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Knowledge, attitude, and practices regarding self-medication among students at a private university in Uganda: A cross-sectional study.

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Abstract

Background

Self-medication is a significant global public health concern, notably among university students. Self-medication is becoming an important area within healthcare. It allows patients to achieve greater independence in making decisions about the management of minor illnesses, but also poses risks such as misdiagnosis, inappropriate dosages, drug interactions, and polypharmacy. This cross-sectional study investigated the prevalence, knowledge, attitudes, and practices related to self-medication among students at a private university in Uganda.

Methods

The study used a robust cross-sectional design, with stratified and convenience sampling to select 346 participants. Data were collected through online and physical surveys and analyzed using descriptive and inferential statistics.

Results

Self-medication was prevalent among 67.3% (95% CI: 62.4 – 72.3%) of the participants. 59% (95% CI: 54.0 – 63.9%) demonstrated a good understanding of self-medication. Students showed positive attitudes, with 4.16 (±0.936) agreeing on the importance of consulting healthcare professionals before self-medicating, and 4.28 (±0.909) believing in the necessity of regulations and controls on the dispensing of medicines. Painkillers were the most commonly self-administered drugs, at 91.9% (95% CI: 88.7 – 95.1%).

Conclusion

Despite having a good level of knowledge and positive attitudes, students still practice self-medication unsafely. This study provides valuable insights into self-medication among university students in Uganda, highlighting a gap between knowledge, attitudes, and actual practices. While students demonstrate good awareness and a positive attitude toward self-medication, unsafe practices remain prevalent, particularly the misuse of painkillers and reliance on unverified information sources. There is a need for health education in schools about the dangers of self-medication misuse, to mitigate the practice, or to enforce better and safer practices.

Keywords: self-medication, knowledge, attitude, practices, university students, Uganda.
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Introduction

Self-medication can be defined as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms (Shrivastava et al., 2022). Self-medication has established benefits as well as potential risks, and the sole effectiveness of which depends on how rationally it is practiced (Shrivastava et al., 2022). Self-medication also encompasses the use of medicines by the users for self-perceived health problems or the continuing use of medications formally prescribed earlier (Mumtaz et al., 2011).

Globally, self-medication is an increasing public health concern due to its relation with antimicrobial resistance (AMR) (Owusu-Ofori et al., 2021). Studies by Yeika et al. (2021) in 19 African countries indicate the prevalence of self-medication ranged from 12.1% - 93.9%. Among

university students, a global systematic review and meta-analysis study of 89 studies by Behzadifar et al. (2020) comprising 60,938 students found the overall prevalence of self-medication in university students was 70.1% (95% CI: 64.3 – 75.4%) and ranged from 7.9% - 99%. The highest prevalence of 99% was in the Democratic Republic of the Congo (Chiribagula et al., 2015).

Self-medication is one of the major leading causes of antibiotic overuse, misuse, and resistance (Jamhour et al., 2017; Cecyli & Pragathi, 2020). Since the COVID-19 pandemic, self-medication has become increasingly prevalent, driven by misinformation and the fear of infection (Abdelwahed et al., 2023). Presently, people not only irresponsibly consume over-the-counter (OTC) medications but also misuse prescription-only medicines (POMs). This behavior can result in prolonged hospitalizations, drug interactions, antimicrobial resistance (AMR), therapeutic failure, drug dependence, increased likelihood of illicit drug use, leading to addiction, or even death (Shrivastava et al., 2022). Issues with self-medication arise when individuals misuse medicines.

In Uganda, in some of the limited studies conducted among some university students, the prevalence of self-medication in Mbarara University 63.5% (Niwandinda et al., 2020) and Lira University 59.3% (Kule et al., 2022). While the prevalence of self-medication has been assessed in some Ugandan universities, as shown, there was no study investigating the knowledge, attitude, and practices of self-medication among students of IUIU. Therefore, the purpose of the study was to assess the level of knowledge, attitude, and practices of the students regarding self-medication at the Islamic University in Uganda.

Materials and Methods

Study design

A robust cross-sectional study design was implemented for this research, spanning from January to October 2023. Data collection, performed in July 2023, utilized a mixed sampling strategy, combining stratified and convenience sampling techniques. This cross-sectional design was chosen to provide a snapshot of the research variables at a specific point in time, allowing for assessing the findings and prevalence within the study population. Based on the seven faculties at the Islamic University in Uganda (IUIU), stratified sampling ensured proportional representation across these distinct academic units. Convenience sampling was then employed within each stratum to efficiently reach participants within the limited timeframe of the data collection period.

Study Setting and Population

The study was conducted at the Kampala campus (IUIU-KC) of the Islamic University in Uganda (IUIU), a multi-campus university with branches in Mbale, Kampala, Kabojja, and Arua. IUIU-KC, located on Kibuli Hill, approximately 3.5 kilometers southeast of Kampala, has seven faculties: Health Sciences, Law, Science, Management Studies, Education, Arts & Social Sciences, and Islamic Studies & Arabic Language. The campus includes both national and international students from various countries, including Kenya, Tanzania, Nigeria, Somalia, and Cameroon. The university has both an on-campus sickbay and an off-campus health facility that are accessible to students of the faculty of Health Sciences for free, but students from other faculties have to pay a small fee to access the services offered. Kampala was chosen as the study site because it is an urban setting with a high concentration of university students, a population known to be at risk of self-medication. Studying this population will help inform targeted interventions to promote safe medication practices.

Only students who consented to participate in the study were included, and those who consented but were unable to fill out the questionnaire due to various conditions, such as feeling unwell or withdrawal of consent, were excluded.

Sampling and sample size.

Participants for the study were sampled using the Krejci and Morgan table (1970), and the proportionate sample size was 346 participants. The Krejci and Morgan table depends on the total number of a population so as to estimate a proportionate sample; hence, the total number of students was 3,051. Information about the total number of students at IUIU-KC for that academic year was obtained from the university archives (Enterprise Resource Planning (ERP) system) after obtaining permission from the academic registrar.

The researcher used both stratified and convenience sampling techniques. The 7 faculties at the university composed the 7 strata whose proportionate sample was calculated using the "Proportional allocation formula" that is [

Data Collection

Participation in this voluntary study involved both online and physical hardcopy surveys, self-administered in English to ensure uniformity. Data collection commenced with online recruitment, yielding 109 participants, but transitioned to exclusive physical administration of questionnaires to achieve the target sample size of 346 participants. Anonymity was maintained throughout both data collection procedures. Online participants were recruited through student-faculty leaders who disseminated the questionnaire link in their class WhatsApp groups.

The title of the study topic was attached to the link to the questionnaire. The online questionnaire included a half-page consent note, with questionnaire completion indicating consent. For physical surveys, the researcher

approached students on campus and in classes during breaks, explained the study, and distributed survey copies only after obtaining consent. The questionnaire comprised five sections: Section 1 assessed socio-demographic characteristics (7 questions); Section 2 examined self-medication prevalence (3 questions); Section 4 measured attitudes using a 5-point Likert scale (8 questions); Section 5 assessed self-medication practices (6 questions).

Data management and analysis

Following data collection, data management procedures were implemented to ensure accuracy and completeness. All completed questionnaires, both online and physical, were assigned unique identification numbers. Data from the physical questionnaires were manually entered into a digital database (Excel 2021), while data from online questionnaires were extracted from the online platform's database. The combined data was then cleaned to identify and correct any errors, inconsistencies, or missing values.

The study variables were defined as follows:

- **Socio-demographic variables:** These included age, gender, religion, nationality, relationship status, faculty of study, and year of study.
- **Knowledge of self-medication:** Assessed using seven questions, with scores categorized as poor (0-2), moderate (3-4), or good (5-7).
- **Attitude towards self-medication:** Measured using an 8-item 5-point Likert scale, with responses ranging from strongly agree (5) to strongly disagree (1).
- **Practices of self-medication:** Assessed through six questions related to self-medication behaviors.
- **Prevalence of self-medication:** Determined by asking the participants if they have practiced self-medication within a specific period.

Data analysis was conducted using SPSS (version 27.0.1). Descriptive statistics were used to summarize the socio-demographic characteristics of the participants, with frequencies and percentages calculated for categorical variables, and means and standard deviations for continuous variables. The prevalence of self-medication was calculated and presented with a 95% confidence interval. Knowledge levels were presented as frequencies and percentages within each category (poor, moderate, and good). Attitudes were analyzed by calculating mean scores and standard deviations for each Likert scale item. Practices of self-medication were described using frequencies and percentages.

Ethical considerations

This study received approval from the University Research and Ethics Committee of IUIU-KC (Ref: IU-KC/CS/RP/23). Participants were fully informed about the study objectives, assured of confidentiality, and given informed consent before participation. Participation was entirely voluntary, with the freedom to withdraw at any time without consequences.

Results

Socio-demographic characteristics of the study population.

The majority of the participants were male, 59.2% (205/346), within the age category of 19-24, 73.1% (253/346), with a mean age of 24 years (±3.06). The Faculty of Law had the most participants, 44.8% (155/346), and students in their 4th year of study were the most represented, 39.6% (137). (Table 1).

Table 1: Socio-demographic characteristics of the participants (n = 346)

		Frequency	Percentage
Gender	Male	205	59.2%
	Female	141	40.8%
Age Category mean = 24 *(S.D = 3.06)*	19-24	253	73.1%
	25-35	93	26.9%
Marital Status	Married	41	11.8%
	Single, never married	271	78.3%
	Other	34	9.8%
Religion			
	Christian	180	52%
	Muslim	149	43.1%
	Other	17	4.9%
Nationality	Ugandan	288	83.2%
	Non-Ugandan	58	16.8%
Faculty of Study	Health Sciences	62	17.9%
	Law	155	44.8%
	Management studies	75	21.7%
	Social sciences, Islamic studies, Education & Science	54	15.6%
Year of Study	Year 1	32	9.2%
	Year 2	79	22.8%
	Year 3	91	26.3%
	Year 4	137	39.6%
	Year 5	7	2.0%

In this study, age was categorized as young adult (19-24) and adult (25-35)

The prevalence of self-medication was recorded to be 67.3% (95% CI: 62.4 – 72.3%). The overall level of knowledge of the students was good at 59% (95% CI: 54.0 – 63.9%).

Table 2 below shows the association between knowledge scores and selected key sociodemographic characteristics observed in this study.

Table 2: Association between Knowledge Scores and Key Sociodemographic Characteristics

Knowledge Score	**Poor**	**Moderate**	**Good**
Gender			
Male	20 (5.8%)	62 (17.9%)	123 (35.5%)
Female	3 (0.9%)	57 (16.5%)	81 (23.4%)
Age Category			
19-24	23 (6.6%)	95 (27.5%)	135 (39.0%)
25-35	0 (0.0%)	24 (6.9%)	69 (19.9%)
Faculty of Study			
Health Sciences	2 (0.6%)	16 (4.6%)	44 (12.7%)
Law	11 (3.2%)	60 (17.3%)	84 (24.3%)
Management Studies	5 (1.4%)	14 (4.0%)	56 (16.2%)
Social Sciences, Islamic Studies, Education & Science.	5 (1.4%)	29 (8.4%)	20 (5.8%)

Attitude toward self-medication

The attitude of the participants was assessed using a 5-point Likert scale, where scores above 3 indicated a positive attitude. Highlighting two attitude scores; 4.16 (±0.936) agreeing that one needs professional medical advice before self-medicating and 4.28 (±0.909) thought it right to have regulations and control on the dispensing practice of OTCs and POMs.

Practices related to self-medication

Practice was evaluated by assessing both the source of information about particular medications to be used during self-medication and the types of medications used. The students had differing practices regarding obtaining information about particular medications to be used in different ailments before self-medicating, with a significant proportion (56.6%, 95% CI: 51.4 – 61.6%) relying on the Internet for information. (Figure 1).

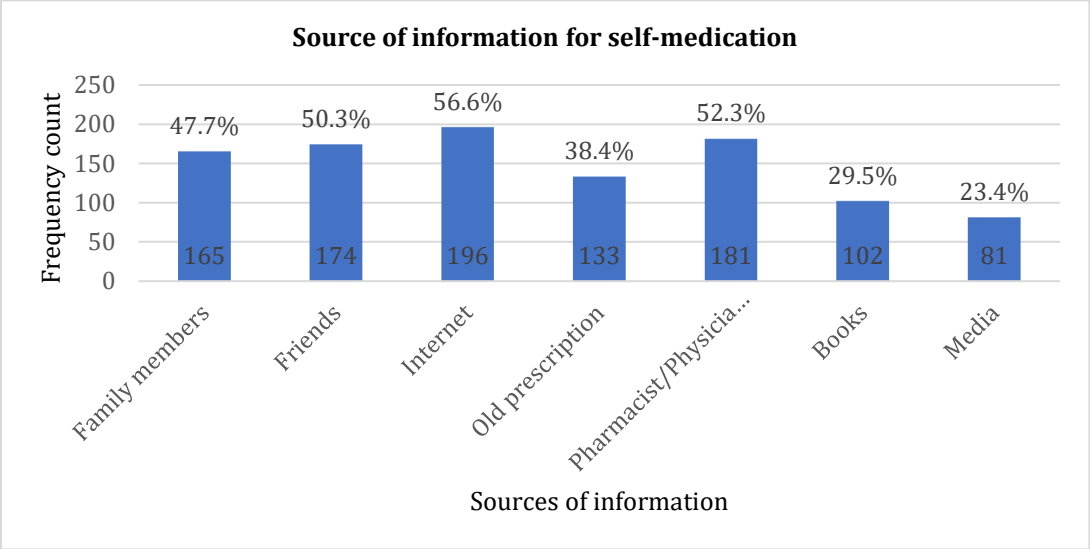

Figure 1: Practices of respondents in obtaining information for self-medication.

The most commonly used medications for self-medication were painkillers, at 91.9% (95% CI: 88.7–95.1%), and anticold/flu medicines, at 72% (95% CI: 67.3–76.6%), as shown in (Figure 2) below.

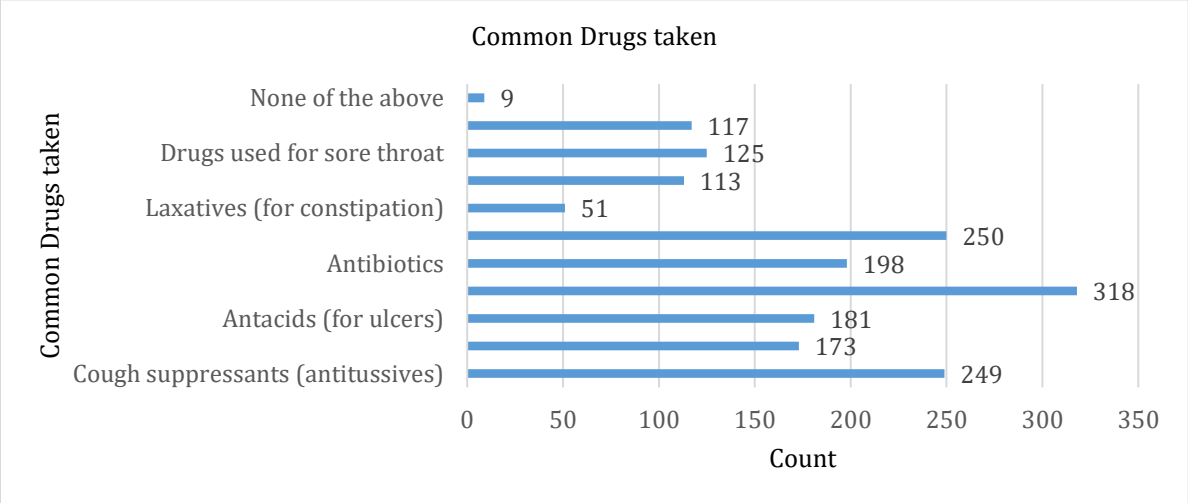

Figure 2: Commonly used drugs during self-medication.

Discussion

This study assessed the prevalence, knowledge, attitudes, and practices regarding self-medication among students at the Islamic University in Uganda (IUIU) Kampala Campus. The key findings revealed a high prevalence of self-medication (67.3%) among university students, with 59% demonstrating good knowledge of self-medication. Students also showed positive attitudes towards self-medication, particularly regarding the importance of consulting healthcare professionals and the need for regulations on medicine dispensing. The most commonly self-administered drugs were painkillers (91.9%), followed by anti-cold and antitussive medications.

The high prevalence of self-medication in this study aligns with findings from other studies among university students globally, where prevalence rates have been reported to range from 7.9% to 99% [Shrivastava, B., Bajracharya, O., & Shakya, R. (2022); Mumtaz, Y., Jahangeer, S., Mujtaba, T., Zafar, S., & Adnan, S. (2011)]. This similarity could be attributed to common factors influencing self-medication practices among university students, such as perceived barriers to accessing formal healthcare services, the desire for autonomy in managing health concerns, and the influence of peers

and social networks. However, it is important to note that this study did not explore the associations between self-medication and factors such as access to healthcare, reasons for self-medication, or specific health-seeking behaviors, which could provide further insights into the observed prevalence. Therefore, it is unclear why the findings related to knowledge and attitude appeared this way. However, this study tried to find an association between the level of knowledge (depending on knowledge scores) and selected key sociodemographic characteristics, as shown in Table 2 above. The table suggests that males, younger students (19-24 years), and those in the Faculty of Law tend to have higher knowledge scores regarding self-medication compared to other groups.

While the study revealed good knowledge and positive attitudes towards self-medication, the continued practice of self-medication, particularly with medications like painkillers (91.9%) [95% CI: 88.7 – 95.1%] and anti-cold/antitussives, raises concerns about potential risks associated with unsafe practices. This highlights the need for interventions that bridge the gap between knowledge and practice, promoting safer self-medication practices and discouraging the misuse of medications. Such interventions could include health education programs integrated into the university curriculum, focusing on responsible medication use and the potential dangers of self-medication. Further research could explore the reasons behind the discrepancy between knowledge, attitude, and practice in this context.

Several limitations should be considered when interpreting this study's findings. The study's cross-sectional design limits the ability to establish causality between knowledge, attitudes, and self-medication practices. Additionally, the study relied on self-reported data, which may be subject to recall bias. The study population was limited to students at a single urban university campus, which may limit the generalizability of the findings to other student populations or those in non-urban settings.

Conclusion

This study discovered a high level (67.3%) of self-medication among university students at IUIU-KC. While this prevalence is within the range reported in other studies among university students globally, it underscores the need for attention to this practice due to the potential risks associated with unsafe self-medication. The findings highlight the importance of interventions aimed at promoting safer self-medication practices among university students. Integrating health education about the possible dangers of self-medication and responsible medication use into seminars and workshops could be a proactive step in mitigating the risks associated with self-medication and promoting safer practices for campus students.

Declarations

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

Acknowledgment

We acknowledge all the participants of this study.

Authors' contributions

SOYS study, conceptualizing it, conducting data collection, analyzing it, and writing the manuscript. JMK, NS, and ZN contributed to the proposal and report development and supervised the study. PM contributed to the writing and critical review of the manuscript. All authors agree to be accountable for all aspects of the work to ensure that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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