ORIGINAL ARTICLE

Internet Access and Self-Medication Practices among Bank of Uganda Staff

Ayub Twaha[1], Shallon Atuhaire[1], Ali Mwakha[2]

ABSTRACT

The rapid expansion of internet access has contributed to a global rise in self-medication; a practice of using drugs to treat self-diagnosed conditions without professional supervision. Our study aimed to investigate how internet access influences self-medication practices among staff at the Bank of Uganda. Using a cross-sectional design, data was collected from 369 respondents through structured questionnaires and analysed using descriptive statistics, cross-tabulation, and logistic regression. The direct effect of internet access on self-medication was positive and significant (b=0.043, p=0.048), multivariate regression revealed that hours spent online significantly predicted self-medication behaviour (B=0.019, p=0.04), with the model explaining 63.1% of the variance (Nagelkerke R^2=0.631). The study confirmed a significant positive association between internet access and self-medication practices among BoU staff. To conclude, these findings highlighted the need for targeted interventions to promote safe medication behaviors in the context of increasing digital accessibility.

Keywords: Internet access, self-medication, Bank of Uganda, perceived behaviour, subjective norms

International Journal of Human and Health Sciences Vol. 10 No. 02 April'26

DOI:https://doi.org/10.31344/ijhhs.v10i2.933

INTRODUCTION

The rapid expansion of internet access has contributed to a global rise in self-medication using drugs to treat self-diagnosed conditions without professional supervision.[1] Recent preliminary findings at Bank of Uganda (BoU) indicate an alarmingly high self-medication prevalence of 89.7%, occurring alongside near-universal internet access (97%) among staff.[2]

The prevalence of self-medication in Uganda is alarmingly high (76.5%) across various populations.[3-5] Internet access remains an enabler with approximately 79% of internet users in Kampala, the capital city of Uganda, for self-medication practices.[2] However, evidence revealed that most of the research primarily focuses on students and general public.[6,7] Therefore, limited understanding exists regarding how these dynamics manifest among other professionals. Bank of Uganda (BoU) staff constitute a professional demographic characterized by extensive internet accessibility, both occupationally and personally, attributable to the digital nature of banking sector requirements.[8] Their work environment, distinguished by extended hours, elevated stress levels, and limited healthcare consultation opportunities, may increase reliance on internet-sourced health information and self-treatment.[9,10]

Despite efforts by regulatory bodies, internet-enabled self-medication remains insufficiently

1. School of Post Graduate Studies and Research, Cavendish University, Kampala, Uganda.
2. Department of Food Technology and Nutrition, Makerere University, Kampala, Uganda.

Correspondence to: Ayub Twaha, School of Post Graduate Studies and Research, Cavendish University, Kampala, Uganda. Email: ayubutwaha@gmail.com

addressed, particularly among professionals.[11] The recently reported prevalence of self-medication (89.7%)[2] among BoU staff critically underscore this knowledge gap and highlights the urgent need to understand the mechanisms driving this behavior. Therefore, this study aimed to investigate how internet access influences self-medication practices among staff at the Bank of Uganda.

METHODS

This cross-sectional study was conducted on the Bank of Uganda (BoU) staff. This was appropriate for capturing the associations between internet access and self-medication at a single point in time. Their selection was driven by distinct profile as professionals with high digital literacy and likely varying levels of internet access, making them a critical demographic for investigating health information-seeking behaviors and self-medication practices. This rationale is strongly validated by the recent findings of Twaha,[2] who discovered an alarmingly high self-medication prevalence of 89.7% alongside near-universal internet access (97%) within this very population.

A stratified random sampling technique was utilized to ensure adequate representation from various departments within BoU. In each department, systematic sampling technique where every 3rd staff was recruited consecutively from the sampling frame was employed. Proportional allocation was used during sampling to ensure representativeness. With this, each department contributed to the sample depending on the proportion of the departmental members in the entire BoU staff list.[12]

Our inclusion criteria were: all accessible staff of the BoU including retirees, who are able to read and understand the questionnaire in English. However, individuals with cognitive impairments that could affect their ability to understand the questionnaire and those who were on leave or receiving acute medical care were excluded from the study.

Independent variables included internet access characteristics such as frequency, purpose, and source of internet use. The dependent variable comprised self-medication practices measured by frequency and types of medications self-administered.

An online self-administered questionnaire was used to collect data on internet access and self-medication practices among BoU staff. For participants without internet access, a manual version of the questionnaire was provided. The survey categorized respondents into self-medication and non-self-medication groups based on their reported practices. The questionnaire covered various sections, including social demographics, health-related factors, access to the internet, and self-medication practices. This provided a snapshot of the current relationship between internet access and self-medication behaviors among BoU staff.

The tool for data collection was adopted with modification from an already validated source[13,14] and underwent peer review and supervisor oversight. Pilot testing was done to ensure clarity and reliability.

Data analysis was conducted using SPSS version 20.0 for Windows, incorporating descriptive, bivariate, and multivariate statistical methods. Descriptive statistics summarized sample characteristics and the prevalence of self-medication practices. Chi-square tests and correlation analysis examined bivariate relationships between internet access and self-medication behaviours. Logistic regression identified significant predictors of self-medication, controlling for potential confounding variables. The findings would inform evidence-based interventions and policies aimed at promoting responsible medication practices.

RESULTS

The majority of staff at the Bank of Uganda reported having access to the internet, with 97.0% (n=359) indicating they have internet access, while only 3.0% (n=11) reported no internet access (Figure 1). Regarding self-medication practices, a substantial proportion of staff (89.5%, n=331) reported engaging in self-medication, whereas only 10.5% (n=39) indicated that they do not self-medicate (Figure 1). The majority of respondents with internet access reported self-medicating (87%), while among those without internet access, 2% reported self-medicating (Figure 2).

Cross-tabulation analyses revealed notable associations between internet use frequency, health information-seeking behaviors, experienced ailments, stress levels, and the impact of work

schedules on medical consultations. Regarding internet usage, most participants reported using the internet often or very often (n=206, 55.8%), with a smaller proportion using it rarely (n=88, 23.9%), occasionally (n=3, 0.8%), or not at all (n=28, 7.6%). When examining the relationship between the frequency of internet use and the types of ailments typically experienced, cold/flu was the most frequently reported condition (n=58, 15.7%), followed by headache (n=25, 6.8%), muscle pain (n=22, 6.0%), and various combinations of these and other symptoms such as allergies and stomach upset. The association between internet use frequency and the spectrum of ailments was statistically significant (Cramer's V=0.426, p=0.041), indicating that those who used the internet more frequently tend to report a wider range of ailments (Figure 3). Further analysis explored the specific purpose for which respondents utilized the internet to access health-related information. The most common activities included searching for symptoms, finding medication information, reading articles about health conditions, and, to a lesser extent, online diagnosis and ordering medications online. Notably, respondents who reported experiencing multiple or more complex ailments (such as; combinations of cold/flu, headache, muscle pain, and allergies) were more likely to engage in multiple online health information-seeking behaviors. This association between experienced ailments and the purposes of internet use for health information was robust and highly significant (Cramer's V=0.382, p<0.001) (Figure 3).

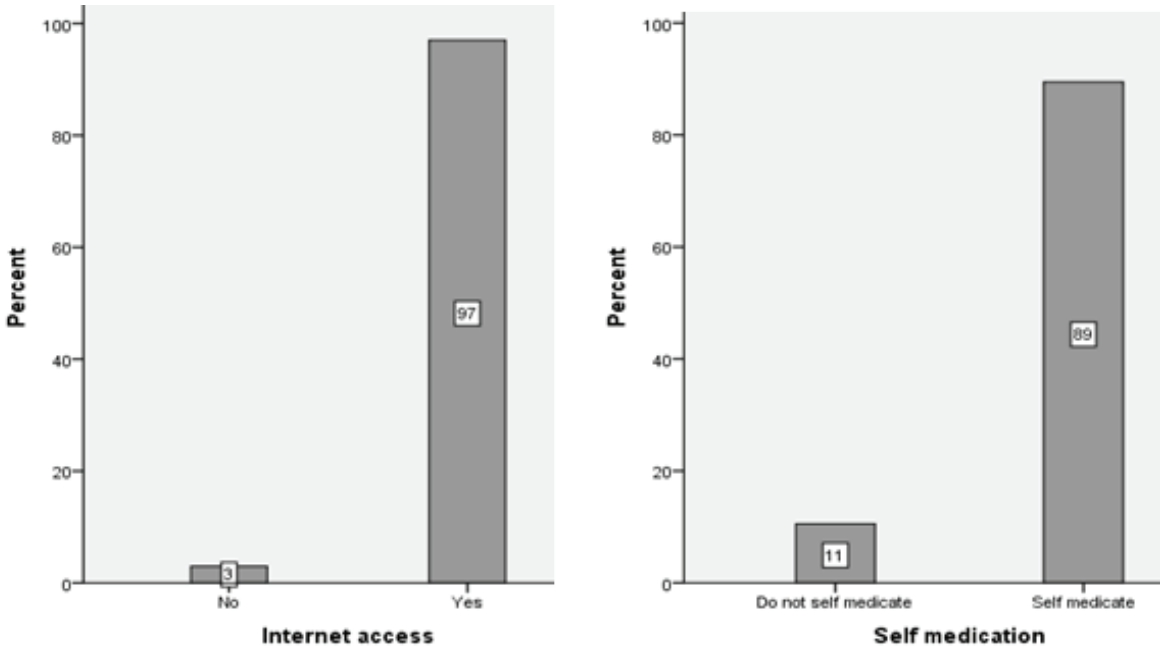

Figure 1: Internet access and self-medication practices among staff at the Bank of Uganda.

A cross tabulation analysis was conducted to examine the association between internet access and self-medication practices among Bank of Uganda (BoU) staff. The majority of respondents with internet access reported self-medicating (322 out of 359), while among those without internet access, 9 out of 11 reported self-medicating (Phi coefficient and Cramer's V=0.044; p>0.05) (Table 1). A logistic regression analysis was conducted to assess the influence of internet usage on self-medication practices among staff at the Bank of Uganda, controlling for subjective norms, perceived behavioral control, and self-medication score. The full model was statistically significant (χ^2=92.02; p<0.001) and explained up to 63.1% of the variance in self-medication behavior (Nagelkerke R^2=0.631). The model correctly classified 94.3% of cases overall, with 97.9% accuracy for self-medicators (Table 2). Hours spent on the internet was a significant predictor of self-medication (B=0.019, p=0.04, OR=0.98). Self-medication score was strongly associated with self-medication behaviour (B=1.492, p<0.001, OR=4.44) (Table 2).

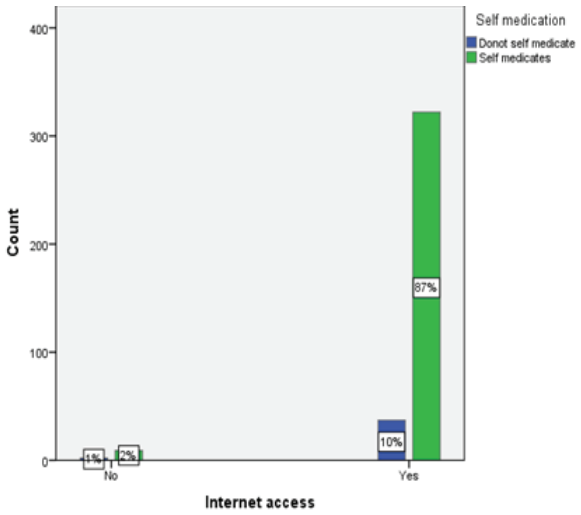

Figure 2: The association between internet access and self-medication practices among Bank of Uganda (BoU) staff.

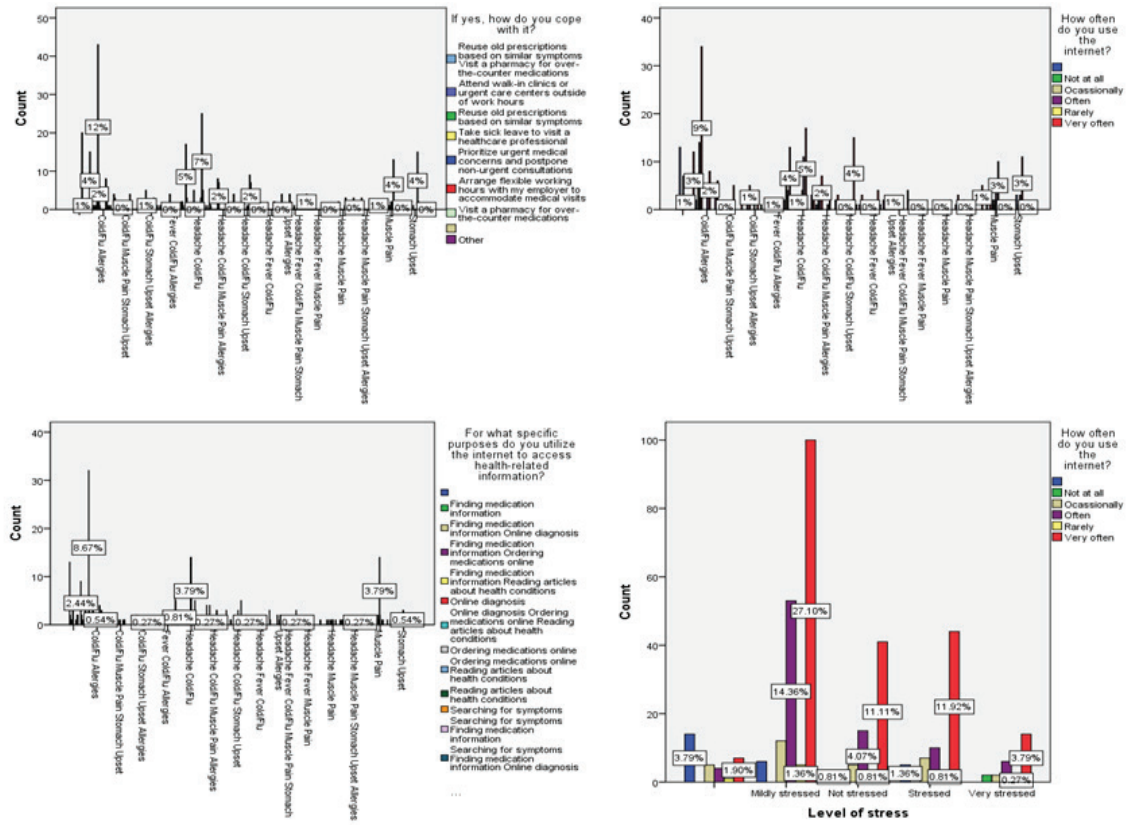

Figure 3: *Patterns of internet use, health information-seeking, and common ailments.*

Table 1: Association between internet access and self-medication practices among Bank of Uganda staff

Count		Self medication		Total	Symmetric Measures			
		Do not self medicate	Self medicates			Value	Approx. Sig.	
Internet access	No	2	9	11	Nominal by Nominal	Phi	0.044	0.402
	Yes	37	322	359	Cramer's V	0.044	0.402	
Total		39	331	370	N of Valid Cases		370	

Table 2: Logistic regression analysis assessing the influence of internet usage on self-medication practices among staff at the Bank of Uganda

Classification Table[a,b]							
	Observed		Predicted				
			Self medication		Percentage Correct		
			No	Yes			
Step 0	Self medication	No	0	25	0		
		Yes	0	240	100		
	Overall Percentage				90.6		
a. Constant is included in the model. b. The cut value is .500							
Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	2.262	0.21	115.824	1	0	9.6
Variables not in the Equation							
			Score	df	Sig.		
Step 0	Variables	Subjective norms	17.248	1	0		
		Perceived behavioural control	16.47	1	0		
		Self medication score	62.277	1	0		
		Hours on internet	0.153	1	0.696		
	Overall Statistics		62.863	4	0		
Omnibus Tests of Model Coefficients							
		Chi-square	df	Sig.			
Step 1	Step	92.015	4	0			
	Block	92.015	4	0			
	Model	92.015	4	0			
Model Summary							

Classification Table[a,b]

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	73.591[a]	0.293	0.631

a. Estimation terminated at iteration number 8 because parameter estimates changed by less than .001.

Classification Table[a]

	Observed	Predicted		
		Self medication		Percentage Correct
		No	Yes	
Step 1	Self medication	No	15	10	60
		Yes	5	235	97.9
	Overall Percentage			94.3

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.
Step 1[a]	Subjective norms	0.039	0.132	0.09	1	0.764
	Perceived behavioral control	-0.103	0.09	1.311	1	0.252
	Self medication score	1.492	0.285	27.313	1	0
	Hours on internet	0.019	0.056	0.114	1	0.04
	Constant	-9.916	2.178	20.734	1	0

Variables in the Equation

		Exp(B)
Step 1[a]	Subjective norms	1.04
	Perceived behavioral control	0.902
	Self medication score	4.444
	Hours on internet	0.981
	Constant	0

Correlation Matrix

		Constant	Subjective norms	Perceived behavioural control	Self medication
Step 1	Constant	1	-0.237	0.086	-0.824
	Subjective norms	-0.237	1	-0.454	-0.106
	Perceived behaviuoral control	0.086	-0.454	1	-0.321
	Self medication score	-0.824	-0.106	-0.321	1
	Hours on internet	-0.266	0.189	0.143	-0.054

DISCUSSION

In the present study, iternet access was nearly universal among staff at the Bank of Uganda, with 97.0% reporting access, and a substantial majority (89.5%) engage in self-medication practices. This high rate of internet access is consistent with a recent study.[2] The finding that 87% of respondents with internet access reported self-medicating, compared to only 2% among those without internet access, suggests an association between digital connectivity and self-care behaviors. These findings are in line with emerging international and local evidence that internet access facilitates self-medication by increasing exposure to health information, pharmaceutical advertising, and online pharmacies.[6,15] Agarwal et al.[16] observed that the proliferation of internet pharmacies and health information websites has significantly contributed to the normalization of self-medication, especially in urban, professional cohorts. Similarly, Nakakande et al.[15] found that Ugandan patients with regular internet access were more likely to self-medicate with antibiotics, often guided by information obtained online. The present results benchmark closely with these studies, reinforcing the assertion that digital health environments are reshaping self-care practices.

The convenience and anonymity offered by online health resources may encourage self-medication among professionals who face time constraints or privacy concerns regarding traditional healthcare consultations.[8,17] These findings imply that regulatory oversight of online pharmaceutical sales and health information dissemination should be done, as unregulated access can contribute to self-medication and public health risks, including antimicrobial resistance.[18,19] Workplace health programs should consider integrating digital health education and promoting responsible self-medication, particularly in environments where internet access is ubiquitous.

The results of this study reveal a strong interconnection between frequent internet use, diverse health information-seeking behaviors, and the reporting of a broad spectrum of ailments among Bank of Uganda staff. More than half of respondents (55.8%, n=206) reported using the internet "often" or "very often," while only a minority (7.6%, n=28) indicated no internet use. This high prevalence of digital engagement is consistent with recent Ugandan surveys showing internet penetration rates above 80%.[20,21] Notably, statistical analysis demonstrated a significant association between internet use frequency and the diversity of self-reported ailments (Cramer's V=0.426, p=0.041), with cold/flu (15.7%, n=58), headache (6.8%, n=25), and muscle pain (6.0%, n=22) being the most frequently cited conditions. These findings are in line with international evidence that increased internet access and use are linked to greater awareness and reporting of health concerns, as well as more active engagement in self-care.[22,23] Nemat et al.[23] reported that among Kabul internet users, frequent online health information-seeking was significantly correlated with the recognition of a wider range of symptoms, a pattern mirrored in the findings of this study. This phenomenon is further supported by Bessell et al.,[24] who found that individuals with high internet use were more likely to report multiple ailments and seek diverse online resources for self-diagnosis and management. The present study also highlights that respondent with more complex or multiple ailments were significantly more likely to engage in a range of online health information-seeking behaviors, including searching for symptoms (reported by the majority), finding medication information, and reading articles about health conditions (Cramer's V=0.382, p<0.001). This is consistent with findings from Chautrakarn et al.,[25] who observed that in Thailand, individuals experiencing complex health issues were more likely to triangulate information from several online sources before making health decisions. Such behaviors underscore the growing reliance on digital platforms for health management among professional populations in low- and middle-income countries.[6,26]

Cross tabulation revealed that the vast majority of respondents with internet access (322 out of 359, 89.7%) reported engaging in self-medication, while 9 out of 11 respondents without internet access (81.8%) also reported self-medicating. The association between internet access and self-medication was not statistically significant at the bivariate level (Phi coefficient and Cramer's V=0.044; p>0.05), suggesting that, in this highly connected professional population, internet access per se may not be a unique differentiator for self-medication practices.

The lack of a significant association in the present study may be attributed to the near-universal

internet access among Bank of Uganda staff (97%), which reduces variability and limits the discriminatory power of this variable. To further elucidate the relationship, logistic regression was employed, controlling for subjective norms, perceived behavioral control, and self-medication score. The full model was highly significant (χ^2=92.02, p<0.001), explaining up to 63.1% of the variance in self-medication behavior (Nagelkerke R^2=0.631) and achieving a high overall classification accuracy of 94.3%, including 97.9% accuracy for self-medicators. Notably, hours spent on the internet emerged as a significant predictor of self-medication (B=0.019, p=0.04, OR=0.98), indicating that the intensity of internet use, rather than access alone, is associated with increased chances of self-medicating. This is consistent with findings from AlMuammar et al.,[22] who demonstrated that greater time spent online for health information correlates with higher self-medication rates. Similarly, Bessell et al.[24] observed that both the frequency and depth of online health information-seeking are more predictive of self-medication than mere internet access.

The self-medication score was also strongly associated with self-medication behavior (B=1.492, p<0.001, OR=4.44), underscoring the importance of underlying attitudes, beliefs, and prior behaviors in shaping current self-medication practices. This finding aligns with the theory of planned behavior, which posits that behavioral intentions and perceived control are central to health-related decision-making.[27,28] These findings suggest that in urban, highly connected professional settings, interventions to control self-medication should focus more on enhancing digital health literacy and critical appraisal skills. The significant role of time spent online highlights the need for targeted messaging and regulation of online health content, as greater exposure may increase the risk of misinformation-driven self-medication.[16,24] The strong association between self-medication attitudes and behavior underscores the value of psychosocial interventions that address subjective norms and perceived behavioral control, as recommended in recent systematic reviews.[29,30]

The results of this study provided empirical support to reject the null hypothesis that internet access is not positively associated with self-medication practices among BoU staff. Specifically, the direct effect of internet access on self-medication was found to be positive and statistically significant (b=0.043, p=0.048), indicating that increased internet accessibility corresponds with a greater propensity for self-medication within this population. This finding aligns with existing literature that highlights how digital information sources can influence individuals' health-related decision-making behaviors, often by enabling self-diagnosis and prompting autonomous medication use without professional oversight.[6,15] Although the effect size is modest, its significance underscores the important role that internet availability plays in shaping such practices. These results validate the study's theoretical framework and suggest implications for institutional policies aimed at promoting responsible medication use, particularly through enhancing digital health literacy among staff.

CONCLUSION

To conclude, psychosocial factors specifically perceived behavioral control and subjective norms emerged as strong determinants of self-medication, consistent with the theory of planned behavior. Based on the findings, it is recommended that the Bank of Uganda and similar institutions implement targeted digital health literacy programs to help staff critically evaluate online health information and make informed self-medication decisions. Workplace wellness initiatives should also include education on responsible self-medication, the risks of antibiotic misuse, and the importance of consulting healthcare professionals for non-minor ailments. Further research should explore potential mediators of this relationship, to better understand and address the pathways linking internet use and self-medication in diverse populations.

Acknowledgement: The authors wish to thank the staff of the Bank of Uganda (BoU) for their participation and cooperation throughout the study. Gratitude is also extended to the research assistants and supervisors, who contributed to data collection and management.

Conflict of interest: The authors declare that there are no conflicts of interest related to this study. All analyses and interpretations were conducted objectively, and the findings are presented without any commercial or financial influences.

Funding statement: None.

Ethical approval: Ethical approval was obtained from the Kampala International University Research Ethics Committee (KIU-REC). The study was conducted in accordance with the principles of the Declaration of Helsinki, which emphasize respect for individuals, beneficence, non-maleficence, and justice.

Authors' contribution: All authors were equally involved in conceptualization and design of the study, data collection, compilation and analysis as well as manuscript preparation, review, editing and final submission.

REFERENCES

1. Thin sm, phanudulkitti c, zaw mt, saengungsumalee s, sorofman ba, theeraroungchaisri a, et al. Determinants of self-medication in immigrants: a systematic review. J immigr minor health. 2025;27(2):366-85.
2. Twaha A. Prevalence and Determinants of Self-Medication Practices Among Bank of Uganda Staff [Theses]. Kampala, Uganda: Cavendish University; 2025.
3. Mehmood A, Rehman AU, Zaman M, Iqbal J, Hassan SSU. Self medication: an emerging trend. Br J Pharmac Res. 2016;14(1):1-8.
4. Niwandinda F, Lukyamuzi EJ, Ainebyona C, Ssebunya VN, Murungi G, Atukunda EC. Patterns and practices of self-medication among students enrolled at Mbarara University of Science and Technology in Uganda. Integr Pharm Res Pract. 2020;9:41-8.
5. Ocan M, Bwanga F, Bbosa GS, Bagenda D, Waako P, Ogwal-Okeng J, et al. Patterns and predictors of self-medication in northern Uganda. PLoS One. 2014;9(3):e92323.
6. Rahman A, Lima NJ, Nurunnabi ASM, Rukon R, Hassan A, Sultana H. Online health information seeking behaviour and perceived trust on health communication channels among undergraduate students of Bangladesh. J Med Coll Women Hosp. 2025;21(1):86-94.
7. Akerkar SM, Kanitkar M, Bichile LS. Use of the internet as a resource of health information by patients: a clinic-based study in the Indian population. J Postgrad Med. 2005;51(2):116-8.
8. Oluyemi JA, Yinusa MA, Abdullateef R, Sunday A, Kehinde K. Factors influencing the practice of self-medication among bankers in selected new generation banks in Ilorin, Nigeria. Int J Econ Manag Sci. 2015;4(2):***227.***
9. Balayssac D, Pereira B, Virot J, Lambert C, Collin A, Alapini D, et al. Work-related stress, associated comorbidities and stress causes in French community pharmacies: a nationwide cross-sectional study. Peer J. 2017;5:e3973.
10. Castillo Martínez JA, Pérez-Acosta AM. Risk behaviours and self-medication in active workers. In: Black NL, Neumann WP, Noy I. eds. Proceedings of the 21st Congress of the International Ergonomics Association (IEA 2021). Cham, Switzerland: Springer; 2021.
11. Kamba, P., et al. Uganda's medicine regulatory agency, the National Drug Authority (NDA), regulates the production and trade of medicines; however, challenges remain in enforcing regulations on online pharmacies, leading to poor compliance and increased internet-enabled self-medication practices among professionals. Br J Clin Pharmacol.
12. Kish L. Sampling organizations and groups of unequal sizes. Am Sociol Rev. 1965;30(4):564-72.
13. Pineles LL, Parente R. Using the theory of planned behavior to predict self-medication with over-the-counter analgesics. J Health Psychol. 2013;18(12):1540-9.
14. Radhika MS, Mayur SS, Bindra KK, Hittalmani SG. A self-medicating scale and questionnaire based drug use survey and the effect of educational intervention among healthcare professional students. Int J Basic Clin Pharmacol. 2019;8(6):1336-42.
15. Nakakande J, Taremwa IM, Nanyingi M, Mugambe S. The utility of internet-enabled antibiotic self-medication and its associated factors among patients attending private clinics in Kawempe division in Kampala capital city, Uganda: community-based cross-sectional study. Drug Healthc Patient Saf. 2023;15:85-91.
16. Agarwal T, Agarwal V, Agarwal P, Sharma D. Use of internet for practice of self-medication: we are heading toward an era of internet pharmacy. Med J Dr Patil Vidyapeeth. 2021;14(1):36-9.
17. Fainzang S. New forms of sociality on the internet: users, advocates, and opponents of self-medication. In: Hadolt B, Hardon A. eds. Emerging Socialities in 21st Century Healthcare. Amsterdam, the Netherlands: Amsterdam University Press; 2017.
18. Nabaweesi I, Olum R, Sekite AB, Suubi WT, Nakiwunga P, Machali A, et al. Antibiotic practices, perceptions and self-medication among patients at a national referral hospital in Uganda. Infect Drug Resist. 2021;14:2155-64.
19. Rather IA, Kim BC, Bajpai VK, Park YH. Self-medication and antibiotic resistance: crisis, current challenges, and prevention. Saudi J Biol Sci. 2017;24(4):808-12.
20. Partridge A. Research ICT Africa. 2023. Internet usage trends in Uganda. Available from: https://researchictafrica.net/research/after-access-2022-internet-usage-trends-in-uganda/ [Accessed May 23, 2025].
21. DataReportal. Digital 2024: Global Overview Report –

DataReportal – Global Digital Insights. Available from: https://www.scribd.com/document/833167921/Digital-2024-Global-Overview-Report-DataReportal-Global-Digital-Insights [Accessed May 23, 2025].

22. AlMuammar SA, Noorsaeed AS, Alafif RA, Kamal YF, Daghistani GM. The use of internet and social media for health information and its consequences among the population in Saudi Arabia. Cureus. 2021;13(9):e18338.
23. Nemat A, Rezayee KJ, Essar MY, Mowlabaccus W binti, Ahmad S, Mubarak MY. A report of Kabul internet users on self-medication with over-the-counter medicines. Sci Rep. 2023;13(1):8500.
24. Bessell TL, Anderson JN, Silagy CA, Sansom LN, Hiller JE. Surfing, self-medicating and safety: buying non-prescription and complementary medicines via the internet. BMJ Qual Saf. 2003;12(2):88–92.
25. Chautrakarn S, Khumros W, Phutrakool P. Self-medication with over-the-counter medicines among the working age population in metropolitan areas of Thailand. Front Pharmacol. 2021;12:726643.
26. Dare SS, Eze ED, Echoru I, Usman IM, Ssempijja F, Bukenya EE, et al. Behavioural response to self-medication practice before and during Covid-19 pandemic in western Uganda. Patient Prefer Adherence. 2022;16:2247-57.
27. Kamekis A, Bertsias A, Moschandreas J, Petelos E, Papadakaki M, Tsiantou V, et al. Patients' intention to consume prescribed and non-prescribed medicines: a study based on the theory of planned behaviour in selected European countries. J Clin Pharm Ther. 2018;43(1):26-35.
28. Pineles LL, Parente R. Using the theory of planned behavior to predict self-medication with over-the-counter analgesics. J Health Psychol. 2013;18(12):1540-9.
29. Ayosanmi OS, Alli BY, Akingbule OA, Alaga AH, Perepelkin J, Marjorie D, et al. Prevalence and correlates of self-medication practices for prevention and treatment of COVID-19: a systematic review. Antibiotics. 2022;11(6):808.
30. Karimy M, Rezaee-Momtaz M, Tavousi M, Montazeri A, Araban M. Risk factors associated with self-medication among women in Iran. BMC Public Health. 2019;19(1):1033.