication use (68.3%), followed by anxiety (59.2%), while bipolar disorder, ADHD, and other indications were reported less frequently (5.8% or less). This was very high compared to previously reported figures. Comparing the results presented here with those of Papazisis et al. [13], who reported a prevalence rate of 10.7% for lifetime nonmedical use of psychiatric medications and 7.7% for past-year nonmedical use, and who found that

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62.8% of students who used prescription medications non-medically were clinical years students, suggests that the use of psychiatric medication without a prescription is not as common among Riyadh medical students [14]. Additionally, our sample revealed that 59% of those who did not take mental medicine for medical purposes were also clinical year students. This is also consistent with a study by James et al. [15], which found that even though they were aware of the risks, senior medical college students continued to self-medicate at higher rates and that one in five college students use prescription psychiatric medications, a trend that has been rising annually [15]. In the KSAU-HS medical student study population, self-reported propranolol use was prevalent at 14.4% [16]. In our cohort, the incidence was higher than in a study done among university students in Switzerland [17], where it was discovered that 1.2% of students took beta-blockers because of their psychedelic qualities. Comparing these results with those of a Saudi Arabian study revealed that 30% of KSAU-HS medical and dental students had taken propranolol during their college years [18]. A general population study carried out in Germany found that 38.8% of participants took psychoactive medications for purposes other than medicine, such as improving cognitive function and managing stress [19]. In that study, beta-blockers made up (8.5%) of the medications utilized [19]. The motivation to use psychiatric medications without a prescription in Riyadh's general population is primarily due to "non-serious symptoms" and the high cost of psychiatric clinics. This differs from a Saudi study where the most common motives were relaxation, pain relief, and getting through the day. However, the study's results differ from Teter et al.'s findings [14, 20- 22].

Several factors may contribute to the high prevalence of psychiatric medication use among medical students in KSA. One of the most significant factors is the intense and demanding nature of medical education and training. Medical students in KSA often must balance a heavy workload, long study and clinical rotations hours, and high academic performance expectations. All of these factors can create a high level of stress and pressure, which may contribute to the development of mental health issues such as anxiety and depression [13].

In addition to the demands of medical education, medical students in KSA face unique stressors associated with the medical profession, including exposure to traumatic events, such as witnessing serious illness and death, as well as the pressure to excel in a highly competitive and demanding field. These stressors can take a toll on the mental health of medical students, leading to an increased risk of developing mental health issues and the need for psychiatric medication [2, 19].

Another important factor to consider is the stigma surrounding mental health in KSA. Despite increasing awareness and efforts to reduce stigma, mental health issues are still often viewed as a sign of weakness or failure, which can make it difficult for medical students to seek help for mental health issues and may lead to a reliance on psychiatric medications as a way to manage symptoms without seeking formal treatment [15, 21].

It is important to note that while psychiatric medication use is relatively common among medical students in KSA, it is not the only option for managing mental health issues. There are a variety of effective treatments for anxiety, depression, and other mental health conditions, including therapy, lifestyle changes, and support from peers and mentors. However, the high prevalence of psychiatric

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medication use among medical students in KSA highlights the need for increased support and resources for mental health and well-being within the medical education system.

The study has several limitations that should be taken into consideration. One limitation is the potential for underreporting of psychiatric medication use by the participants. Due to the stigma surrounding mental health issues, some students may be hesitant to disclose their medication use, leading to an underestimation of the true prevalence. Additionally, the study's cross-sectional design only provides a snapshot of medication use at a specific point in time and does not account for changes in medication use over time. Furthermore, the study may not have included all medical students in KSA, potentially leading to a biased sample and limiting the generalizability of the findings. These limitations should be considered when interpreting the results of the study.

The findings of this study have significant future implications for the well-being of medical students and the healthcare system as a whole. Understanding the prevalence of psychiatric medication use among medical students can help in developing targeted interventions and support systems to address mental health issues in this specific population. Additionally, the study's results can inform policies and initiatives aimed at promoting mental wellness and reducing stigma surrounding mental health in medical education and practice. Furthermore, the findings may also contribute to the broader conversation on mental health in academic settings and the potential impact on patient care. Overall, this study has the potential to drive positive change in the mental health landscape for medical students and the healthcare industry in KSA.

Conclusion:

In conclusion, psychiatric medication use is relatively common among medical students in KSA. There is a significant correlation between age, marital status, gender, monthly income, academic year, and psychiatric medication usage. Age increases the percentage of individuals using psychiatric medications, while single individuals have higher usage rates. Gender also plays a role, with females having higher usage rates. However, no significant relationship exists between location, the student's GPA, and psychiatric medication usage.

The demanding nature of medical education and training, combined with the unique stressors associated with the medical profession, has led to a high prevalence of psychiatric medication use among medical students. It is important for medical schools and healthcare organizations in KSA to recognize the mental health needs of their students and provide support and resources to help them manage stress and mental health issues effectively. By addressing these issues, we can help ensure that medical students in KSA are able to thrive and succeed in their education and future careers.

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Ethical approval

Ethical approval was obtained from the research ethics committee of the King Faisal University with Application number: [KFU-REC-2023-DEC-ETHICS1880]. An informed consent was obtained from

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each participant after explaining the study in full and clarifying that participation is voluntary. Data collected were securely saved and used for research purposes only.

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Conflict of interests
The authors declare that there are no conflicts of interest.

Informed consent:
Written informed consent was obtained from all individual participants included in the study.

Data and materials availability

All data associated with this study are present in the paper.

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