



Self-Medication Practices among the People of Oli, Arua municipality in Arua District, Uganda.

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ABSTRACT

Self-medication has emerged as a significant public health concern globally, with studies revealing widespread prevalence and associated knowledge gaps, potentially leading to inappropriate medication use. This practice has resulted in medication abuse, leading to harmful side effects, drug resistance, and delays in seeking proper medical care. The objective of this study was to assess the extent of self-medication, knowledge levels, reasons for self-medication, common drugs used, and their sources in Oli Division. This community-based, cross-sectional study involved 384 adult residents aged 18 years and above, selected from Oli Division using convenient random sampling. Data were collected through structured and open-ended questionnaires and analyzed using computer software. The prevalence of self-medication was high at 72.7%, despite a negative attitude toward the practice. Males exhibited a higher rate of self-medication compared to females, with 80.3% and 68.7%, respectively. Community pharmacies were identified as the primary source of self-medicated medicines. Additionally, there was a lack of knowledge about self-medication and its implications, with older individuals showing greater awareness compared to younger ones. Emergency purposes were the main reason for self-medication, with non-steroidal anti-inflammatory drugs (NSAIDs) and antibiotics being the most commonly used drugs. The study concludes that self-medication prevalence in Oli Division is alarming, with practices including the use of prescription-only medicines without medical guidance. Community pharmacies play a significant role as sources of self-medicated drugs. There is a need for increased community awareness about the risks associated with self-medication to improve knowledge levels and mitigate its negative impacts. This could involve educational campaigns aimed at curbing self-medication practices and promoting responsible medication use.

Keywords: Self-medication, Knowledge, Prevalence, Implications, Antibiotics

INTRODUCTION

Self-medication, the practice of individuals selecting and consuming medication without professional medical supervision or a valid prescription, has become a global phenomenon and a significant public health concern [1]. This age-old practice, rooted in the earliest history of humankind, has gained prominence in recent decades due to various socioeconomic and cultural factors [2]. Despite its potential benefits in managing minor ailments and reducing the burden on healthcare systems, self-medication poses numerous risks and challenges, particularly in developing countries with high illiteracy rates and limited access to healthcare services. The prevalence of self-medication varies widely across different regions and populations, reflecting the diverse factors that influence this practice. Several studies have reported alarming rates of self-medication in various parts of the world, ranging from 53.5% in Kenya [3] to 98% in Palestine [5]. In developing nations, where healthcare infrastructure and resources are often inadequate, self-medication has become a prevalent coping mechanism for individuals seeking affordable and accessible healthcare solutions [4]. Uganda, a developing country located in East Africa, is no exception to this global trend. Despite efforts to improve healthcare accessibility and quality, self-medication remains a widespread practice, particularly in rural and underserved communities. Previous studies have highlighted the escalation of pharmacies and drug shops that readily dispense medications without prescriptions, inadvertently promoting self-medication [6]. However, there is a paucity of research examining the self-medication practices and associated factors among specific communities within Uganda. The potential risks and implications of self-medication are multifaceted and cannot be overlooked. Inappropriate use of medications, either due to misdiagnosis, incorrect dosages, or drug interactions, can lead to adverse effects, such as harmful side effects, drug resistance, and delays in seeking appropriate medical care [7, 8]. Additionally, the use of prescription-only medications, including antibiotics and antimalarials, without professional guidance raises significant concerns regarding the development of antimicrobial resistance and the concealment of serious underlying conditions [9,

10]. Knowledge and awareness about self-medication and its implications play a crucial role in shaping responsible self-care practices. Several studies have reported alarmingly low levels of knowledge regarding self-medication and its associated risks, even among educated populations [11, 12, 13]. This knowledge deficit can contribute to the inappropriate utilization of medications and exacerbate the potential adverse consequences of self-medication. In light of these concerns, it is imperative to understand the self-medication practices, knowledge levels, and attitudes of specific communities within Uganda. By examining these factors, targeted interventions and strategies can be developed to promote responsible self-medication practices, mitigate potential risks, and ultimately improve overall public health outcomes.

METHODOLOGY

Study design

The study was community-based and cross-sectional in nature. The study was conducted in Oli division of Arna municipality in Arna district of Northern Uganda. Data was collected from the household members, and residents of Oli Division in Arna municipality using semi structured questionnaires with closed and open-ended questions.

Study area

OLI Division is one of Arna municipality's divisions in Uganda's Arna district, comprising four cells: Oli A, Oli B, Oli C, and Oli D. Arna district is situated between latitudes 20°30'N and 30°50'N and longitudes 30°30'E and 31°30'E in the northwestern part of Uganda. It shares borders with Yumbe to the northwest, Moyo district to the northeast, Maracha district to the northwest, the Democratic Republic of Congo to the west, Nebbi district to the south, and Amur district to the east. Arna town serves as the administrative and commercial center, located 520 kilometers from Kampala, Uganda's capital. The district spans 4274.13 sq.km, with 87% of the land suitable for agriculture. It is approximately 440 kilometers (270 miles) northwest of Kampala and 195 kilometers (121 miles) west of Gulu, the largest town in the northern region. The population of Arna has experienced growth and changes over time. The 2002 census recorded a population of 43,930, which increased to an estimated 57,500 by the Uganda Bureau of Statistics (UBOS) in 2010 and to 59,400 in 2011. In August 2014, the national population census reported a population of 62,657, with an average household size of eight (8) people. Farming, primarily subsistence farming, is the predominant economic activity, with some farmers cultivating cash crops like tobacco. Trade flourishes in Arna town, with active commerce among local residents, neighboring districts, and neighboring countries such as South Sudan and Congo.

Study population

The study targeted adult household members who are residents of the OLI community (18 years and above).

Inclusion criteria

- Residents of OLI division who were willing to give information.
- Adult household member who was ill in the past 6 months (18 years and above)

Exclusion criteria

- Those who did not consent to participate in the study.
- Those who have not been ill in the past 6 months.

Sample size determination

The sample size was calculated using standard formula;

$$N = \frac{Z^2PQ}{d^2}$$

d²

Where,

N= Desired Sample size.

Z= standard normal deviation corresponding to 1.96

P= prevalence of self-medication taken as 50 % (0.5), for a prevalence not known.

d= margin of error which corresponds to 5 % (0.05)

$$q = 1 - p$$

From z= 1.96, p= 50 % (0.5), q=1-0.5(0.5) and d= 0.05, and putting these in the formula,

$$N = \frac{Z^2PQ}{d^2}$$

d²

$$N = \frac{(1.96)^2 * 0.5 * 0.5}{(0.05)^2}$$

$$N = 384.$$

Therefore, the sample size was 384 adult residents of Oli.

Sampling technique

The study employed a random selection of primary sampling units (cells in OLI Division), and for each cell, households were randomly chosen. Data on self-medication practices were collected from only one adult member (18 years and above) of the household who had been ill in the last six months. If the selected household did not

have any adult member with recent illness or was unwilling to participate, it was replaced with the next nearest household.

Study variables

- **Independent variables**

The independent variables were; Age, Sex, Level of education and Occupation

- **Dependent variable**

-Knowledge about self-medication practice and its implications

-Practice of self-medication

Data collection and management

During interview sessions, English-translated questionnaires were utilized for data collection, and a computer was employed for data entry. Selected participants were provided with questionnaires and asked to consent by signing consent forms before participating in the research. Interactive sessions were conducted with participants to clarify any elements of the questionnaire they did not understand. Those who agreed to participate then responded to the questions.

Data analysis

The collected data was analyzed using manual tallying and Microsoft Excel spreadsheets. The results were presented in the form of tables, percentages, and graphs in a Microsoft Word document.

Quality control

To ensure efficient research operations, the researcher enlisted local assistants from OLI village, providing them with comprehensive training on the questionnaire content, guiding them on appropriate questioning techniques, and pretesting the questionnaires for thorough understanding.

Ethical considerations

"The study commenced immediately upon supervisor approval. A letter of introduction, obtained from the Office of the Dean of the Faculty of Allied Health Sciences, was presented to the local council authority of OLI Division. Permission was obtained from the local council authority to proceed with the research before commencing data collection. Participants were briefed on the study's significance and potential community benefits. Consent was obtained by providing participants with consent forms to fill out before their involvement in the study, ensuring the respect of participants' freedom, dignity, confidentiality, and autonomy.

Study limitations

Financial constraints, including expenses for transportation, stationery, data bundles, and facilitation of research assistants, among other costs, were encountered during data collection. Time limitations were another challenge faced during the study. Some subjects struggled to recall the names of medications used for self-medication due to the complexity of medication names. Despite using medication characteristics like color and size during interviews, some subjects still had difficulty recalling the medications they used. Additionally, recalling medications used over the past six months posed a challenge, leading to recall bias and potentially affecting the prevalence of self-medication observed in the study. Furthermore, some participants appeared to withhold information, possibly due to awareness that self-medication is discouraged, which could impact the observed prevalence of self-medication.

RESULTS

Table 1: Socio-Demographic Characteristics of the Respondents in Oli division in Arua district of northern Uganda.

characteristic	frequency	percentage
Age		
18-34	191	49.8%
35-54	115	29.9%
55 and above	78	20.3%
Sex		
Male	132	34.4%
female	252	65.4%
Marital status		
Single	125	32.5%
Married	253	65.9%
Widowed/divorced	6	1.6%
Education level		
Not studied	88	22.9%
Attended to primary	202	52.6%
Attended secondary and above	94	24.5%
Occupation		
Housewife	152	39.6%
Business man/woman	83	21.6%
Unemployed/Employed/casual	47	12.2%
labors/peasant/others	102	26.6%

The participants, aged 18-34, comprised 49.8% (191); 35-54 years old, 29.9% (115); and 55 or older, 20.3% (78) of the 384 subjects surveyed. Males accounted for 34.3% (132), while females comprised 65.4% (252). Regarding marital status, 32.5% (125) were single, 65.9% (253) were married, and 1.6% (6) were divorced or widowed. Education-wise, 22.2% (88) had no formal education, 52.6% (202) attended primary school, and 24.5% (94) had secondary education or higher. Occupationally, 39.6% (152) were housewives, 21.6% (83) were businesspersons, 12.2% (47) were unemployed, and 26.6% (42) were employed in various roles, including farming and casual labor.

Table 2: Self-medication prevalence among the people of Oli division, Arua municipality (n= 384)

response	frequency	percentage
Yes	279	72.7%
No	105	27.3%

Out of the 384 respondents, 72.7 % (279) practiced self-medication, while only 27.3 % (105) reported never having practiced self-medication.

Table 3: Association between the socio-demographic characteristics and self-medication practices among the people of Oli division

Socio demographic characteristic	frequency	percentage
Age		
18-34	167	87.4%
35-54	80	69.6%
55 and above	32	27.3%
Sex		
Male	106	80.3%
Female	173	68.7%
Education level		
Not attended	68	77.3%
Attended(from primary above)	211	71.3%
Occupation		
Not working (house wives and unemployed)	138	69.3%
working	141	76.2%

Arua municipality

A significant portion, 87.4% (167), of respondents aged 18-34 practiced self-medication. Among those aged 35-54, 69.6% (80) practiced self-medication, while only 27.3% (32) of those aged 55 and above did so. Males exhibited a higher rate of self-medication at 80.3% (106), compared to females at 68.7% (173). Those with no formal education showed a high prevalence of self-medication at 77.3% (68), whereas 71.3% (211) of those with formal education did the same. Employed respondents were more likely to practice self-medication, with 76.2% (141) doing so compared to 69.3% (138) of unemployed respondents.

Table 4: Attribute of knowledge about self-medication practices and its implication

Attribute of knowledge (n= 384)	number	percentage
Having moderate to high knowledge level about SM and its implications in general	219	57%
Having knowledge about SM causing harmful effects	315	82%
Having knowledge about SM delaying one from seeking hospital care	260	68%

Overall, 57% (219) demonstrated moderate to high knowledge levels regarding self-medication and its implications. Additionally, 82% (315) were aware that self-medication can lead to other harmful effects, and 68% (260) understood that it could delay seeking hospital intervention.

Table 5: Association between respondents' socio-demographic characteristics and knowledge about self-medication practice and its implications

Socio demographic characteristic	frequency	percentage
Age		
18-34	106	55.5%
35-54,	69	60%
55 and above	54	69.2%

Among respondents aged 18-34, 55.5% (106) understood self-medication and its implications, while 60% (69) of those aged 35-54 and 69.2% (54) of those aged 55 and above possessed such knowledge.

Table 6: Respondents' self-medication practices

SM practices	Number with attribute	percentage
Keeping medicine at home(n= 384)	223	58.1%
Practiced self-medication (n= 384)	279	72.7%
Took medication without prescription (n= 279)	271	97.1%
Gave a sick person medicine to take without prescription(n= 279)	160	57.3%
Recommended a particular drug to a friend to take without prescription(n= 279)	95	34.1%
Recovered after self-medicating(n= 279)	137	49.1%
Observed problems after self-medication (n= 279)	71	25.4%
Self-medicated with Cotrimoxazole(n= 279)	141	50.5%
Self-medicated with metronidazole(n= 279)	153	54.8%
Self-medicated with quartem (n= 279)	121	43.4%
Self-medicated with diclofenac (n= 279)	157	56.3%
Self-medicated with paracetamol(Panadol)(n= 279)	184	65.9%
Self-medicated with ibuprofen(n= 279)	83	29.7%
Self-medicated with amoxicillin(n= 279)	101	36.2%
Self-medicated with quinine(n= 279)	35	12.5%
Self-medicated with other drugs (n= 279)	24	8.6%

Table 6 indicates that among the 384 respondents, 58.1% (223) stored medications at home. Self-medication practices were prevalent, with 72.7% engaging in them, of which 97.1% did so without a prescription. Additionally, 34.1% (95) recommended drugs to others without a prescription, and 57.3% (160) administered medication to others without one. Among self-medicated individuals, 50.5% (141) reported recovery. The most commonly used medications were NSAIDs, with paracetamol being the most utilized at 65.9% (184), followed by diclofenac at 56.3% (157) and ibuprofen at 29.7% (83). Other medications included antibiotics like amoxicillin (36.2%, 101) and Cotrimoxazole (50.5%, 141), as well as anti-malarial drugs like Quartem (43.4%, 121) and quinine (12.5%, 35). Some respondents (8.6%, 24) reported using herbs or other drugs. However, whether correct doses were taken for the appropriate ailment remained unknown.

Table 7: Problems observed after self-medication. (n= 71)

Problem observed	frequency	percentage
Body rash	6	8.5%
Severe vomiting	11	15.5%
Did not improve and the condition worsened.	54	76%

Among the 176 respondents practicing self-medication, 25.5% (71) experienced issues. Most of them, 76% (54), noted no improvement or worsening of their condition, though they were uncertain about the exact problem. Additionally, 15.5% (11) reported severe vomiting, and 8.5% (6) developed a body rash.

Table 8: General attitude of the people towards self-medication

Aspects of attitude	Number of people	percentage
Positive attitude	342	89.1%
Negative attitude	44	10.9%

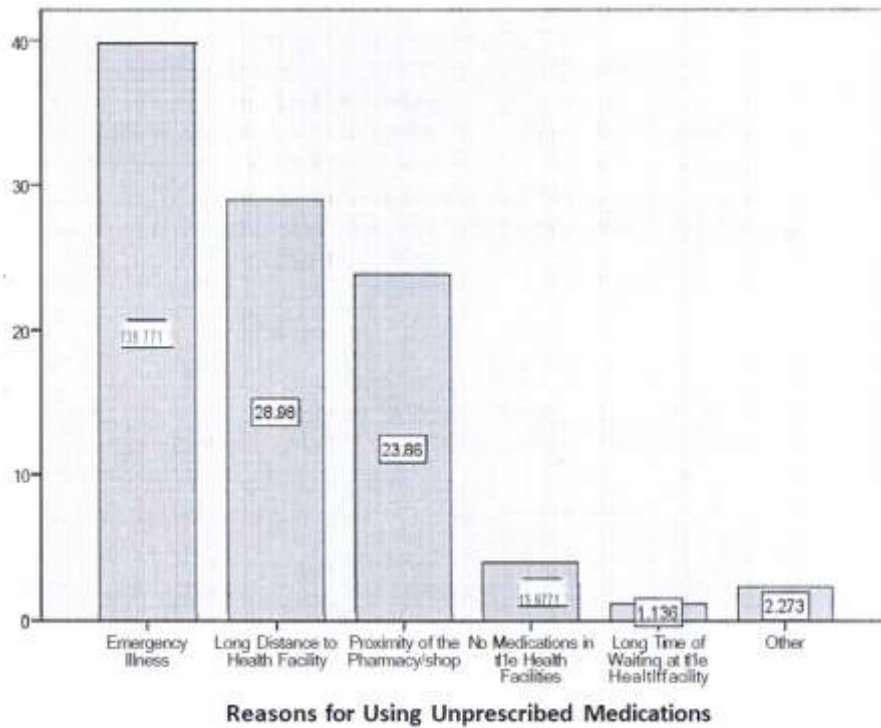
Table 8 shows respondents' attitudes toward self-medication. Among the 384 subjects, 89.1% (342) displayed a positive attitude, while only 10.9% (44) had a negative attitude.

Table 9: Attribute of attitude towards self-medication (n= 384)

Attribute of attitude	Number with attribute	percentage
Disagreeing or strongly disagreeing with SM as a practice	342	89.1%
Disagreeing or strongly disagreeing with self-medicating whenever one is sick.	338	88%
Disagreeing or strongly disagreeing with sharing of medications	344	89.6%

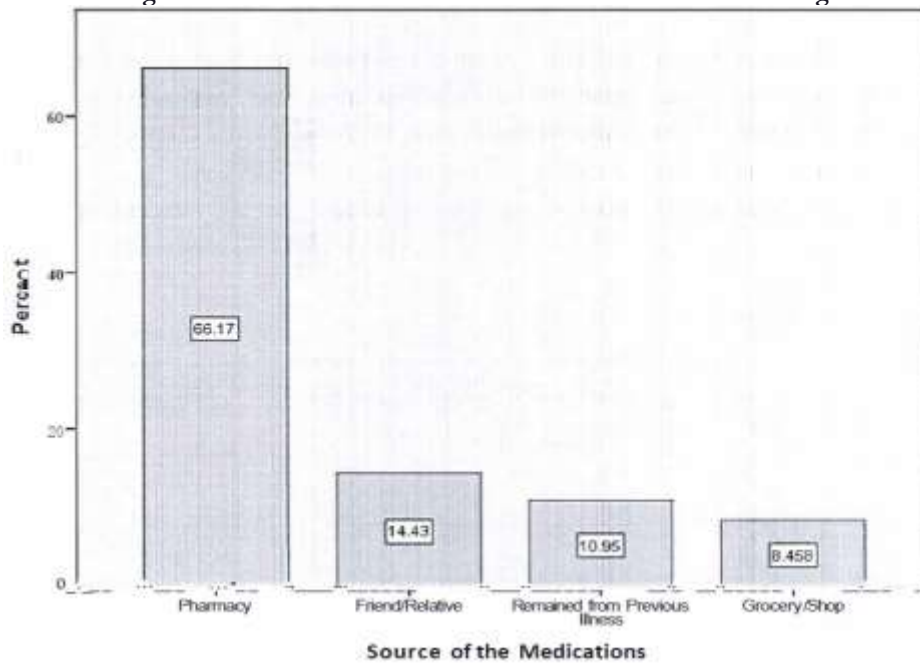
Overall, the majority of respondents, 89.1% (342), held a negative attitude towards self-medication. Specifically, 88% (338) disagreed with taking unprescribed medications when sick, and 89.6% (344) were against sharing medications.

Figure 1: Reasons for practicing self-medication



The reasons for self-medication varied, with the majority of respondents citing emergency illnesses (39.8%, 111). Other reasons included distance to the hospital (29%, 81), proximity to a pharmacy/shop (23.9%, 67), unavailability of medications at health facilities (4%, 11), long wait times at hospitals (1.1%, 3), and miscellaneous reasons (2.3%, 6).

Figure 2: sources of the medications used for self-medicating



Various sources provided medications for self-medication, with the majority of respondents, 66.2% (185), obtaining them from community pharmacies. Additionally, 14.4% (40) received medications from friends or relatives, 10.9% (30) reused remnants from prior illnesses, and 8.5% (24) acquired them from grocery stores or shops. This indicates that access to medications from pharmacies isn't limited by prescriptions, as most medications used were not over-the-counter (OTC).

DISCUSSION

The prevalence of self-medication among adults in various regions worldwide highlights the need for a thorough examination of its implications and contributing factors. The results of the study show that there is generally a high prevalence of the practice of self-medication among the adult population of Oli division in Arna Municipality. Thus, the study revealed that 72.7% of the respondents practiced self-medication. Findings in this study are almost similar to other studies conducted in India by Balamurngani and Ganesh [11] and Abdelmoneim *et al.* [14], which revealed a prevalence of 71% and 73.9%, respectively. The results in this study are, of course, higher than those found in the study conducted in Tanzania by Kagashe & Msela [15], which showed a prevalence of 58.9%, and in Malawi and Kenya with a prevalence of 56% [7] and 53.5% [3], respectively. However, findings in this study are lower than those of the studies conducted in Nigeria by Arikpo and Eja [9] and Afolabi [15], which revealed a prevalence of 99.4% and 95%, respectively, and those found in Palestine by Sawalha [16], which had a prevalence of 98% and 53.5%, respectively. The variations observed in the findings could, however, be attributed to the study population enrolled in each specific study, sampling technique, and the sample size for the study, as most of these studies used a larger sample size. Nevertheless, the remarkable observation in all the studies is that there is a high prevalence of self-medication practice, not only amongst African countries but even in other parts of the world. This implies that self-medication is indeed a worldwide practice and this should be of public health concern as people are exposed to the deleterious effects of medications. There were various reasons why respondents practiced self-medication. The majority cited emergency illness as the main reason, accounting for 39.8% (111), while others mentioned factors such as long distances to health facilities, totaling 29% (81), among other reasons. These results align with similar findings from studies conducted in India by Gupta *et al.* [4] and in Tanzania by Kagashe and Msela [15]. Despite the varying percentages in self-medication reasons, the challenge remains ensuring individuals use the correct medications with appropriate dosages and frequencies to avoid potential health risks. While self-medication can be beneficial for treating minor illnesses that do not require hospital intervention, the use of medications like antibiotics without prescriptions raises concerns. Risks associated with antibiotic use include masking potentially fatal diseases and the development of resistance to pathogens, referred to as MDR [4]. Regarding the association between self-medication practices and socio-demographic characteristics, 80.3% (106) of males and 68.7% (173) of females were found to self-medicate, indicating a statistically significant association between sex and self-medication. This finding is consistent with Ilhan *et al.* (2009), who reported a similar trend favoring males. However, it differs from a study in India by Balamuragan and Ganesh [11], which found females more likely to self-medicate. These disparities may be attributed to differences in study methodologies, sample sizes, or study populations, which can influence study outcomes and health-seeking behaviors between males and females. The study has revealed a general lack of knowledge about self-medication and its implications. Out of 384 respondents, only 57% (219) demonstrated moderate to high knowledge about self-medication practice and its implications. This aligns with a study conducted in India by Balamurugani and Ganesh [11], which reported a high percentage of lack of knowledge (93.5%). Similar findings were reported among pregnant women in the USA by Marek and Antle [12] and in the Netherlands by Fishman *et al.* [13], with 75% and 79% lack of knowledge among respondents, respectively. However, a study among medical and non-medical university students in India by Zafar *et al.* [17] found high knowledge (87%), possibly due to their exposure to medical literature. Despite variations, most studies indicate a concerning inadequacy of knowledge about self-medication and its implications. This lack of knowledge may contribute to the increased prevalence of self-medication, exposing individuals to potential health risks. Regarding the association between socio-demographic characteristics and knowledge of self-medication, it was revealed that 55.5% (113) of those aged 18-34 had moderate to high knowledge, while 60% (69) of those aged 35-54 had moderate to adequate knowledge, and 69.2% of those aged 55 and above. This suggests a statistically significant association between age and knowledge about self-medication, with older individuals more likely to possess such knowledge. Despite studies indicating a lack of knowledge, little research has explored its association with other socio-demographic characteristics. Nevertheless, this study highlights age as a key factor associated with knowledge of self-medication and its implications. The study also observed that 51% (196) of respondents stored medications at home, including analgesics, antibiotics, antimalarial drugs, and others. Antibiotics and antimalarials, which typically require prescriptions, were used without any. This practice may facilitate self-medication, presenting a significant challenge in addressing the issue. Among the medications used for self-medication, paracetamol was the most common (65.9%), followed by diclofenac (56.3%), metronidazole (54.8%), Cotrimoxazole (50.5%), quartem (43.4%), amoxicillin (36.2%), and others. These findings are consistent with a study in northern Uganda by Moses

Ocan *et al.* [18], which identified Cotrimoxazole, metronidazole, and amoxicillin as the most commonly used antibiotics. Despite the coincidental recovery of 49.1% (137) of the respondents through self-medication, the practice still poses a threat to public health. Many individuals may not be aware of the appropriate medications for their specific illnesses, nor the correct dosage, frequency, and duration of medication intake. Some may even unknowingly use expired medications, exposing themselves to potential harm. Surprisingly, despite the high prevalence of self-medication, the majority of respondents expressed a negative attitude towards the practice, with 89.1% (344) holding unfavorable views. This contrasts sharply with studies among caretakers in Japan (78%) by Aoyama *et al.* [19] and in Egypt (56.5%) by Ezz and Ez-Elarab [20]. The discrepancy suggests that respondents may recognize the risks associated with irresponsible self-medication, yet still engage in the practice due to various influences such as emergency illnesses or proximity to pharmacies. Given the widespread prevalence of self-medication highlighted in existing literature, our study sought to investigate the sources of the medications used, recognizing the significant impact of medication availability and access on self-medication practices. Our findings revealed that pharmacies were the primary source of medications, accounting for 66.2% of supplies. These findings are consistent with studies in Pakistan by Zafar *et al.* [17], Tanzania by Kagashe *et al.* [15], and northern Uganda by Ocan *et al.* [18]. However, there appears to be a lack of adherence to regulations among pharmacies, allowing individuals to access medications without prescriptions. This lax enforcement of restrictions may contribute to the inappropriate use of medications and subsequent health risks. The consequences of self-medication cannot be overstated. Among the 279 respondents who practiced self-medication, 25.5% (71) reported experiencing adverse effects. The majority (76%, 54) reported worsening conditions, while 15.5% (11) experienced severe vomiting and 8.5% (6) developed body rashes. While it may be challenging to distinguish these observations from the symptoms of the underlying illness, it is clear that improper medication use can lead to worsened conditions, development of harmful effects, and resistance to treatment, ultimately delaying appropriate medical intervention. It is worth noting that even over-the-counter (OTC) medications can have serious consequences. Vassilev and Villa [21] reported cases of children dying from self-medication with cough and cold medications labeled as OTC. This underscores the importance of exercising caution and adhering to proper medication usage guidelines, regardless of accessibility or familiarity with the medication.

CONCLUSION

There is a high prevalence of self-medication among the people of Oli division, Arua municipality in Arua district, with males more likely to self-medicate than females. Overall, there is a lack of knowledge about self-medication and its implications, although older individuals tend to be more knowledgeable than younger ones. Prescription-only medicines, including antibiotics and antimalarials, are being kept and used alongside over-the-counter drugs like paracetamol and diclofenac. Older people are three times more likely to store medicines at home than younger individuals. Pharmacies are the primary source of medication, promoting self-medication.

Recommendations

Clear information distinguishing between prescription-only medications and over-the-counter drugs should be readily available to the public. It's essential to enforce rules and regulations governing pharmacy operations through regular supervisory visits by relevant authorities. Further studies with larger sample sizes are needed to validate the findings of this study for potential generalization.

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CITE AS: Luwate Clement (2024). Self-Medication Practices among the People of Oli, Arua municipality in Arua District, Uganda. RESEARCH INVENTION JOURNAL OF SCIENTIFIC AND EXPERIMENTAL SCIENCES 3(2):6-17.