

Prevalence and Determinants of Self-Medication Among Adult Outpatients in a Rural Health Facility in Northern Uganda: A Cross-Sectional Study

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Background: Self-medication, defined as the use of medicines without prescription or supervision from a qualified healthcare provider, is common in low-resource settings. Rural communities may be disproportionately affected due to limited healthcare access, yet empirical data from Uganda remain scarce. This study aimed to fill this gap by assessing the prevalence, patterns, and factors associated with self-medication among outpatients in a rural health facility in Northern Uganda.

Methods: A cross-sectional study was conducted among 248 adult outpatients at Alebtong Health Center IV using systematic random sampling. Data were collected via a structured interviewer-administered questionnaire capturing sociodemographic characteristics, patient-related factors, and health facility-related factors. Modified Poisson regression with robust standard errors was used to determine factors associated with self-medication, with significance set at $p < 0.05$.

Results: Of 248 participants, 182 (73.4%) reported self-medication. The most frequently used drug classes were analgesics (36.3%), antibiotics (22.0%), and antimalarials (15.4%). Factors significantly associated with self-medication included tertiary education (aPR: 1.48; 95% CI: 1.04–2.09), being self-employed (aPR: 1.62; 95% CI: 1.21–2.18) or a student (aPR: 1.46; 95% CI: 1.07–2.00), inability to obtain an appointment with a health worker (aPR: 1.36; 95% CI: 1.20–1.55), and the lack of privacy during consultations (aPR: 1.21; 95% CI: 1.08–1.36).

Conclusion: Self-medication was highly prevalent among outpatients, particularly among individuals with tertiary education, the self-employed, and students. Limited access to health workers and the lack of privacy during consultations were also associated with this practice. Findings highlight the need for improved healthcare access, enhanced patient privacy, and greater involvement of frontline health workers in community education to promote responsible medicine use. As a cross-sectional study, causal relationships cannot be inferred.

Keywords: self-medication, prevalence, rural health facility, Uganda, outpatients, associated factors

Introduction

Self-medication, defined as the use of medicines without a prescription or supervision from a qualified healthcare provider, is a major public health concern worldwide. In Uganda, it includes over-the-counter (OTC) drugs, prescription-only medicines obtained without authorization, and medicines accessed through informal or unlicensed outlets, in violation of National Drug Authority (NDA) regulations.¹ Globally, the prevalence of self-medication ranges between 11.7% and 92%, with particularly high rates reported in low-and middle-income countries.² In Africa, the overall prevalence of self-medication is estimated at 57%, with significant regional variations such as 70.1% in West Africa

and 38.8% in East Africa.^{3,4} In Uganda, the prevalence of self-medication has been shown to vary between 40 and 70.7%, indicating that more than half of the population engages in self-medication.²

Self-medication is driven by multiple factors, including limited access to healthcare services, high costs, low health literacy, cultural practices, and ease of obtaining medicines without a prescription.^{5–7} While self-medication may provide quick relief for minor ailments, it carries risks such as misdiagnosis, inappropriate drug use, adverse reactions, drug interactions, increased healthcare costs from complications, and the growing threat of antimicrobial resistance (AMR).^{8,9}

Uganda's National Drug Authority has introduced regulations to control the sale of prescription-only medicines and oversee the use of over-the-counter drugs.¹ However, enforcement remains weak, and self-medication is still widespread.^{10–12} The problem is particularly pronounced in rural areas, where health facilities are scarce, healthcare-seeking delays are common, and mistrust in formal healthcare persists.^{2,13–15}

Despite these challenges, there is limited empirical evidence on the extent of self-medication and its associated factors in rural Uganda. Most of the prior studies have been conducted in urban or peri-urban areas,^{10,16–23} providing limited insight into contextual factors unique to rural communities. Understanding how these factors interact is critical for designing locally tailored interventions.

Therefore, this study aimed to determine the prevalence, patterns, and factors of self-medication among outpatients attending Alebtong Health Center IV in Northern Uganda. The investigation was conceptually guided by Andersen's Behavioral Model of Health Service Use,²⁴ which informed the selection of individual and contextual factors examined in relation to self-medication behavior. Findings are expected to generate locally relevant evidence to guide district-level health planning, strengthen medicine-use policies, and promote responsible self-care practices in rural communities.

Methods

Study Design and Setting

This was a cross-sectional study conducted at Alebtong HC IV in Alebtong District, Northern Uganda. Alebtong district is located approximately 388 kilometers by road northeast of Kampala, the capital city of Uganda. It is a rural Northern Ugandan community with limited healthcare infrastructure, few licensed pharmacies or drug shops, and widespread informal drug outlets. Alebtong HC IV is a government-owned facility that provides free healthcare services, including preventive, promotive, diagnostic, curative, outpatient, inpatient, maternal, and child health services. It serves an estimated population of 272,800 people and has an average daily outpatient attendance of about 107 patients.

Study Population and Eligibility Criteria

The study population comprised adult patients attending the outpatient department (OPD) at Alebtong HC IV between 1st July 2024 to 14th July 2024. Eligibility was restricted to patients aged 18 years and above who were visiting the OPD for the first time during the study period with recent illnesses and who provided informed consent. Exclusion criteria included critically ill patients, individuals with cognitive or communication impairments, those unable to provide informed consent, and visitors or temporary residents of the district.

Sample Size Estimation and Sampling

The sample size was calculated using the Kish Leslie formula: $N = [(Z_{\alpha/2})^2 p (1-p)] / d^2$, where N is the required sample size; $Z_{\alpha/2}$ is the critical value at a 95% confidence level (1.96); p is the estimated prevalence of self-medication of 83%;²² and d is the precision (5%). To account for an anticipated 10% non-response rate, the final sample size was adjusted to 248 participants.

Systematic random sampling was used to select participants from the outpatient department. Based on hospital records, approximately 1,070 outpatients were expected to attend Alebtong Health Center IV during the two-week study period. To achieve the required sample size of 248, every fourth eligible outpatient was selected. The first participant was randomly chosen from the first four attendees each morning, after which every fourth patient who met the eligibility criteria was invited to participate throughout the day. Recruitment continued daily until the target sample size was reached. If a selected patient was ineligible, refused, or unavailable, the next eligible patient was recruited to maintain the interval. This procedure was applied consistently across all clinic days and times.

Study Variables

The dependent variable was self-medication. The independent variables included sociodemographic factors, such as sex, marital status, level of education, religion, ethnicity, and occupation; patient-related factors, including knowledge of the drug name, perception that the drug improved the patient's condition, source of information about the drug, occasions when self-medication was applied, and common reasons for practicing self-medication; and health facility-related factors, such as experiences of misdiagnosis or inappropriate treatment, availability of essential medicines, long waiting times, friendliness of health workers, inability to obtain a prescription or appointment, consistent availability of health workers, and lack of privacy during consultations.

Operational Definitions

For this study, self-medication was defined as the use of medicines in the last 6 months without a prescription or supervision from a qualified healthcare provider. Participants were asked to describe the indication for use and how they decided to take the medicine. Medicines recommended by a healthcare provider or obtained via a formal prescription were excluded from the self-medication category, ensuring that only unsupervised use was captured. A six-month recall period was used to capture a wider range of self-medication episodes, including those linked to recurrent or seasonal illnesses, given the infrequent healthcare-seeking patterns in rural settings. Patient-related factors referred to individual factors or behaviors reported by patients that may influence self-medication, while health facility-related factors referred to aspects of healthcare delivery that could affect patients' decisions to practice self-medication. An outpatient was defined as any patient who visits the health facility for diagnosis, treatment, or follow-up without being admitted to the hospital.

Data Collection Procedures

Data were collected using a structured interviewer-administered questionnaire. The questionnaire was initially developed in English and translated into the local Lango language to ensure comprehension. Interviewers were fourth-year medical students from Soroti University, fluent in English and the local Lango language, and not involved in clinical care or facility operations. They received training on study objectives, neutral interviewing techniques, ethical considerations, and maintaining confidentiality to minimize interviewer bias.

The questionnaire was translated into Lango and back-translated into English to ensure semantic and conceptual accuracy. Pretesting with 10 participants at a nearby clinic helped identify and resolve any translation or comprehension issues. Inter-observer consistency was promoted through joint review of initial interviews and daily supervisory checks of completed questionnaires.

Eligible outpatients at Alebtong HC IV were approached according to the systematic sampling plan, and written informed consent was obtained before participation. Data were collected on self-medication practices, sociodemographic characteristics, patient-related factors, and health facility-related factors. To reduce social desirability bias, interviews were conducted in private settings, and participants were assured of anonymity and that their responses would not influence their access to care.

Data Quality Control and Assurance

The questionnaire was pretested among 10 participants from a nearby clinic before data collection, and necessary adjustments were made to improve clarity and relevance. Research assistants (RAs) were the medical students who had gone to Alebtong district for their community-based medical education and research services (COBMERS) placement and received four weeks of didactic training on research methodologies, data collection techniques, consenting processes, and strategies to minimize bias before placement. During data collection, the site supervisor and primary COBMERS supervisors regularly monitored interviews to ensure adherence to study protocols. Completed questionnaires were checked daily for completeness, consistency, and accuracy before data entry. Data were double-entered into EpiData version 4.6 to minimize entry errors, and any discrepancies were resolved through cross-checking with the original questionnaires.

Data Analysis

Data were entered into EpiData version 4.6 and exported to STATA 17 for analysis. Numerical independent variables were summarized using the median and interquartile range, while categorical variables were summarized as counts and percentages. The prevalence of self-medication was calculated and expressed as a percentage.

Factors associated with self-medication were determined using modified Poisson regression with robust standard errors, as this approach is appropriate for common binary outcomes. Multicollinearity among independent variables was assessed using the variance inflation factor (VIF), with $VIF > 10$ indicating high multicollinearity. Interaction terms were specified a priori based on plausible biological or behavioral relationships between variables and assessed using two-way interaction terms and the Chunk test.

Associations are reported as prevalence ratios (PRs) with 95% confidence intervals (CIs) and p-values, which are presented consistently in all tables. Variables with $p < 0.20$ in bivariate analysis were considered for inclusion in the multivariable model. Stepwise backward elimination ($\alpha = 0.05$) guided model selection, but all removed variables were assessed for confounding, defined as a $\geq 10\%$ change between crude (cPR) and adjusted PR (aPR) for any significant variable. Variables identified as confounders were retained in the final model.

Model diagnostics included examining goodness-of-fit using Pearson residuals and deviance residuals to identify poorly fitted observations, and assessment of influential observations using Cook's distance.

Results

A total of 248 outpatients were included in the study, with a median age of 26 years (IQR: 23–36). Most respondents were female (60.1%, $n=149$) and married (60.1%, $n=149$). Regarding education, 31.1% ($n=77$) had attained secondary education, while 15.7% ($n=39$) had no formal education. The majority were Catholics (36.7%, $n=91$) or Anglicans (35.9%, $n=89$). In terms of occupation, nearly one-third (32.7%, $n=81$) were peasants, followed by those engaged in business (22.6%, $n=56$) and formal employment (18.9%, $n=47$). Nearly half of the participants (46.0%, $n=114$) reported earning less than UGX 100,000 per month.

Regarding health facility-related factors, 21.4% ($n=53$) of participants reported previous experiences of misdiagnosis, and 60.5% ($n=150$) stated that essential medicines were always available. Most participants (84.7%, $n=210$) reported long waiting times at health facilities, while 77.4% ($n=192$) perceived health workers as friendly. About three-quarters (74.2%, $n=184$) were able to obtain a prescription, and two-thirds (66.9%, $n=169$) were able to secure an appointment with a health worker. The majority of the participants (76.2%, $n=189$) reported a lack of privacy during consultations (Table 1).

Table 1 Sociodemographic and Health Facility-Related Characteristics of the 248 Outpatients

Variable	Categories	Frequency (n)	Percentage (%)
Age in years	Median age (IQR)	26 (23–36)	
Sex	Male	99	39.9
	Female	149	60.1
Marital status	Married	149	60.1
	Single	79	31.9
	Divorced/ separated	17	6.8
	Widowed	3	1.2
Highest level of education attained	None	39	15.7
	Primary	70	28.2
	Secondary	77	31.1
	Tertiary	62	25.0

(Continued)

Table 1 (Continued).

Variable	Categories	Frequency (n)	Percentage (%)
Religion	Catholics	91	36.7
	Anglicans	89	35.9
	Moslems	16	6.4
	Pentecostals	49	19.8
	Others ^a	3	1.2
Occupation	Unemployed	41	16.5
	Business	56	22.6
	Employed	47	18.9
	Peasants	81	32.7
	Student	23	9.3
Tribe	Langi	206	83.1
	Acholi	22	8.9
	Others ^b	20	8.0
Average monthly income	<UGX 100,000	114	46.0
	UGX 100,000-<250,000	65	26.2
	UGX 250,000-<500,000	36	14.5
	≥UGX 500,000	33	13.3
Experience of misdiagnosis	Yes	53	21.4
	No	195	78.6
Availability of essential medicines	Always available	150	60.5
	Not always available	98	39.5
Long waiting times	Yes	210	84.7
	No	38	15.3
Health worker friendliness	Yes	192	77.4
	No	56	22.6
Able to obtain a prescription	Yes	184	74.2
	No	64	25.8
Able to obtain an appointment with a health worker	Yes	166	66.9
	No	82	33.1
Privacy during consultations	Maintained privacy	59	23.8
	Lacked privacy	189	76.2

Notes: ^aOthers include Isa Masia, None, and African Traditional Religion. ^bOthers include Itesot, Kumam, Gishu, Mutooro, and Madi.

Prevalence and Patterns of Self-Medication

Of the 248 outpatients who participated in the study, 182 reported practicing self-medication, giving a prevalence of 73.4% (95% CI: 67.5–78.5).

Among those who self-medicated, most respondents (83%, n=151) knew the names of the drugs they used. Analgesics (36.3%, n=66) were the most frequently used class, followed by antibacterials (22.0%, n=40) and antimalarials (15.4%, n=28). The main sources of drug information were health workers (34.1%, n=62), personal experience (30.8%, n=56), and relatives or friends (28.0%, n=51). Self-medication was most commonly practiced when respondents felt unwell (50.0%, n=91). The leading reasons for self-medication were time-saving (43.4%, n=79), easy access to medicines (31.9%, n=58), and low cost (20.3%, n=37). The most commonly reported symptoms prompting self-medication included headache (40.7%, n=74) and fever (22.0%, n=40) (Table 2).

Table 2 Characteristics of 182 Outpatients Who Self-Medicated

Variables	Categories	Frequency (n)	Percentage (%)
Knowledge of the drug name	Yes	151	83.0
	No	31	17.0
Therapeutic class of drugs used for self-medication	Analgesic	66	36.3
	Antibacterial	40	22.0
	Antimalarial	28	15.4
	Others ^a	15	8.2
	Do not know	33	18.1
Source of drug knowledge	Personal experience	56	30.8
	Health worker	62	34.1
	Relative/ friend	51	28.0
	Others ^b	13	0.1
Timing of self-medication	Feeling unwell	91	50.0
	Minor symptoms	45	24.7
	Unable to visit doctor	46	25.3
Reasons for self-medication	Time-saving	79	43.4
	Easy access	58	31.9
	Low cost	37	20.3
	Perceived safety	8	4.4
Symptoms that triggered self-medication	Headache	74	40.7
	Fever	40	22.0
	Gastric pain	18	9.9
	Cough	10	5.5
	Wounds	9	4.9
	Others ^c	31	17.0

Notes: ^aOthers include antidiarrheal, supplements, emergency contraceptives, antifungal, and antiallergic drugs. ^bOthers include advertisement, internet, and drug leaflet. ^cOthers include flu, toothache, joint pain, diarrhea, allergy, constipation, and heavy menses.

Bivariate Analysis of Factors Associated with Self-Medication

At bivariate analysis, factors with a p-value <0.20 included: marital status, education level, occupation, monthly income, inconsistent availability of essential medicines, inability to obtain a prescription, inability to get an appointment with a health worker, and perceived lack of privacy during consultations (Table 3).

Table 3 Bivariate Analysis of Factors Associated with Self-Medication

Variables	Categories	cPR (95% CI)	P-values
Age		1.00 (0.99–1.01)	0.205
Sex	Male	Reference	Reference
	Female	0.93 (0.80–1.08)	0.318
Marital status	Married	Reference	Reference
	Single	1.12 (0.96–1.32)	0.143 ^a
	Divorced/ separated	1.18 (0.92–1.51)	0.185 ^a
	Widowed	0.96 (0.43–2.14)	0.911
Highest level of education attained	None	Reference	Reference
	Primary	1.19 (0.85–1.68)	0.307
	Secondary	1.54 (1.13–2.10)	0.006 ^a
	Tertiary	1.56 (1.14–2.13)	0.005 ^a
Occupation	Unemployed	Reference	Reference
	Self-employed	1.81 (1.32–2.47)	<0.001 ^a
	Employed	1.41 (1.00–2.00)	0.052 ^a
	Peasant	1.30 (0.93–1.82)	0.125 ^a
	Student	1.78 (1.29–2.47)	<0.001 ^a
Average monthly income	<UGX 100,000	Reference	Reference
	UGX 100,000-<250,000	1.36 (1.15–1.62)	<0.001 ^a
	UGX 250,000-<500,000	1.28 (1.03–1.58)	0.026 ^a
	≥UGX 500,000	1.20 (0.94–1.52)	0.136 ^a
Experience of misdiagnosis	Yes	Reference	Reference
	No	0.91 (0.77–1.07)	0.237
Availability of essential medicines	Always available	Reference	Reference
	Not always available	1.23 (1.06–1.42)	0.005 ^a
Experienced long waiting times	Yes	Reference	Reference
	No	0.84 (0.65–1.08)	0.179 ^a
Health worker friendliness	Yes	Reference	Reference
	No	1.09 (0.93–1.29)	0.285 ^a

(Continued)

Table 3 (Continued).

Variables	Categories	cPR (95% CI)	P-values
Able to obtain a prescription	Yes	Reference	Reference
	No	1.35 (1.18–1.53)	<0.001 ^a
Able to obtain an appointment with a health worker	Yes	Reference	Reference
	No	1.48 (1.31–1.69)	<0.001 ^a
Privacy during consultations	Maintained privacy	Reference	Reference
	Lacked privacy	1.39 (1.23–1.57)	<0.001 ^a

Note: ^ap-value <0.2.

Abbreviations: cPR, crude prevalence ratio; CI, confidence interval.

Multivariate Analysis of Factors Associated with Self-Medication

Factors significantly associated with self-medication included participants with tertiary education compared to those with no formal education (aPR: 1.48; 95% CI: 1.04–2.09, $p = 0.028$), self-employed individuals (aPR: 1.62; 95% CI: 1.21–2.18, $p = 0.001$) and students (aPR: 1.46; 95% CI: 1.07–2.00, $p = 0.018$) compared to unemployed participants, those unable to obtain an appointment with a health worker compared to those who were able to obtain one (aPR: 1.36; 95% CI: 1.20–1.55, $p < 0.001$), and respondents who reported lack of privacy during consultations compared to those who reported maintained privacy (aPR: 1.21; 95% CI: 1.08–1.36, $p < 0.001$). No significant interactions or confounding effects were observed among these factors (Table 4).

Table 4 Multivariate Analysis of Factors Associated with Self-Medication

Variables	Categories	aPR (95% CI)	P-values
Highest level of education attained	None	Reference	Reference
	Primary	1.02 (0.73–1.42)	0.919
	Secondary	1.27 (0.93–1.74)	0.134
	Tertiary	1.48 (1.04–2.09)	0.028 ^a
Occupation	Unemployed	Reference	Reference
	Self-employed	1.62 (1.21–2.18)	0.001 ^a
	Employed	1.18 (0.84–1.64)	0.347
	Peasant	1.37 (0.99–1.89)	0.055
	Student	1.46 (1.07–2.00)	0.018 ^a
Able to obtain an appointment with a health worker	Yes	Reference	Reference
	No	1.36 (1.20–1.55)	<0.001 ^a
Privacy during consultations	Maintained privacy	Reference	Reference
	Lacked privacy	1.21 (1.08–1.36)	<0.001 ^a

Note: ^ap-value <0.05.

Abbreviations: aPR, adjusted prevalence ratio; CI, confidence interval.

Discussion

This study found a high prevalence of self-medication (73.4%), with nearly three-quarters of participants reporting that they had self-medicated. This rate is higher than the Ugandan national average of 55.6%,² suggesting that rural communities may be more prone to self-medication due to limited healthcare access, long waiting times, and periodic shortages of essential medicines. The prevalence observed in this study is comparable to findings from other studies conducted in sub-Saharan Africa.^{10,11,17,25} However, some studies have reported lower^{4,18,26–28} or higher^{10,22,29–31} prevalence rates, which may reflect differences in study populations, urban-rural settings, sampling strategies, and definitions of self-medication.

Analgesics, antibacterials, and antimalarials were the most commonly used drugs, and participants mainly practiced self-medication to save time, for convenience, or to reduce costs. These findings are consistent with earlier studies conducted in Uganda and elsewhere.^{4,10,17,18,22,25,26} The frequent use of analgesics likely reflects their widespread availability and perceived safety, while the use of antibiotics without prescription raises important public health concerns, particularly regarding antimicrobial resistance, a challenge increasingly recognized in low- and middle-income countries.

Participants with tertiary education were more likely to self-medicate compared to those with no formal education, consistent with findings from other studies.^{15,27,28} Individuals with higher education may have greater health literacy and confidence in their ability to diagnose and manage minor ailments, which could promote self-treatment. However, this behavior can also increase the risk of misuse, particularly with antibiotics and prescription-only medications.

Occupational status was also associated with self-medication. Self-employed individuals and students were more likely to self-medicate compared to unemployed participants, aligning with findings from other African studies.^{18,29–32} These groups may face time constraints or financial pressures that limit their ability to seek formal healthcare, increasing reliance on self-treatment.

Participants who were unable to obtain an appointment with a health worker were more likely to self-medicate, reinforcing the idea that barriers to accessing professional healthcare services contribute to self-treatment practices.^{32,33} Limited staffing, overcrowding, and logistical barriers in rural facilities may discourage patients from seeking care through formal channels.

Interestingly, respondents who reported a lack of privacy during consultations were also more likely to self-medicate. This could reflect discomfort or mistrust in the confidentiality of health services, leading some individuals to avoid formal consultations altogether.³² It also suggests that the quality of patient-provider interactions, including perceived privacy, may influence healthcare-seeking behaviors.³⁴

The findings highlight the need for interventions targeting both patients and health systems. Healthcare providers can strengthen patient education on responsible medicine use and reinforce adherence to prescription guidelines. Ensuring privacy during consultations and enhancing access to healthcare services may reduce reliance on self-medication.

From a policy perspective, regulatory enforcement for prescription-only medications and pharmacy oversight is critical to mitigate inappropriate antibiotic use and curb AMR. Strengthening health system accountability, community awareness, and stewardship programs can improve rational drug use and overall public health outcomes in rural Uganda. Future studies should consider longitudinal or interventional designs to monitor changes in self-medication practices and evaluate the impact on antimicrobial resistance. Community-based interventions and health education programs targeting responsible medicine use could provide valuable evidence for policy and practice.

This study has some limitations. The assumed prevalence used for sample size calculation was based on prior national studies rather than local data from Alebtong District, which may affect precision. No finite population correction adjustment was applied. The six-month recall period used to define self-medication may have introduced recall bias. Social desirability bias is also possible, although trained independent data collectors and assurances of confidentiality were used to minimize this effect. The cross-sectional study design also prevents causal inference, and unmeasured confounding may affect observed associations. Additionally, since the study was conducted in a single rural health facility, the findings may not be generalizable to other settings or regions in Uganda with different healthcare access patterns or sociodemographic characteristics.

Conclusions

This study revealed a high prevalence of self-medication among outpatients in a rural Ugandan health facility, with analgesics, antibacterials, and antimalarials being the most commonly used drugs. The practice was particularly common among individuals with tertiary education, the self-employed, and students. Limited access to health workers and a lack of privacy during consultations were also significant factors. Interventions should focus on improving healthcare access, promoting patient privacy, and providing targeted health education on the safe use of medicines, especially to high-risk groups, to reduce inappropriate self-medication.

Abbreviation

aPR, adjusted prevalence ratio; CI, confidence interval; COBMERS, community-based medical education and research services; cPR, crude prevalence ratio; HC, health center; IQR, interquartile range; OPD, outpatient department.

Data Sharing Statement

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

Ethics Approval and Informed Consent

The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval for this study was obtained from the Mbale Regional Referral Hospital Research Ethics Committee, approval number: MRRH-2024-437. Permission to conduct the study at Alebtong HC IV was obtained from the District Health Office and the facility administration. Written informed consent was obtained from all participants before enrollment in the study. Participants were informed of their right to refuse or withdraw from the study at any time without affecting the care they received. Confidentiality and privacy were maintained by conducting interviews in private settings, and all data were anonymized using unique identifiers. Collected data were securely stored and accessed only by authorized study personnel.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no potential competing interests in this work.

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