

When awareness fails: understanding why future educators continue to self-medicate

Abstract

Self-medication constitutes a growing public health problem, particularly among young populations who, due to their immediate access to digital information and over-the-counter medications, tend to reproduce risky health behaviors. This study aimed to determine the relationship between knowledge levels and attitudes regarding self-medication practices among students of the Public Pedagogical Higher Education Institute “Nuestra Señora de Lourdes” in Ayacucho, Peru, during 2023.

A quantitative, cross-sectional, and correlational study was conducted with 313 students selected through convenience sampling. Data collection was carried out using a validated and reliable questionnaire that assessed self-medication practices, knowledge levels, and attitudes toward this behavior. The results revealed a high prevalence of self-medication (93.6%), predominantly moderate knowledge (51.8%), and generally negative attitudes toward the practice (92.3%). Statistical analysis showed a significant inverse correlation between knowledge level and self-medication practices ($r = -0.119$; $p = 0.035$), while no significant relationship was found between attitudes and practices ($p = 0.184$). It is concluded that greater knowledge is associated with lower self-medication, although contradictions persist between expressed attitudes and observed behavior. These findings highlight the need to implement educational strategies targeting future teachers in order to promote rational medication use and prevent risks associated with self-medication.

Keywords: self-medication, students, attitudes, knowledge, public health

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Introduction

Self-medication is defined as the use of medicines without professional prescription to alleviate symptoms identified by the individual.¹ This phenomenon constitutes an expanding global health challenge, with prevalence rates ranging between 23% and 64% in countries such as Saudi Arabia, Honduras, Cuba, and Ecuador.²⁻⁵ In Peru, studies conducted in Lima, Cajamarca, and Arequipa report even higher figures, with self-medication ranging between 70% and 100% in the populations studied.⁵⁻⁷

The indiscriminate practice of self-medication entails multiple risks: adverse effects, antimicrobial resistance, masking of diseases, drug reactions, and interactions with foods, which may lead to serious complications and even mortality.^{8,9} These risks are particularly relevant in young populations enrolled in health sciences programs, where more than 90% of nursing and medical students have reported the use of drugs without prescriptions, often lacking knowledge of their indications and side effects.¹⁰ Similar situations have been observed in Nigeria, where prevalence reaches 50% despite being accompanied by what is considered “good” knowledge.¹¹

Biosociocultural factors such as age, sex, occupation, educational level, or religion significantly influence the adoption of this behavior.⁷ In Ayacucho, the literature is scarce: the study by Pacheco¹² reported 70.4% prevalence of self-medication among pharmacy users, without exploring student-specific patterns. Considering that young people represent a vulnerable group due to their unrestricted access to over-the-counter medications and social influence,³ it is essential to generate local evidence. This study aims to examine the level of knowledge, attitudes, and self-medication practices among students of a pedagogical institute in Huamanga, contributing information that can guide preventive and educational strategies in public health.

Problem and justification

Far from diminishing, self-medication has become one of the main challenges in contemporary public health. The use of medicines without prescription increases the risk of adverse reactions, interactions, overdoses, antimicrobial resistance, and the masking of diseases, which hinders timely diagnoses and aggravates morbidity and mortality.⁸

In Peru, evidence on the influence of knowledge levels and attitudes on self-medication practices remains limited, especially among populations not linked to the health sector. Studies in cities such as Lima, Cajamarca, and Arequipa report prevalences exceeding 70%.⁵⁻⁷ However, in Ayacucho the data are scarce: Pacheco’s (2018) study identified a prevalence of 70.4% among pharmacy users, but the magnitude and characteristics of the practice in specific groups, such as pedagogical students, are still unknown.

The research question guiding this study is: What is the relationship between knowledge level and attitudes with respect to self-medication practices among students of a Pedagogical Higher Education Institute in Ayacucho in 2023?

Its relevance lies in the fact that education students are future opinion leaders with direct influence on children and adolescents. Understanding how their knowledge and attitudes determine their practices is essential to designing educational and regulatory interventions adapted to their context, which favor rational drug use and help prevent health risks. At the same time, this study provides local data that fill research gaps in the Huamanga region, offering practical recommendations for strengthening health promotion policies and strategies.

Objectives and hypotheses

General objective: To determine the relationship between knowledge level and attitudes toward self-medication with self-medication practices among students of the Public Pedagogical Higher Education Institute “Nuestra Señora de Lourdes,” Ayacucho, during 2023.

Specific objectives

- I. To estimate the prevalence of self-medication practices among students.
- II. To identify the level of knowledge about self-medication in the study population.
- III. To describe students’ attitudes toward self-medication.
- IV. To analyze the relationship between knowledge level and self-medication practices.
- V. To analyze the relationship between attitudes and self-medication practices.

Research hypothesis

In the empirical landscape of the social and health sciences, articulating a unified, theoretically sound hypothesis is crucial for establishing the predictive trajectory of behavioral research. For the current observational study focusing on the student population at the IESPP “Nuestra Señora de Lourdes” in 2023, the idea is to systematically investigate the multidimensional drivers of unregulated pharmaceutical use.

Theoretical frameworks in health psychology consistently suggest that cognitive determinants, specifically an individual’s baseline pharmacological knowledge, play a critical role in evaluating risks during health-related decision-making. Furthermore, this cognitive awareness rarely operates in isolation; psychosocial predispositions, such as overarching affective attitudes towards medication efficacy and healthcare access, heavily influence these behavioral outcomes.

Consequently, evaluating these cognitive and affective variables in tandem provides a much more comprehensive, ecologically valid model of student health behaviors than examining them as mutually exclusive constructs. Therefore, synthesizing these dimensions, the central hypothesis of this investigation posits that there is a significant, measurable relationship between combined knowledge levels and attitudes, and the self-medication practices among students of the IESPP “Nuestra Señora de Lourdes,” 2023.

This overarching hypothesis structurally anticipates that variations in both a student’s grasp of medicinal properties and their personal dispositions towards self-care will jointly predict the frequency and nature of their self-medication habits. By testing this single, unified hypothesis, the research will successfully elucidate the synergistic impact of knowledge and attitudes, thereby providing solid empirical groundwork for targeted health-education interventions within this specific academic group.

Philosophical/Epistemological Framework

This research is based on the positivist paradigm, characterized by a quantitative, empirical-analytical, and systematic approach that prioritizes objectivity, statistical measurement, and methodological replicability.^{13–15} With roots in the Pythagorean school and consolidated by figures such as Archimedes and Ptolemy, this paradigm focuses on observable and measurable phenomena, and it is essential in public health for addressing global problems such as self-medication.¹⁶

The study employs standardized surveys to analyze prevalence, knowledge, and attitudes toward self-medication, thus providing useful data for public health policies. Self-medication includes a range of practices: using drugs without prescription, altering prescribed dosages, reusing old prescriptions, or taking drugs recommended by others. In developed countries, the model of “responsible self-medication” has been promoted as a safe and cost-effective alternative.⁸

Methodologically, the study uses a hypothetico-deductive model, which begins with empirical observations and universal laws to formulate testable hypotheses and explain underlying causes.¹⁵

Research background

International studies

In Indonesia, Octavia et al.¹⁷ reported a weak correlation between knowledge and self-medication for common colds. In Ecuador, Vásquez and Arraíz⁵ found high prevalence and low knowledge about antibiotics. In Saudi Arabia, Alduraibi and Altowayan² observed a 63.9% prevalence, accompanied by high knowledge and favorable attitudes. In Honduras, Carias et al.³ identified a prevalence of 73% among young women, who showed little awareness of potential consequences. In Colombia, Córdova et al.¹⁸ Documented widespread practices motivated by the perception of mild symptoms and peer advice. In Cuba, Fernández et al.⁴ Reported the use of antibiotics without prescriptions (23.7%). In India, Susheela et al.¹⁹ identified favorable attitudes toward responsible self-medication but found low knowledge levels and irrational practices.

National studies

In Otuzco-Cajamarca, Llanos⁷ found a prevalence of 66.9% and an association between favorable attitudes and practice. In Chosica, Vásquez⁵ identified a significant correlation between knowledge and practices. Ayala and Eguía⁶ reported low comprehension of medications and irresponsible practices. Pari et al.²⁰ linked self-medication to the absence of prescriptions and advice from vendors. In North Lima, Navarrete et al.²¹ noted variations by age and gender during the pandemic, with frequent use of antibiotics. Ayala and Leyva²² highlighted the influence of mass media in promoting the use of azithromycin without prescriptions.

Theoretical framework

Self-medication

The World Health Organization¹⁶ defines self-medication as the use of medicines to treat self-perceived symptoms. Other authors expand this concept to include the administration of drugs without prescriptions, modification of treatments, use for non-therapeutic purposes, or the reuse of leftover medications.^{1,8,23–26}

In Peru

Studies report high prevalence rates, with frequent purchase of antimicrobials without prescriptions.²⁷ The legal framework establishes that only physicians may prescribe medications, with limited exceptions. Factors associated with self-medication include easy access, distrust in health services, time restrictions, costs, work overload, and perceived self-sufficiency.^{28,29}

Consequences

Self-medication can delay diagnoses, cause adverse reactions, and contribute to antimicrobial resistance.^{28,30,31}

Knowledge level

Knowledge is understood as the ability to recall and apply information at different levels.

Attitudes toward self-medication

Attitudes are lasting predispositions based on beliefs propose three dimensions:

1. **Personal decision**, linked to youth autonomy
2. **Peers and advertising**, influenced by social circles and media.^{1,32,33}
3. **Emotional regulation**, related to coping with affective problems.

Methodology

Type and study design

This research adopted a quantitative, cross-sectional, and correlational approach, framed within a non-experimental design. Its purpose was to explore the relationship between knowledge, attitudes, and self-medication practices among students at the Public Pedagogical Higher Education Institute “Nuestra Señora de Lourdes,” Ayacucho, in 2023.¹⁴

Population and sample

The study population consisted of 472 students enrolled in the 2023-II academic semester. Convenience sampling was applied, and ultimately 313 students met the inclusion criteria and completed the questionnaire.

Inclusion criteria included students officially enrolled during the study period who voluntarily consented to participate. **Exclusion criteria** involved students under 18 years of age, those with chronic diseases, or those who did not complete the questionnaire.

Data collection technique and instrument

Data were collected through a self-administered survey using a structured questionnaire with 29 items, previously validated by expert judgment. The instrument was organized into four sections:

- I. Sociodemographic data** (age, sex, field of study, marital status, family environment, type of health insurance).
- II. Self-medication practices** (5 dichotomous yes/no items).
- III. Knowledge level** (7 items with yes/no/don't know options; classified as good, moderate, or poor according to Bloom's taxonomy).
- IV. Attitudes toward self-medication** (17 Likert-type items, five response options, adapted)

Validity and reliability

Content validity was determined using Hernández-Nieto's Content Validity Coefficient (CVC), which yielded an excellent score of 0.95. Reliability was established through a pilot test and internal consistency measures.

Ethical considerations

The study received approval from the Ethics Committee of the Universidad Nacional Mayor de San Marcos (code N° 0241-2023). Participation was voluntary, ensured by informed consent, and

anonymity and confidentiality of data were strictly guaranteed

Statistical analysis

Data were processed using SPSS version 26. Descriptive statistics (frequencies and percentages) and inferential statistics were applied. The Spearman correlation test was used to identify relationships, with a confidence level of 95% and a significance threshold of $p < 0.05$.

Results

A total of 354 surveys were administered, of which 313 met the inclusion criteria. The findings are presented in five categories: sociodemographic characteristics, self-medication practices, knowledge levels, attitudes, and hypothesis testing.

Sociodemographic characteristics

The average age of participants was 23 years ($SD \pm 4.4$), with the largest group between 18 and 25 years old (78.3%). Most respondents were female (73.5%), single (86.9%), and enrolled in Primary Education (41.5%). In terms of health insurance, 84% reported coverage by the Comprehensive Health Insurance (SIS), while 9.3% had no insurance (Table 1).

Table 1 Sociodemographic characteristics of students (n = 313)

Variable	Category	n	%
Age	18–25 years	245	78.3
	26–32 years	58	18.5
	≥33 years	10	3.2
Sex	Female	230	73.5
	Male	83	26.5
Marital status	Single	272	86.9
	Married	40	12.8
	Divorced/Widowed	1	0.3
Field of study	Primary Education	130	41.5
	Early childhood Ed.	104	33.2
	Physical education	59	18.8
	English language	20	6.4
Health coverage	SIS	263	84.0
	ESSALUD	20	6.4
	Private	2	0.3
	None	29	9.3

Self-medication practices

The prevalence of self-medication was 93.6%, while only 6.4% reported not engaging in this behavior. Among specific practices, 57.2% had used non-prescribed medications in the past six months, 66.8% did not seek medical care for severe symptoms, and 36.7% failed to complete prescribed treatments. Nearly half of the students (48.6%) recommended medications to friends or relatives (Table 2).

Table 2 Self-medication practices among students (n = 313)

Variable	Yes (%)	No (%)
Self-medicates	93.6	6.4
Used non-prescribed drugs (past 6 months)	57.2	42.8
Did not consult doctor for severe symptoms	66.8	33.2
Did not complete prescribed treatments	36.7	63.3
Recommended drugs to others	48.6	51.4
Used old prescriptions to buy drugs	36.7	63.3

Knowledge levels

Overall, 51.8% of students showed a moderate level of knowledge, 33.5% a good level, and 14.7% a poor level. While most correctly identified the concept of self-medication (82.1%), its complications (90.7%), and bacterial resistance (72.2%), fewer than 60% recognized specific clinical risks such as symptom masking or reusing leftover medications (Table 3).

Table 3 Knowledge level about self-medication (n = 313)

Level	n	%
Good	105	33.5
Moderate	162	51.8
Poor	46	14.7

Attitudes toward self-medication

A predominantly negative attitude was identified in 92.3% of students, while 7.7% expressed positive attitudes. However, when examining specific dimensions, 61% showed a favorable attitude toward self-medication by personal decision, and 17.6% toward peer or advertising influence (Table 4).

Table 4 Attitudes toward self-medication (n = 313)

General attitude	n	%
Negative	289	92.3
Positive	24	7.7

Hypothesis testing

The correlation analysis revealed a significant inverse relationship between knowledge and self-medication practices ($r = -0.119$; $p = 0.035$), suggesting that greater knowledge was associated with lower likelihood of self-medicating. Conversely, no significant association was found between attitudes and practices ($r = 0.075$; $p = 0.184$).

Discussion

This study identified a self-medication prevalence of 93.6%, which is notably higher than the rates reported in Nepal, Portugal,³⁴ and Indonesia.¹⁷ Such differences may be explained by methodological variations, since this research included five behavioral criteria, while previous studies relied on more limited indicators.

However, the proportion of students who reported using non-prescribed medications in the last six months (57.2%) was consistent with those international findings, highlighting the influence of socioeconomic and cultural factors. The predominance of young adults aged 18–25 years, females, single individuals, and those covered by SIS aligns with the profile described in Honduras by Carias et al.³

Regarding knowledge, a moderate level (51.8%) was most common, which is similar to findings from Ecuador.³⁵ and consistent with international literature.³⁴ While most students recognized the concept of self-medication, its complications, and the problem of bacterial resistance, important gaps emerged in areas such as legal regulations and specific clinical risks.

This gap between theoretical knowledge and actual practices was evident in behaviors such as reusing leftover medications (59.7%), avoiding medical consultations (66.8%), and recommending drugs to others (48.6%). Similar trends have been documented in Jordan and Nepal, where barriers such as limited access to healthcare, low costs, and peer or advertising influence reinforce self-medication.

With respect to attitudes, although 92.3% expressed a negative view toward self-medication, the practice persisted, echoing results

observed in Portugal. This paradox can be understood through specific dimensions: personal autonomy in decision-making (61.0%), social influence, and advertising pressure. These factors, as reported in Nepal and Jordan, demonstrate that social and cultural pressures often outweigh declared attitudes.

Finally, the inverse correlation found between knowledge and practice ($r = -0.119$; $p = 0.035$) supports the protective role of health education and is reinforced by the significant association between normative knowledge about antibiotics and lower self-medication ($r = -0.188$; $p = 0.001$). In contrast, no significant relationship was found between general attitudes and practice ($r = 0.075$; $p = 0.184$), which reflects the well-documented gap between expressed attitudes and actual behaviour. This finding highlights social influence as a key predictor of self-medication.

Conclusion

The present study reveals an exceptionally high frequency of self-medication among students of a pedagogical institute, confirming that this behavior remains a critical public health concern in young populations. Although most participants demonstrated moderate knowledge, the analysis showed that stronger conceptual understanding was modestly associated with fewer self-medication behaviors. This relationship underscores the value of targeted educational efforts that strengthen students' comprehension of medication risks and regulatory frameworks.

Conversely, attitudes did not exhibit a meaningful association with practice, despite the predominance of negative assessments toward self-medication. This discrepancy highlights a persistent gap between beliefs and real-life decision-making, suggesting that social environments, autonomy in managing symptoms, and easy access to over-the-counter drugs may exert greater influence on behavior than attitudinal dispositions alone.

By fulfilling its objectives (documenting prevalence, characterizing knowledge and attitudes, and evaluating their interrelations), this study expands the limited evidence available in the Ayacucho region and aligns with international findings that describe self-medication as a multifactorial phenomenon shaped by cognitive, social, and contextual determinants. The results emphasize the urgency of designing comprehensive strategies that move beyond informational campaigns and address the broader sociocultural factors that sustain this practice. Strengthening future educators' capacity to make informed health decisions is essential, given their eventual role as influential agents in their communities.

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Conflict of interest

The authors declare that there is no conflicts of interest.

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