ORIGINAL ARTICLE

Factors influencing self-medication behaviour among non-health science students at Universitas Prima Indonesia

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ABSTRACT

Self-medication, defined as the use of medication without a prescription or professional guidance, is a global phenomenon with significant implications for both individual and public health. This behaviour is frequently motivated by the desire to alleviate minor ailments, avoid healthcare costs, or circumvent lengthy consultation waiting times. While it can constitute a component of responsible self-care, self-medication also carries risks such as adverse drug reactions, drug interactions, antibiotic resistance, and the potential for misuse. This research aimed to analyse the factors associated with self-medication behaviour among non-healthcare students at Universitas Prima Indonesia. The study employed an analytical observational design with a cross-sectional approach. Data were collected via an online questionnaire distributed to 188 undergraduate students from the Faculty of Economics at Universitas Prima Indonesia, selected using simple random sampling. The independent variables in this study were gender, knowledge of self-medication, peer recommendations, and academic stress, while the dependent variable was self-medication behaviour. Data analysis involved univariate statistics to describe the characteristics of each variable and bivariate analysis using the Chi-squared test to examine the relationships between variables. The results indicated that knowledge (OR=3.230; p=0.000), peer recommendations (OR=2.046; p=0.000), and academic stress (OR=1.552; p=0.002) were significantly associated with self-medication, whereas gender was not (p=0.126). It can be concluded that a lack of knowledge, peer influence, and academic stress increase the risk of self-medication. Educational interventions and mental health support are necessary to reduce unsafe self-medication practices.

Keywords: self-medication, non-healthcare students, knowledge, peer influence, academic stress

Introduction

Self-medication, defined as the use of pharmaceutical drugs without a prescription or professional guidance, is a global phenomenon with significant implications for both individual and public health.[1] This behaviour is frequently motivated by the desire to alleviate minor ailments, avoid healthcare costs, or circumvent lengthy waiting times for medical consultations.[2,3] While self-medication can be a component of self-care when practised responsibly, it also poses considerable risks, including adverse drug reactions, drug interactions, the development of bacterial resistance, and the potential for misuse or dependence.[4,5] These

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risks underscore the importance of understanding the determinants of self-medication behaviour, particularly among specific demographic groups such as university students.

University students represent a unique population in the study of self-medication due to their transitional life phase, characterised by increasing autonomy and exposure to academic pressures.[6,7] Among these students, those in non-health-related disciplines are a particularly compelling subject for research. Unlike their counterparts in health-related fields, non-health students may possess less formal training in pharmacology or medicine, potentially influencing their attitudes and practices regarding self-medication.[8,9] At Universitas Prima Indonesia, an institution with a diverse student population, investigating the determinants of self-medication behaviour among non-health students presents a valuable opportunity to identify behavioural patterns and contributing factors within this group.

The prevalence of self-medication varies considerably across different regions and populations. Studies have reported rates ranging from 8.5% to 98%, influenced by factors such as socio-economic conditions, healthcare accessibility, and cultural norms.[10] In Indonesia, self-medication is highly prevalent; approximately 50% of individuals reportedly engage in this practice.[11] This high prevalence raises concerns about the lack of knowledge regarding drug safety and efficacy among the general public. For university students, factors such as academic stress, limited financial resources, and the ease of access to over-the-counter (OTC) medications may further exacerbate this behaviour.[4,10]

Several theoretical frameworks offer insights into the determinants of self-medication behaviour. The Theory of Planned Behavior (TPB), for instance, posits that attitudes towards a behaviour, subjective norms, and perceived behavioural control influence an individual's intentions and actions.[10,12] In the context of self-medication, attitudes encompass beliefs about the efficacy and safety of OTC drugs.[13,14] Subjective norms may involve the influence of peers or family members who endorse self-medication practices.[13,15] Perceived behavioural control includes factors such as access to medications and confidence in one's ability to manage health issues independently.[10] Understanding these dimensions is crucial for developing targeted interventions aimed at reducing risky self-medication practices.

Social influences also play a significant role in shaping self-medication behaviour. Advertising strategies, social media platforms, and recommendations from family or friends considerably impact individuals' decisions to self-medicate. For example, marketing campaigns often emphasise the convenience and effectiveness of OTC medications while downplaying potential risks.[16–18] Similarly, social media serves as a platform for disseminating health-related information, both accurate and misleading, which can influence individuals' choices.[19] Among university students, peer recommendations often carry more weight than professional advice from healthcare providers.[20,21]

Another important determinant is the avoidance of negative experiences associated with the formal healthcare system. Long waiting times at clinics, high consultation fees, and fear of stigmatisation for certain conditions prompt many individuals to self-medicate as a convenient alternative.[22–24] For university students balancing academic responsibilities with limited time and financial resources, these barriers are particularly salient. Furthermore, minor ailments such as headaches or colds are often perceived as manageable without medical intervention, further normalising self-medication practices within this demographic.[25,26]

The role of psychological factors cannot be disregarded in the discussion of self-medication. High levels of self-efficacy, defined as confidence in one's ability to manage health problems, have been associated with an increased likelihood of engaging in self-care behaviours, including self-medication.[27,28] While this confidence can empower individuals to address minor health issues independently, it can also lead to an underestimation of the risks associated with inappropriate medication use. Moreover, stress and anxiety, common among university students, may drive impulsive decisions to use medications without consulting healthcare professionals.[29]

Despite its widespread prevalence and associated risks, self-medication remains under-researched in specific populations such as non-health university students, particularly in the city of Medan. The majority of existing studies have focused on the general population or health science students who possess a certain level of medical knowledge.[30–32] This gap highlights the need for targeted research examining the unique factors influencing self-medication behaviour among non-health students at institutions like Universitas Prima Indonesia. By identifying these determinants, researchers can inform educational initiatives and policy interventions aimed at promoting safer medication practices.

Therefore, understanding the determinants of self-medication behaviour among non-health students at Universitas Prima Indonesia is both timely and crucial. This study aims to explore how factors such as social influences, psychological characteristics, healthcare accessibility, and individual attitudes contribute to this

behaviour within this specific population. The findings will not only enhance the understanding of self-medication practices but also provide actionable insights for designing interventions that mitigate associated risks while empowering students to make informed healthcare decisions.

Method

This study employed an analytical observational design with a cross-sectional approach to investigate the association between risk factors (gender, knowledge of self-medication, peer recommendations, academic stress) and self-medication behaviour among non-health science students in the Faculty of Economics at Prima Indonesia University. Data collection occurred once for each participant between December 2024 and January 2025 at the research site. The target population comprised all undergraduate students in Accounting and Management programmes (N = 4117). A minimum sample size of 188 students was determined using the Krejcie and Morgan formula with a 5% error margin and selected via simple random sampling from the population list. Data were gathered through an online questionnaire encompassing demographics, self-medication knowledge, peer recommendations, academic stress levels, and the frequency and types of self-medication. The questionnaire underwent pilot testing to ensure validity and reliability. Data analysis involved univariate analysis for the frequency distribution of each variable and bivariate analysis using the Chi-square test or Fisher's Exact Test (where appropriate) to examine the relationships between variables, with statistical significance set at $p < 0.05$.

Results

The respondents in this study comprised 188 undergraduate students from the Faculty of Economics at Universitas Prima Indonesia who provided informed consent to participate. Regarding gender, the majority of respondents were female (n = 115), representing 61.2% of the total sample. In contrast, there were 73 male students, accounting for 38.8%. In terms of knowledge, over half of the respondents demonstrated a poor level of knowledge (n = 101, 53.7%). The remaining 87 students (46.3%) were categorised as having a good level of knowledge.

Table 1. Student's characteristics (n=188)

Variable	n	%
Gender		
Male	73	38.8
Female	115	61.2
Knowledge		
Poor	101	53.7
Good	87	46.3
Peer recommendation		
Yes	90	47.9
No	98	52.1
Academic stress		
Yes	69	36.7
No	119	63.3
Self-medication		
Yes	95	50.5
No	93	48.5

Concerning peer recommendations, 90 students (47.9%) reported receiving such recommendations, while 98 students (52.1%) did not. This indicates that a slightly larger proportion of students did not receive peer recommendations compared to those who did. Furthermore, regarding academic stress, the majority of students (n = 119, 63.3%) did not experience academic stress. Conversely, 69 students (36.7%) reported experiencing academic stress. Finally, concerning self-medication behaviour, a slightly higher number of students engaged in self-medication (n = 95, 50.5%) compared to those who did not (n = 93, 49.5%).

Table 2 presents the results of the Chi-Square test, which analysed the association between various student characteristics and self-medication behaviour (the use of medication without a doctor's prescription). The characteristics examined included gender, level of knowledge about medication, the influence of peer recommendations, and the level of academic stress.

Table 2. Chi-square test results

Variable	Self-medication				Odds Ratio	p
	Yes		No			
	n	%	n	%		
Gender					1.248 (0.944 – 1.650)	0.126
Male	42	22.3	31	16.5		
Female	53	28.2	62	33.0		
Knowledge					3.230 (2.162 – 4.826)	0.000
Poor	75	39.9	26	13.8		
Good	20	10.6	67	35.6		
Peer recommendation					2.046 (1.500 – 2.791)	0.000
Yes	62	33.0	28	14.9		
No	33	17.6	65	34.6		
Academic stress					1.552 (1.182 – 2.038)	0.002
Yes	45	23.9	24	12.8		
No	50	26.6	69	36.7		

Based on gender, 95 students engaged in self-medication (42 males and 53 females), while 93 students did not (31 males and 62 females). The Chi-Square test yielded an Odds Ratio (OR) of 1.248 with a 95% Confidence Interval (CI) of 0.944 to 1.650, and a p-value of 0.126. The p-value, being greater than 0.05 (p > 0.05), indicates that there was no statistically significant association between gender and self-medication behaviour in this student sample. Nevertheless, the OR of 1.248 suggests that male students had a 1.248 times higher tendency to self-medicate compared to female students, although this difference was not statistically significant.

The analysis revealed a significant difference between students' level of knowledge and self-medication behaviour. Of the 101 students with poor knowledge, 75 (39.9%) engaged in self-medication, while only 26 (13.8%) did not. Conversely, among the 87 students with good knowledge, only 20 (10.6%) self-medicated, whereas 67 (35.6%) did not. The notably high Odds Ratio of 3.230 with a 95% Confidence Interval of 2.162 to 4.826, and a highly significant p-value (p = 0.000), indicate a statistically significant association. This implies that students with poor knowledge levels were 3.230 times more likely to self-medicate compared to students with good knowledge levels.

The influence of peer recommendations also demonstrated a significant association with self-medication behaviour. Among the 90 students who received peer recommendations, 62 (33.0%) engaged in self-medication, while 28 (14.9%) did not. Conversely, of the 98 students who did not receive peer recommendations, 33 (17.6%) self-medicated, and 65 (34.6%) did not. The Odds Ratio of 2.046 with a 95% Confidence Interval of 1.500 to 2.791, and a highly significant p-value (p = 0.000), indicate that peer recommendations significantly increased the likelihood of a student engaging in self-medication. Students who received peer recommendations were 2.046 times more likely to self-medicate compared to those who did not.

The level of academic stress also showed a significant association with self-medication behaviour. Of the 69 students experiencing academic stress, 45 (23.9%) engaged in self-medication, while 24 (12.8%) did not. In contrast, among the 119 students who did not experience academic stress, 50 (26.6%) self-medicated, and 69 (36.7%) did not. The Odds Ratio of 1.552 with a 95% Confidence Interval of 1.182 to 2.038, and a p-value of 0.002, indicate a statistically significant association. This suggests that students experiencing academic stress were 1.552 times more likely to self-medicate compared to students who did not experience academic stress.

Overall, the Chi-Square test results indicate that the level of knowledge about medication, peer recommendations, and the level of academic stress have statistically significant associations with self-medication behaviour. Students with poor knowledge levels, those who receive peer recommendations for medication, and those experiencing academic stress are more likely to engage in self-medication. In contrast, gender did not show a statistically significant association with self-medication behaviour in this student group. These findings underscore the importance of enhancing medication knowledge, promoting awareness regarding the influence of peers on medication use, and managing academic stress in efforts to reduce inappropriate self-medication practices among university students.

Discussion

This research offers compelling insights into the factors associated with self-medication behaviours among university students. Chi-square analysis revealed statistically significant associations between students' level of knowledge about medication, peer recommendations, and academic stress levels, and their propensity to self-medicate. Conversely, gender did not demonstrate a statistically significant relationship with this behaviour within the student sample examined. Although not statistically significant, an odds ratio (OR) of 1.248 for gender suggested a slightly higher tendency for male students to self-medicate compared to their female counterparts, indicating that male students had approximately 1.25 times greater odds of self-medicating. However, given that the confidence interval included the value 1 and the p-value was above 0.05, this difference cannot be considered statistically significant within the broader university student population based on this sample..

Other research indicates that female students tend to exhibit more cautious and cooperative behaviours regarding self-medication.[33,34] Previous studies have also shown that the proportion of female students engaging in self-medication is often higher than that of male students. For instance, one study found that 55.3% of female respondents self-medicated, compared to only 44.7% of male respondents.[35] Furthermore, another study noted that 54.4% of females and 45.5% of males were involved in self-medication practices.[36] These findings suggest a significant gender difference in self-medication behaviours among university students.

The most striking finding was the highly significant association between knowledge level and self-medication behaviour. Students with inadequate knowledge levels were over three times more likely to self-medicate compared to those with good knowledge. The very small p-value ($p = 0.000$) and the confidence interval not including the value 1 (2.162 – 4.826) provide strong evidence that a lack of sufficient understanding about medications promotes self-medication behaviour. This underscores the importance of educational initiatives and enhancing health literacy among students regarding the rational use of medicines.

Other research also indicates that students with good knowledge tend to exhibit more positive self-medication behaviours. A study at Universitas Katolik Indonesia Atma Jaya found that 93.33% of students had positive self-medication behaviours, and those with good knowledge were 1.2 times more likely to engage in such actions rationally.[37] Further research supports these findings, demonstrating that higher levels of knowledge are associated with better self-medication behaviours among students.[38,39] Health education is crucial for reducing irrational self-medication practices. Healthcare students, for example, often possess better knowledge regarding health and medications, leading them to be more cautious in their self-medication practices.[40,41]

Peer recommendations also emerged as a significant factor influencing self-medication behaviour. Students who received medication recommendations from peers were twice as likely to self-medicate. This phenomenon highlights the powerful influence of social networks and friendships in health-related decision-making, even concerning medication use. Interventions leveraging the positive influence of peers are needed to promote responsible medication use and discourage risky self-medication practices. Information sources originating from peers, pharmacists, and personal experience significantly impact students' decisions to self-medicate. Peers are often perceived as more accessible and trustworthy sources of information compared to formal sources such as doctors or pharmacists. Research indicates that 30% of respondents rely on peer recommendations for their self-medication decisions, while another 50% rely on internet information.[42,43]

Furthermore, academic stress levels showed a significant association with self-medication behaviour. Students experiencing academic stress were approximately 1.5 times more likely to self-medicate. This may be attributed to students attempting to manage physical or psychological symptoms arising from stress through the use of medication without consulting healthcare professionals. This behaviour often serves as a coping mechanism to address stress-related physical and psychological symptoms. The most commonly used substances for self-treatment include caffeine, consumed by nearly half of the surveyed students, indicating a reliance on stimulants to enhance focus or reduce fatigue.[44] These findings underscore the importance of providing mental health support services and effective stress management strategies for students to reduce their inclination towards self-medication as a coping mechanism.[45,46]

Overall, the findings of this study confirm that knowledge, peer influence, and academic stress play crucial roles in predicting self-medication behaviour among university students. The implications of these findings necessitate multifaceted interventions aimed at enhancing students' knowledge about medications, raising awareness of the potential risks of peer recommendations, and providing support for managing

academic stress. Comprehensive health education programmes, the promotion of consultations with healthcare professionals, and initiatives to mitigate academic stress can be important steps in reducing inappropriate self-medication practices and improving students' health and well-being. Further research employing different study designs and larger populations may be necessary to strengthen these findings and identify other contributing factors to self-medication behaviour among university students..

Conclusion

This research concludes that insufficient knowledge, peer recommendations, and academic stress significantly elevate the risk of self-medication behaviour among university students. Students with limited drug knowledge are over three times more likely to engage in self-medication. Furthermore, peer recommendations double the likelihood of students self-medicating, and academic stress also significantly increases this risk. Meanwhile, gender did not show a significant association with self-medication behaviour, although male students exhibited a slight tendency towards higher rates of self-medication. Based on these findings, it is recommended that students actively seek reliable health information, that academic programmes enhance health education and the rational use of medicines, and that future research further explores the interactions between these factors and other potential determinants of self-medication behaviour.

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