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SELF-MEDICATION AMONG STUDENTS OF THE FACULTY OF MEDICINE AT A UNIVERSITY IN NORTHERN PERU

AUTOMEDICACIÓN EN ESTUDIANTES DE LA FACULTAD DE MEDICINA DE UNA UNIVERSIDAD DEL NORTE DE PERÚ

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ABSTRACT

Objective: Describe self-medication and its relationship with sociodemographic characteristics in students of the medical school of a university in northern Peru 2023. **Methods:** An observational, cross-sectional and prospective design was used with 301 participants, using the CAuM-ovr questionnaire to collect data. **Results:** 83.4% of the students self-medicated. The bivariate analysis revealed that belonging to medical school significantly increased the probability of self-medication (p=0.0001, OR=26.4), as did having a salary greater than 1,500 soles (p=0.01, OR= 2,26). The main reasons included symptoms not considered serious enough to see a doctor (39%). Regarding the level of knowledge, a high percentage (94.8%) did not request information about medications and 94% believed in the influence of advertising on their purchasing decisions. Attitudinally, 60.6% occasionally consulted a specialist for health problems, while 58.6% bought medications recommended by advertising. **Conclusion:** The frequency of self-medication is high among these students, which indicates a continuous risk practice despite their health training.

Keywords: Self Medication; Students; Schools Medical; Attitudes; Knowledge. (Source: MESH-NLM)

RESUMEN

Objetivo: Describir la automedicación y su relación con las características sociodemográficas en los estudiantes de la facultad de medicina de una universidad del norte de Perú 2023. **Métodos:** Se utilizó un diseño observacional, transversal con 301 participantes, empleando el cuestionario CAuM-ovr para recolectar datos. **Resultados:** El 83,4% de los estudiantes se automedicaba. El análisis bivariado reveló que pertenecer a la escuela de medicina aumentaba significativamente la probabilidad de automedicación (p=0,0001, OR=26,4), al igual que tener un salario superior a 1500 soles (p=0,01, OR=2,26). Las razones principales incluyeron síntomas no considerados tan serios para consultar a un médico (39%). En cuanto al nivel de conocimiento un alto porcentaje (94,8%) no solicitaba información sobre los medicamentos y un 94% creía en la influencia de la publicidad en sus decisiones de compra. Actitudinalmente, el 60,6% consultaba ocasionalmente a un especialista ante problemas de salud, mientras que el 58,6% compraba medicamentos recomendados por publicidad. **Conclusión:** La frecuencia de automedicación es alta entre estos estudiantes, lo que indica una continua práctica de riesgo a pesar de su formación en salud.

Palabras clave: Automedicación; Estudiantes; Facultades de Medicina; Actitudes; Conocimiento. (Fuente: DeCS- BIREME)

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INTRODUCTION

The Pan American Health Organization defines self-medication as the conscious use of medications by an individual for self-care without medical prescription. It has been observed that university students, especially those in medical fields, are more susceptible to self-medication. These students tend to self-medicate upon recognizing symptoms of illnesses, believing they are immune to the adverse effects of medications [1,2]. In countries such as the United States, India, Spain, France, and South Africa, self-medication among university students ranges from 40% to 90%, and in Argentina and Palestine, it reaches 85% and 98%, respectively [3]. In Latin America, a similar trend is observed in Colombia with 47% and in Peru with 83.7% [4].

In Lambayeque, a study found that 54.5% of university students from a public institution had adequate knowledge about self-medication, mainly motivated by economic reasons (30.4%) and the perception that their symptoms were not severe (28.9%). Pain was the most commonly treated symptom, with emergency contraceptive pills and clindamycin being the most used medications [5]. In Chiclayo, over 90% of nursing students at a private university self-medicated, of which 60% had sufficient knowledge about medications, primarily using analgesics and antibiotics [6]. The present study is justified due to the harmful consequences of self-medication, such as adverse reactions, increased bacterial resistance, and the development of dependence and tolerance [2].

Furthermore, without proper oversight by medical personnel, the likelihood of patients developing complications increases. Therefore, health education is important, especially in the area of self-care, aiming to improve the doctor-patient relationship by raising awareness about appropriate diagnosis and treatment. There is a lack of studies on self-medication among health students in northern Peru. Research is crucial to understand the frequency of this practice and its sociodemographic characteristics in a private university. The results could motivate educational institutions to promote healthier behaviors. This study aims to describe self-medication and its relationship with the sociodemographic characteristics of medical students at a private university in northern Peru in 2023.

METHODS

Design

The study was observational, analytical, and cross-sectional.

Population and Sample

The study focused on students from the Faculty of Medicine at the Universidad Católica Santo Toribio de Mogrovejo (USAT) in 2023, with a total population of approximately 1391 students. A stratified and random sample of 301 students was selected, including 80 from nursing, 89 from human medicine, 47 from dentistry, and 85 from psychology, based on a formula for a finite population with 95% confidence and a 5% margin of error. Inclusion criteria required students to be over 16 years old and belong to certain academic cycles (II, IV, VI, VIII, and X), signing informed consent. For minors, parental consent was required. Exclusion criteria eliminated students who were absent on the day of the study or did not complete the questionnaire.

Variables and Instruments

The study focused on self-medication and evaluated four dimensions of this practice: frequency, reasons for use, students' attitudes, and level of knowledge. Data collection was obtained from the "CAuM-ovr" questionnaire developed by Vera and Urcia [5], which includes 66 questions validated by experts. The instrument demonstrated high reliability and validity, with a Cronbach's alpha of 0.9 and construct validity.

Procedure

For data collection, authorization was first obtained from the academic directorate of the Faculty of Human Medicine. Then permission was granted to enter classrooms of the medical, psychology, nursing, and dentistry schools. The researchers arrived thirty minutes before classes, explained the study's purpose to the students, and distributed informed consents and questionnaires.

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Statistical Analysis

After collecting the information, a database was created to analyze the sociodemographic characteristics and different dimensions of self-medication, including causes, level of knowledge, and attitudes. The Jamovi software was used for descriptive statistics. Additionally, a bivariate analysis was conducted to explore relationships between sociodemographic characteristics and self-medication, using Chi-Square and Fisher's Exact tests, with a 95% confidence level (α=0.05). Odds ratios were also calculated for variables showing significant associations.

Ethical Aspects

This study obtained ethical approval from the Faculty of Human Medicine of the Universidad Católica Santo Toribio de Mogrovejo (Resolution No. 228-2023-USAT-FMED) and was conducted with the informed consent of the participants, ensuring their voluntary and confidential participation in accordance with the principles of the Declaration of Helsinki II [7].

RESULTS

The study involved 301 students, with 194 women and 107 men, distributed by age as follows: 30.9% between 16 and 18 years, 36.2% from 19 to 21 years, 28.6% from 22 to 24 years, and 4.3% from 24 to 28 years. The majority (94%) were from the Lambayeque region, and 30.2% were in the VIII academic cycle. Regarding access to medical services, 29.2% visited pharmacies or medical posts, while 25.6% visited private clinics. Most students' families had monthly incomes over 1,500 soles (Table 1). After applying the CAuM-ovr questionnaire, it was found that 83.4% of participants self-medicate. The bivariate analysis indicated a significant relationship between self-medication and the type of professional school (p=0.0001): belonging to the medical school greatly increased the likelihood of self-medication (OR=26.4), while being in the psychology school reduced it (OR=0.13). Additionally, having an income higher than 1,500 soles was also significantly associated with self-medication (p=0.01; OR=2.26) (Table 1).

Table 1. Sociodemographic characteristics of students at a private university in northern Peru, 2023.

Variable	N (%)	Self-medication / Total (%)	p value
N=301			
Age			
16-18	93	(30.9)	78/93 (83.9)
19-21	109	(36.2)	93/109 (85.3)
22-24	86	(28.6)	68/86 (79.1)
24-28	13	(4.3)	12/13 (92.3)
Sex			
Female	194	(64.5)	166 /194 (85.6)
Male	107	(35.5)	85/107 (79.4)
Origin			
Lambayeque	283	(94)	236/283 (83.4)
Cajamarca	16	(53)	13/16 (81.3)
Libertad	2	(0.7))	2/2 (100)
Faculty			
Nursing	80	(26.6)	73/80 (91.25)
Human Medicine	89	(29.6)	88/89 (98.9)

Psychology	85	(28.2)	52/85 (61.2)
Dentistry	47	(15.6)	38/47 (80.9)
Academic cycle			
II	67	(22.3)	56/67 (83.6)
IV	47	(15.6)	36 /47 (76.6)
VI	62	(20.6)	55/62 (88.7)
VIII	91	(30.2)	74/91 (81.3)
X	34	(11.3)	30/34 (88.2)
Place of medical attention			
Ministry of Health Hospital	19	(6.3)	14/19 (73.7)
Private Doctor in Private Clinic	70	(23.3)	56/70 (80)
Private Doctor in Office	77	(25.6)	69/77 (89.6)
Medical Post/Pharmacy/Naturalist	88	(29.2)	75/88 (85.2)
Social Security (EsSalud) / FFAA Hospital / Police Hospital	47	(15.6)	37/47(78.7)
Monthly salary			
Between 1000-1500 soles/month	82	(27.2)	61/82 (74.4)
More than 1500 soles/month	219	(72.8)	190/219 (86.6)

* Fisher's Exact Test
+ Chi-Square Test
Source: Own elaboration

The students self-medicated primarily for pain (40.6%), cold/flu (27.5%), and fever (19.9%). The most used medications were analgesics (37.5%), cold/flu medications (24.7%), and antibiotics (19.9%). Regarding sources of information, most turned to pharmaceutical professionals (28.7%), followed by friends or family (21.1%) and non-medical professionals (15.9%). Additionally, the pharmacy was the main place for acquiring medications, representing 51.4% of the points of purchase (see Table 2).

Table 2. Main symptoms, types of medications, sources, and places of acquisition of medications among self-medicated students at a private university in northern Peru, 2023.

Main symptoms	n	%
Pain	102	40.6
Cold/Flu	69	27.5
Fever	50	19.9
Digestive discomfort	16	6.4
Sexual activity	13	5.2
Allergy	1	0.4
Type of medication most frequently consumed		
Analgesics	94	37.5
Cold/Flu medications	62	24.7

Antibiotics	50	19.9
Antihistamines	16	6.4
Oral contraceptives	13	5.2
Anxiolytics	6	2.4
Antidiarrheals	6	2.4
Antiparasitics	4	1.6
Sources of information		
Recommendation from a pharmaceutical professional	72	28.7
Recommendation from a friend or family member	53	21.1
Recommendation from a non-medical professional	40	15.9
Previous prescription	35	13.9
Advertisement	26	10.4
Leaflet, book, or internet	25	10.0
Place of medication acquisition		
Pharmacy	129	51.4
Hospital	71	28.3
Supermarket	38	15.1
Medical samples	13	5.2

The students primarily self-medicated because they did not consider their symptoms serious enough to consult a doctor (39%), believed they had adequate knowledge to self-medicate (23.5%), or had family or friends in the health field who could advise them (17.5%).

Regarding knowledge about self-medication, a high percentage (94.8%) rarely seeks information about the medications they acquire, 51.4% are unaware of the proper dosage and duration, although 96% are aware of the potential harms. Additionally, 94% believe that advertising influences their medication purchases, and 68.1% recognize that self-medication can have negative health effects (see Table 3).

The attitude of students towards self-medication shows that 60.6% sometimes seek medical attention for health problems. Additionally, when symptoms persist, 41.4% wait for them to resolve on their own, while 41.8% decide to visit a doctor. When it comes to purchasing medications, 58.6% are guided by advertising. However, 73.7% advise family and friends to consult a doctor for health problems (see Table 3).

Table 3. Main reasons, level of knowledge, and attitudes towards self-medication among students at a private university.

Dimensions	N = 251	(%)
Main reason for self-medication		
For economic reasons and because medications are over-the-counter	40	15.9
Because I believe I have enough knowledge to do so	59	23.5
Because the symptoms were not serious enough to see a doctor	98	39.0
Because I have family or friends who are nurses, pharmacists, or studying medicine who recommend it	44	17.5
Due to the time it takes to wait for a medical appointment	4	1.6
I do not have time to go to the doctor	6	2.4
Level of knowledge		
Information on correct use		
Seeks information	13	5.2
Does not seek information	238	94.8
Knowledge of dosage and duration		
Has knowledge of dosage and duration	122	48.6
Does not have knowledge of dosage and duration	129	51.4
Knowledge of harm		
Has knowledge of harm	241	96.0
Does not have knowledge of harm	10	4.0
Advertising influence		
Believes advertising can influence	236	94.0
Does not believe advertising can influence	15	6.0
Effects of self-medication		
Good for community health	13	5.2
Bad for community health	171	68.1
No effect	36	14.3
Not sure about the effect	27	10.8
Good for the economy	4	1.6
Attitudes		
Attitudes towards self-medication		
Whenever feeling unwell, do you see a doctor?		
Always	60	23.9
Sometimes	152	60.6
Never	39	15.5

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Attitude towards persistent symptoms		
Wait for them to pass	104	41.4
Increase the dosage	13	5.2
Take another medication	18	7.2
Visit the doctor	105	41.8
Not sure	11	4.4
Personal attitude towards advertising		
Consumed medications suggested by advertising	147	58.6
Did not consume medications suggested by advertising	104	41.4
Attitude towards recommending self-medication		
Consult a doctor	185	73.7
A medication that has been effective for them	27	10.8
Consult the seller or pharmacist	36	14.3
Wait for the symptoms to pass	3	1.2

Source: Own elaboration

DISCUSSION

Frequency of self-medication

This research showed that 83.4% of students self-medicated, a figure consistent with similar studies in the region, such as in a university in Cajamarca in 2023 with 83.7% and in Chiclayo in 2021 with 81.7%[4,8]. These data suggest that the rate of self-medication has not significantly decreased in the last two years in these areas. In contrast, a study conducted in Saudi Arabia found a much lower prevalence of 26% among medical and pharmacy students, indicating regional variations in self-medication practices[9,10].

The high prevalence of self-medication in certain regions may be related to lax pharmaceutical regulations and socio-economic and organizational challenges in the public health sector. This often drives individuals to self-medicate as a means to alleviate their ailments without medical consultation. This behavior is supported by the theory of human care, which interprets self-medication as a deliberate and conscious strategy of self-protection against illnesses to preserve health[11]. The high percentage of self-medication among health science students is attributed to their advanced knowledge about medications, especially among medical students, who show a greater tendency

to self-medicate (p=0.0001, OR=26.4) compared to other professional fields. A meta-analysis with 60,938 university students demonstrated that the prevalence of self-medication in medicine is more than double that in other professions[12]. This phenomenon is due to detailed knowledge of medications and easy access to them during clinical practice. Additionally, students with lower incomes tend to self-medicate to reduce costs, reflecting deficiencies in the quality of healthcare services[13,14].

Regarding the symptoms that commonly lead to self-medication and the most consumed medications, the findings align with those reported by Rathod et al[15]. Analgesics, which were the most acquired medications, are known for their adverse effects on the liver and kidneys. For this reason, it is crucial to educate the population about the consequences of their use. Similarly, it is important to inform about the adverse effects of other medications. Concerning the place of acquisition, the presented data are similar to those reported by Orellana et al.[16], indicating that 63% of students obtain medications from pharmacies. This is supported by the main source of information being a pharmacist, which coincided with the findings of

Alvarado[13]. Therefore, pharmacists are considered the primary providers, highlighting the need to raise awareness about the medical aspects of drug supply without prescription and the need for strict sales control. At this point, it is important to talk about causes of self-medication:

The main causes of self-medication without a medical prescription were the mildness of symptoms, having sufficient knowledge, and recommendations from family and friends. These results are reinforced by Licham[8], who concurs that these three reasons were the most common (76%).

Additionally, it is considered pertinent to comment on this point in reference to the level of knowledge: Based on the obtained results, it is established that despite the lack of knowledge about the pharmacological application of some medications, students are aware of the risks associated with self-medication. This is reinforced by a study conducted in Lima[17], where it was found that, although 100% of the sample self-medicated, 75.7% had a high level of knowledge about the side effects of the medications they acquired. On the other hand, a study conducted in Nigeria evidenced that students with insufficient knowledge showed a 60% prevalence in the practice of self-medication, while those with a high level of knowledge had a lower tendency to self-medicate, suggesting that this might be due to greater awareness of the side effects and pharmacological dynamics of medications[18].

Self-medication is critically prevalent among young university students in health careers, who often make unsupervised decisions about their health despite their training in pharmacology and public health [19]. Education in these areas aims to improve the responsible use of medications and reduce the risks of inappropriate consumption. Additionally, the variation in the prevalence of self-medication between countries is due to differences in regulations and the level of knowledge. In Latin America, such as in Peru and Mexico, greater knowledge fosters self-medication, while in countries with stricter regulations like the United States and Nigeria, this leads to lower prevalence [20]. Another interesting point to consider is the attitudes towards self-medication: Students

exhibited problematic attitudes towards self-medication; 60.6% occasionally consulted specialists, and 85.1% rarely attended regular medical consultations according to Vera and Urcia [5]. When faced with persistent symptoms, 42.4% waited for them to disappear, and 41.8% sought medical attention, contrasting with the 59% who sought medical attention in previous studies like Cisneros[6]. This trend is attributed to easy access to pharmacological information online, leading students to consult the internet before seeing a doctor, unless they perceive the symptoms as severe[21].

A total of 58.6% of students were influenced by advertising when purchasing medications, and 73.7% advised seeking medical attention in health situations. These figures are lower than studies like Licham [8], where 87% of participants were significantly influenced by media, and the study by Espinoza and Herrera [22], which reported a 78.6% media influence. This highlights how the media contribute to self-medication, positioning medications more as consumer goods than health resources.

The influence of the media on knowledge about self-medication is considerable, causing concern among university students who, in an environment of pharmacological and technological progress, often opt for self-medication [23]. Although self-medication is defended by some as self-care, others warn about the risks of its unregulated practice for long-term health[2]. This research reveals that even among health science students with extensive medical knowledge, self-medication is common and carries risks by bypassing medical consultations, which should be the safe option for health management.

CONCLUSIONS

The study suggests that self-medication is a frequent practice among medical students at a private university in northern Peru, with a notable 83.4% of students involved. The factors that most influence this behavior include the perception of mild symptoms, sufficient pharmacological knowledge, and having family or friends in the health field. Despite recognizing the negative effects that self-medication can have on health, many students still resort to it. Additionally,

although most prefer to consult a specialist for health problems, some opt to buy medications influenced by advertising. Some limitations of the study may lie in data collection, as it was based on self-reported surveys, which may be subject to biases such as social desirability deviation or inaccurate recall. Additionally, some variables were not explored, such as potentially relevant ones that could influence the practice of self-medication, like access to health services or cultural influence.

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