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Prevalence and Factors Associated with Ever Self-Medicating During the Covid-19 Pandemic Lockdown among Residents of Bushenyi- Ishaka Municipality, Uganda

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ABSTRACT

With the emergence of the COVID-19 pandemic and its socioeconomic impact, access to appropriate healthcare has become significantly difficult and has increased the likelihood of self-treatment. However, this probability is higher in people living in rural areas. This study assesses the prevalence and factors associated with self-medication during the COVID-19 pandemic among residents of Bushenyi-Ishaka City to inform Ugandan policymakers and agencies other management on appropriate drug use. A cross-sectional descriptive study design with quantitative methods was used to generate data on people aged 18 years and above living in Bushenyi-Ishaka Municipality, Uganda, from March 2020 to present. Systematic interval sampling was used to select households and household heads to be included in the study.Quantitative data were collected using the ODK mobile data collection tool with downloaded questionnaires and analyzed using STATA version 19. Despite this, literature on the prevalence of self-medication and associated factors during the Covid-19 pandemic in Bushenyi-Ishaka residents is limited.

Keywords: Self-medication, Global public health issues, Healthcare, Non-prescription drugs, Covid-19 pandemic.

INTRODUCTION

Self-medication is a significant public health concern globally, being practiced by individuals in both developed and developing countries. It's an increasingly important area within healthcare and various studies have reported a prevalence of 32.5–81.5% worldwide [1]. In African countries, the prevalence ranges between 11.9 to 76% [2]. The prevalence was 88% in western Uganda [3], 63.5% among university students [4]. The easy accessibility and availability of a wide variety of OTC drugs coupled with ineffective regulatory control has led to problems associated with drug use such as inappropriate self-medication, failure to recognize or report adverse drug reactions, incorrect route of administration, excessive dosage, excessive and prolonged use of drug, risk of dependence and abuse [5]. The coming of Covid-19 presented a new set of challenges. A series of lockdowns have been triggered in many parts of the world by the pandemic which has negatively impacted access to essential services especially healthcare. Uganda after undergoing its second and more devastating wave of the pandemic with a spike in Covid-19 infections to the tune of 1000 new cases each day [6]. This has left the healthcare system strained and private healthcare unaffordable to majority of Ugandans [7]. Access to healthcare however has been worsened by the ongoing second lockdown as of July 2021 where domestic travel has been restricted, curfew fixed, businesses forced to close down and people asked to stay home which increases the likelihood of self-medication. Therefore, there is need to monitor self-medication practices to ensure rational use of drugs and protect people against potential harm [8]. This study therefore will empirically investigate the prevalence and factors associated with self-medication during the Covid-19 pandemic among Bushenyi-Ishaka

municipality residents. In 2010, the National Drug Authority (NDA) estimated that eight in every 10 people self-medicate or buy drugs over the counter. It further attributed this to the increased number of pharmacies and drug shops, expensive treatment from clinics and long distances to health facilities. Uganda being an economically deprived country, most events of illness are treated by self-medication, imposing much public and professional concerns about the irrational use of medicines [9]. Self-medication does away with what, to many, is the unnecessary or unaffordable burden of having to spend time and money receiving medical care. Patients may think they know how to self-medicate from having read about treatment from an insert of a previously prescribed medicine or from the internet or memory from treating similar symptoms in the past. The symptoms for which people self-medicate are similar to a range of diseases including malaria and the recent Covid-19. As of 4th July, Uganda has a total of 83,636 Covid-19 cases and 1,939 deaths a big percentage of which occurred during the deadly second wave of the pandemic which is being fueled by 5 different variants [6].

The socioeconomic impact of the Covid-19 pandemic lockdown in Uganda has been overwhelming. The first lockdown started in march to June 2019 and the second lockdown started in June to August 2021. Many people lost their jobs, some had to put up with half pay and the cost of living especially access to medical care became impossible for all socioeconomic strata. With the restrictions on travel, the majority of Ugandans were at an elevated risk of relying entirely on self-medication and risk was even greater for those who live in rural areas [10]. These are known to have low literacy levels, poor health seeking behavior all of which became exacerbated during COVID-19 pandemic [11]. Some of the consequences of uncontrolled self-medication include; the use of inappropriate drugs, failure to recognize or report adverse drug reactions, incorrect route of administration, improper dosage, prolonged use of drugs, risk of dependence and drug resistance [5]. The Ministry of Health together with National Drug Authority have continuously conducted public awareness and enforcement in regards to prevention of self-medication and the sale of non-prescribed drugs but less effort has been directed to Bushenyi- Ishaka municipality [12]. There has also been limited research conducted in regards to self-medication among residents of Bushenyi- Ishaka Municipality. Therefore, this study was carried out to provide an insight into self-medication among residents of Bushenyi-Ishaka municipality and majority were believed to have limited access to basic health care; the findings of which will assist Ugandan policy makers and other regulatory bodies on promoting rational drug use.

METHODOLOGY

Study design

A cross sectional research design was employed to understand the prevalence and factors associated with ever self-medicating among residents of Bushenyi-Ishaka municipality. The study used a quantitative approach to generate the data required to answer the research questions.

Area of Study

Ishaka is a town in Igara County, in Bushenyi District, approximately 62 kilometers (39 mi), by road, west of Mbarara. This is about 6 kilometers (4 mi), west of Bushenyi, the location of the district headquarters. The coordinates of Ishaka are 0°32'42.0"S, 30°08'18.0"E (Latitude:0.545006; Longitude:30.138343). It is the largest metropolis in the district, bordered in the South by Bumbeire, East by Kyeizooba, North by Kyabugimbi and Kakanju and in West by Nyabubare Sub Counties. The Municipal Council stands on 5 different centres of Nyakabirizi, Bushenyi, Basajabalaba, Ishaka and Kizinda. There are other upcoming centres of St. Kagwa and Kanyamabona. Though these are scattered this gives Bushenyi-Ishaka Municipal Council a unique growth as it is linear and along the major roads. Bushenyi-Ishaka Municipal Council currently has a total population of 50,313 according to 2014 National Housing and

Population Census projections, for population details. However, during the day, the total population is estimated at above 60,000 people because of the Municipal's peculiar activities/services including education, trade, construction and professional services like legal, medical etc. that brings people to the Municipals and being on the junction to the routes connecting western districts and countries of Congo and Rwanda. Most of the households are engaged in Agriculture that is crop growing and livestock farming and only 5.4% households are 5 km or more to the nearest health facility, whether public or private.

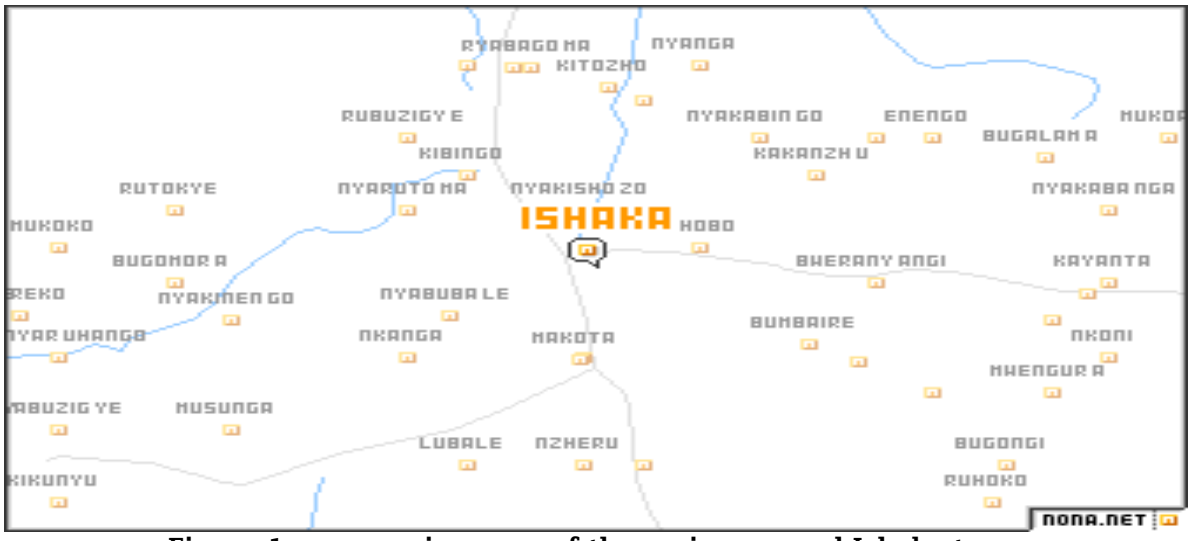

Figure 1: an overview map of the region around Ishaka town

Dependent Variable

Ever self-medicating and its complications are conceived as the dependent variables and were measured by self-medication behavior, self-medicated diseases and medical products.

Independent variables:

Associated factors were conceived as the independent variable and operationalized by dimensions of three factors: Predisposition, enabling, and needs. Predisposing factors include age, sex, ethnicity, occupation, education level, cultural believes, society influence. Enabling factors refer to availability constraints such as household income, medical insurance, proximity to medical services, advertisement, source of advice, legislation. Need factors are those which trigger the action to self-medicate, such as type of illness, duration of illness, severity of illness, history of illness, health status.

Measurement of Variables

In this study Self-medication was defined as self-reported treatment of common health problems without consulting a Doctor / Medical Practitioner / physician. Demographic variables were analyzed using ordinal and nominal scales. For questions concerning the commonly consumed commodities, a list of drug categories was generated in the questionnaire according to National Drug Authority and the commonly experienced health / medical conditions prior to self-medication. The best five drug categories were analyzed and presented in the results section. The measures of the self-medication prevalence were based on a question 'Have you treated yourself (self-medicated) with drugs without seeing a health professional first in the last 3 months? (Cautions: Does not include obtaining medicines with a medical prescription)?' The answer options are Yes or No. Those who reported Yes were regarded as having taken self-medication during the study period and encoded 1, otherwise 0. For commonly self-medicated products, two questions answered this objective including; "Which medicine did you take?" and "Which drug did they take?" for self-medication among other family member. For ailments commonly self-

medicated against, still two questions - answered this objective including; "Which of the following illnesses or symptoms did you take drugs for?" and "Which of the following illnesses or symptoms did they take drugs for?" for Self-Medication among other household members. For factors associated with self-medication, associations were sought between factors such as social demographics, reason for self-medication, knowledge on side effects, attitudes and perceptions on Self Medication and access to a health facility. A three-point Likert scale was used to analyze perceptions. Where 1=Agree, 2=Neutral, 3=Disagree This is because the responses based on the Likert scale were used to indicate the extent or significance of the relationship or the influence the independent variable has on the dependent variable.

Inclusion criteria

All individuals whose livelihood was affected by the COVID-19 lockdown and gave consent to participate in the study.

Exclusion criteria

Those whose lives were not affected by the COVID-19 lockdown (journalists, medical practitioners, truck drivers, shop attendants) and those who were on chronic medication during that time period.

Sample Size Determination

The Kish Leslie (1965) formula was used to determine sample size (Kish, 1965).

$$n = \frac{z^2 pq}{d^2}$$

Where n was the sample size, z the confidence interval. The 95% confidence interval was 1.96, d is the precision, 5% and p=63.5%, Considering the prevalence of self-medication practice among students in Mbarara University [4].

$$n = \frac{(1.96)^2 \text{ x } 0.635 \text{ x } 0.365}{(0.05)^2}$$

$$= 356.1$$

After adjusting for non-response (10%), this yielded a sample size of 392 household heads.

Sampling Procedures/Techniques

For the best representation, the 5 centres in Ishaka Municipality were purposefully selected for the study. However, multistage sampling was used in the selection of study participants.

Multi-stage sampling

The number of households in each of the 5 centres was obtained from Bushenyi-Ishaka municipal Authority. Proportionate to size of population was done to determine the number of households to be sampled from each center to make the sample size. A line listing of and numbering of all households in each of the centres was obtained from Bushenyi-Ishaka Municipal Authority and/or with the L.C 1 Chairperson(s). For each center and with the guide of the Local council or VHT member, systematic sampling method was used following an established interval to select households to participate in the study. For each household, one eligible adult; preferably the household head or a suitable replacement was interviewed. Where there was no eligible person; the next household with an eligible respondent was be selected. This continued until the desired number of households was reached.

Data Collection methods

Semi-structured interviews were used to assess the prevalence and factors associated with self-medication. Household heads or their eligible replacements were engaged at their homes upon a visit from the study team. Upon arrival in a household, the study team did self-introductions, explained the purpose of the study and then sought for informed assent before administering the questionnaire.

Data Collection tools

Questionnaires were used to obtain the quantitative data from the household heads. The tool contained questions about adapted from previous studies [13], [14] and modified to fit the current study. Questions on recent health conditions, management of these health conditions and particularly the practice of self-medication were included. The tool was uploaded onto Open Data Kit (ODK) mobile data collection app and data collection done with the aid of mobile phones.

Data Analysis

Descriptive analysis was done using Stata 15 to generate the mean and the standard

deviation for continuous variables and proportions for categorical variables. Frequency tables and figures were used to present these results. Bivariate analysis was done to determine associations between the predictor and outcome variables. At multivariable level, variables with a p-value less than 0.2 were included in the model. A p-value less than 0.05 was considered statistically significant. All results were summarized into tables and graphs.

Data Assurance and Quality Control

Training of the research assistants on the research protocol and ethical issues surrounding the study was done. To ensure appropriateness of the questions for reliable and accurate information, pre-visits to the study setting and pretesting of the study instruments was done. The tool was pre-tested in the neighboring towns which were not included in the sampling frame but with similar characteristics as the selected target area. Furthermore, the research assistants were supervised during the field work. The researcher also ensured that the tool was checked and field edited where found necessary to ensure completeness of actual data before data collection. The tool was further translated to Runyankole and the researcher ensured to only recruit research assistants who were conversant with Runyankole since it is the commonest language spoken by the prospective respondents. However, the interviews were conducted in a language most comfortable to the respondent. The questionnaire was uploaded onto ODK which helped to eliminate human errors and ensure completeness of data through enabling automatic skips and denials if a field is left unanswered.

Ethical Considerations

The researcher acknowledged all the authors whose material was cited in the study. Before conducting the study, approval was sought from Kampala International University. Administrative clearance was also obtained from Bushenyi-Ishaka Municipal Council and the Local council 1 offices prior to engaging with the prospective respondents. The participants were given full information and explanations of the benefit, rights, and risks of the study. Written informed consent of each participant was then sought before the start of the interview. All information collected was kept confidential; no names or other identifying information were disclosed during data collection and dissemination of study findings [15].

RESULTS

Demographic characteristics of the respondents

A total of 392 residents were enrolled in the study. The majority of the participants were aged between 35-44 years (37.7%) and least proportion was age above 45 years (13.5%). Of the 392, 42 (20.3%) of the residents interviewed were categorized as those with hepatitis B virus. Majority, 65 (31.4%) attained secondary level of education while the least 38 (18.4%) attained primary. Majority 114 (55.1%) were separated and divorced while the least 9 (4.3%) never married. Majority 90 (43.5%) had lowest level of education while the least 45 (27.3%) had highest level of education. Most 100 (48.3%) had bar operation as their alternative business done while had farming as their alternative business done.

Table 1*:* showing the demographic characteristics of the sample.

Variable	Frequency (n=392)	Percentage (%)
Age categories		
15-24	61	15.6
25-34	131	33.4
35-44	147	37.5
≥ 45	53	13.5
Sex		
Male	171	43.6
Female	221	56.4
Religion		
Catholic	118	30.1
Anglican	114	29.1
Muslim	68	17.3
Pentecostal	92	23.5
Tribe		
Banyankore	297	75.8
Baganada	21	5.4
Others	74	18.8
Level of education		
No formal education	112	28.6
Primary	72	18.4
Secondary	123	31.3
Tertiary	85	21.7
Marital status		
Married	216	55.1
Never married	64	16.3
Separated/divorced	27	6.9
Widowed	85	21.7
Occupation		
Formal sector	85	21.9
non formal sector	136	34.7
Retired/unemployed	170	43.4

Prevalence of Self-medicating

From total respondents, 43.1% (169/392) practiced self-medication with confidence interval of (29.3–47.2).

Table 2 showing prevalence of Self-medicating

Prevalence	Frequency (n=392)	Percentage (%)
Yes	169	43.1
No	223	56.9

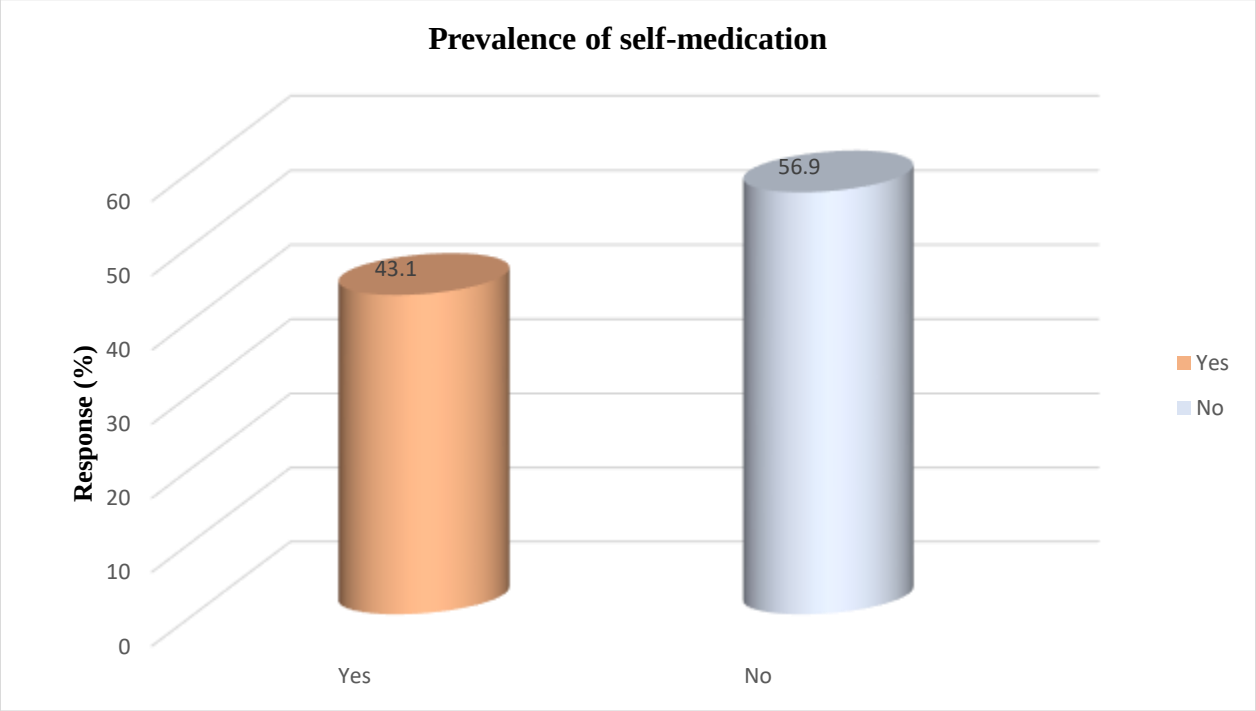

Figure II: Showing prevalence of self-medication among residents in Bushenyi-Ishaka Municipality

Section (C): Risk factors of self-medication

From the study findings, majority of the participants 51.4% (87/169) revealed that they got their medications from Drug shops during COVID-19 lock down while the least 0.03% (5/169) got it from private health facilities.

Majority, 44.4%(75/169) had the distance of 2 – 5km to the health unit while the least 26.6%(45/169) participants had only 1 km from the nearest health facility. Majority 72.7% (123/169) experienced illness or symptoms during COVID-19 lockdown while the least 27.2% (46/169) did not. From total respondents, 43.1% (169) residents practiced self-medication. Majority 72.7% experienced illness and symptoms during COVID-19 lockdown while the least 27.3% did not. Majority 71.7% (121/169) did not Remember the drug they took while the least 28.3% (48/169) remembered them. Majority 32.7% (55/169) were given advice by friends while the least 4.8% (8/169) got prescriptions from Drug shop attendants.

Table 3: Risk factors contributing to self-medication N= 169

Variable		Frequency (f)	Percentage (%)
Nearest health unit to the household	Government health facility	24	14.2
	Private health facility	5	3
	Clinic	10	6
	Pharmacy	43	25.4
	Drug shop	87	51.4
Distance to the health unit	1 km	45	26.6
	2 – 5 km	75	44.4
	5 km and above	49	29
Experience of any illness or symptoms during COVID-19 lockdown	Yes	123	72.8
	No	46	27.2
self-Medicated in the COVID-19 lockdown	Yes	73	43.2
	No	96	56.8
Remembering the drug taken	Yes	48	28.4
	No	121	71.6
Who gave you advice on which medication to take	Pharmacy professionals	9	5.3
	Drug shop attendant	8	4.7
	Family	20	11.8
	Friends	55	32.5
	Own experience	37	22.0
	Previous prescription	40	23.7

Association between factors and Self-medication

Age categories, Level of education, Marital status, Distance to the health unit, Experience of any illness, Occupation and response on who gave advice on which medication to take were statistically significantly associated with Self-medication among residents of Bushenyi Ishaka Municipality in the model at 5% level. Residents in age group >35 were 5times more likely to practice self-medication compared to those who belonged to age group 15-19 (OR =5.73: 95%CI, 2.31-28.4: P<0.001). Residents with primary levels of education were 3times more likely to practice self-medication compared to those who attained college level of education (OR=**3.29**: 95%CI, **1.94**–5.57: P<0.001). Married residents were 2times more likely to practice self-medication compared to the single residents (OR=2.61: 95% CI, **0.77–8.85**: P=**<0.001**). Those who were 5km away from the health facilities were 4times more likely to practice self-medication to those who were 1km away from the health facilities (OR=4.36: 95%CI, **3.18-29.63**: P=<0.001). Residents who had experience of illness were 4times more likely to practice self-medication compared to those who had experience of illness (OR=4.24: 95%CI, 1.76-51.35: P=0.012).

Table 4*:* showing association between demographic characteristics and Self-medication

Variable	Self-medication		OR (95% CI)	P-Values
	Yes	**No**		
Age categories	**n=169**	**n=223**		
15-24	42(68.9%)	19(31.1%)	Ref	
25-34	51(39.0%)	80(61.0%)	2.30(1.34-30.31)	0.004
35-44	63(42.9%)	84(57.1%)	1.50(0.19-11.45)	0.096
≥ 45	19(35.8%)	34(64.2%)	**5.73(2.31-28.4)**	**<0.001**
Level of education				
No formal education				
Primary	9(23.7%)	29(76.3%)	**3.29 (1.94–5.57)**	**<0.001**
Secondary	34(52.3%)	31(47.7%)	1.47 (0.86–2.53)	0.620
Tertiary	23(51.1%)	22(48.9%)	ref	
Marital status				
Married	45(39.5%)	69(60.5%)	**2.61 (0.77–8.85)**	**<0.001**
Never married	6(66.7%)	33.3%)	ref	
Separated/divorced	15(60%)	10(40%)	1.27 (0.44–3.68)	**0.014**
Distance to the health unit				
1 km	1(14.3%)	6(85.7%)	**ref**	
2 – 5 km	27(51.9%)	25(48.1%)	1.33(0.15-6.46)	0.023
5 km and above	36(41.4%)	51(58.6%)	**4.36(3.18-29.63)**	**<0.001**
Experience of any illness				
Yes	16(72.7%)	6(27.3%)	**4.24((1.76-51.35)**	**0.012**
No	30(56.6%)	43(43.4%)	ref	
Occupation				
Formal sector	18(41.8%)	25(58.2%)	ref	
non formal sector	16(44.4%)	20(53.6%)	0.88 (0.63–1.23)	0.391
Retired/unemployed	32(46.4%)	37(53.6%)	0.87 (0.62–1.22)	0.373
Who gave you advice on which medication to take				
Pharmacy professionals	12(38.7%)	19(61.3%)	3.37 (1.77–14.74)	0.011
Drug shop attendant	21(51.2%)	20(48.8%)	ref	
Family	18(69.2%)	8(30.8%)	1.37 (0.89–2.45)	0.012
Friends	15(34.1%)	29(65.9%)	**4.53 (1.86–21.72)**	**0.003**
Own experience	4(36.4%)	7(63.6%)	**3.81(0.57–29.01)**	**0.004**
Previous prescription	11 (44%)	14(56%)	0.97(0.65–1.35)	0.030

DISCUSSION

Prevalence of Self-medication

Less than half of residents (43.1%) were on self-medication, in Bushenyi Ishaka Municipality and it accounted for a confidence interval of (29.3–47.2). The above results were higher than the prevalence of the study by [16] which had the overall prevalence of self-medication of 30.3% (95%CI: 26.7–34.1) during COVID-19.

Association between factors and Self-medication

In the study, residents in age group >35 (OR =5.73: 95%CI, 2.31-28.4: P<0.001) had highest odds of practicing self-medication. These findings contrast with findings from a study by [17] on Estimating the public response to mitigation measures and self-perceived behaviors who revealed that young residents were 3times more likely to practice self-medication than residents who belonged to age of >35. On the other hand, residents with primary levels of education were 3times more likely to practice self-medication compared to those who attained college level of education (OR=3.29: 95%CI, 1.94–5.57: P<0.001). These results were supported by other scholars where educated residents with at least secondary schooling were found to be more likely to not to practice self-medication than uneducated residents (World meter. Coronavirus update (live): cases and deaths from COVID-19 virus pandemic. World meters. 2021). Furthermore, married residents were 2times more likely to practice self-medication compared to the single residents (OR=2.61: 95%CI, 0.77–8.85: P=<0.001). The above findings were in association with study findings by [18], on Self-medication practices during the COVID-19 pandemic among the adult population in Peru: a cross-sectional survey in Saudi Pharm, who found out that single residents were better at attending health facilities for their medications (27.7%) compared to married residents (10.9%).

Those who were 5km away from the health facilities were 4times more likely to practice self-medication to those who were 1km away from the health facilities (OR=4.36: 95%CI, **3.18-29.63**: P=<0.001). Residents who had experience of illness were 4times more likely to practice self-medication compared to those who had experience of illness (OR=4.24: 95%CI, 1.76-51.35: P=0.012). The above findings of the study were in line with findings of the study by [19] who found out that the effect of distance from the health facility on Self-medication was significant because residents who were 5km away from the health facilities were more likely to use self-medication than residents belonging to distances less than or equal to 1km [19]-[24].

CONCLUSION

Self-medication was prevalent among one-third of residents in Bushenyi- Ishaka Municipality. The most commonly used medication was herbal products mostly self-prepared. The major source of information for self-medication in this current study were family members and friends. Some economic and socio-demographic factors were significantly associated with self-medication.

Age, educational status, employment and marital status were significantly associated with ever self-medication during COVID-19 pandemic.

Weaknesses and suggestions for further research

This study makes important contributions with respect to incidence of Self-medication. However, a number of limitations in the findings of the study emerged and include; The study was done in a single town and thus the number of enrolled residents was small. These facts may limit generalization of the current study to the entire Bushenyi population.

Recommendations

Based on the results of the study, the following recommendations were made. The MOH needs to sensitize the communities on the risk of self-medication. The health care workers need to intensify public awareness campaigns on the risk of self-medication.

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