Magnitude of self-medication practice and the associated factors among adult household members living in western region, Tanzania

Mussa S. Manhyabili

Muhimbili University of Health and Allied Sciences

George M. Bwire (✉ georgebwire@gmail.com)

Muhimbili University of Health and Allied Sciences

Lubinza Maziku

Muhimbili University of Health and Allied Sciences

Mecky .I. N. Matee

Muhimbili University of Health and Allied Sciences

Research Article

Keywords: self-medication, associated factors, adult households, Shinyanga, Tanzania

Posted Date: September 10th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-879956/v1>

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Abstract

Background: Self-medication practice (SMP) is the use of medication without the prescription of health care professionals. The major problems associated with self-medication practice have been drug resistance, drug side effects, wastage of resources, and serious health hazards including death. This study was conducted to assess the magnitude and factors associated with self-medication practice among adult household members in Shinyanga Municipal Council (SMC).

Methods: A community based cross-sectional study was conducted in SMC, in September and October 2020. A multistage cluster random sampling was used to select study participants. Variables such as socio-demographic factors and reasons for SMP were summarized using frequencies and percentages. Chi square and logistic regression test were used to identify factors associated with SMP. All statistics were done using SPSS version 25.

Results: In total 422 adult household members were studied, the magnitude of SMP among adult household members in SMC was 86%. The major symptom of illness that lead to SMP were headache 75(38.9%), fever 71 (37%) and cough 52 (27.1%) while paracetamol 84(43.8%), Ampiclox 30 (15.5%) and artemether lumefantrine 25 (13%) were the commonly used drugs. Perceptions of illness as mild 141(38.8%) and previous experience of self-medication 138(38%) were the reasons for SMP. Participants who did not complete secondary education were seven times more likely to practice SMP as compared to those who had university education (adjusted odds ratio [aOR] = 7.136, 95%CI=1.447-35.180, P=0.016). Participants with average household income (AHI) (<180,000 TSH=<78USD) were less likely to practice SMP compared to those with AHI (B 180,000Tsh) (aOR = 0.424, 95%CI = 0.214 – 0.840, P = 0.014).

Conclusion: The magnitude of SMP in Shinyanga Municipal was found to be high. SMP was significantly associated with level of education and average monthly household income. Strengthening of the community's awareness on the side effects of SMP including antimicrobial resistance in the study area is recommended.

Background

Self-medication practice (SMP) defined as any use of medications without the prescriptions of health care professionals for the treatment of self- recognized illnesses which occur frequently for various reasons (1, 2) Self-medication is highly practiced worldwide and high prevalence is in developing countries, the frequencies of self-medications practices vary from country to country and from one geographical location to the other. In Africa frequency of self-medication ranges from 11.9–75.7% (3).

Self-medication has been associated with previous experience of self-medication, and accessibility of pharmacy, peer/family pressure and presence of medication at home(1). Others includes perception of illness as mild, similarity of symptoms with previous illness, inability to afford health care fee and poor quality of health facility such as long queues and long distance to health facilities (1, 4). Additional reasons includes emergency illness, advertisement from television, radio and printed media(5). The most

common reported drugs that are used for self-medication include antipyretics, analgesics, antibiotics, cough syrups, and antimalarial (4, 6). The symptoms that are reported to self-medication includes common cold, cough, fever, general pains, vomiting, diarrhea and skin conditions (4).

Several studies have cited the reasons for self-medication to include Community pharmacies, lack of money to consult a medical doctor, sex, education status and occupation of the respondent(4, 7–11). However, little was known of the situation in the Lake Zone areas of the country. Thus, the objective of the present study was to determine the self-medication practices and associated factors among adult household members in Shinyanga Municipal council. Self-medication practice influences health care seeking behavior of individuals. It leads to wastage of resources, delay in diagnosis of problems and appropriate treatments. Can also lead to serious health hazards, emergence of antibiotic resistant strains of micro-organisms and adverse drug reactions(1, 12).

Given high burden of infectious diseases in Tanzania, limited healthcare facilities and increased quantities of drug dispensing outlet resulting in increased use and accessibility of medicines by consumers, thereby giving options for its misuse. Thus; self-medication with either antibiotic or antimalarial is still a common practices in some part of Tanzania(13).

Despite the growing research interest on the topic from different parts in Tanzania, not much was known about self-medication practice in general population by people from Lake Zone. This study was focused on identifying self-medication practice and associated factors among adult household members in Shinyanga Municipal council.

Methods

Study design, period and setting

A descriptive community based cross-sectional was conduct between September to October2020.The study was conducted in Shinyanga Municipal Council found in Shinyanga Region, Lake Zone in Tanzania. It is bordered to the north by Mwanza region to South by Shinyanga Rural district, to East by Kishapu district and to the west by Kahama district. According to Tanzania Census of 2012, the district had 152098 inhabitants. Shinyanga Municipal has 11 healthcare facilities and Shinyanga Regional Referral Hospital (RRH).

Study population

All adults with age $\geq$ 18 years old and resident of Shinyanga Municipal Council were recruited and given consent to participate in this study. A minimum sample size of 422 was estimate d using a cross-sectional formula; sample size (n) = $Z^2P(1-P)/d^2$ (Z=confidence level of 95% which is 1.96, P=estimated prevalence of 0.5, d=precision or margin of error allowed in this study degree of precision was 0.05), and plus 10% of non-response rate. Multistage cluster random sampling technique was used, first to select 5

wards out of 13 wards. Then, 2 streets were selected from each selected Ward. Lastly, households were divided into clusters based on proximity and one household was picked randomly.

Data collection

A semi-structured questionnaire was developed following a comprehensive literature review (4,7,9–12) to collect data from the study area. The questionnaire was included information about socio-demographic characteristics including age, sex, marital status, educational level, average income status number of members in household and occupation, Information on self-reported health aspects of respondents, such as their health status; respondent was asked about whether they had practiced self-medication (both prescription only and over the counter drugs) during the last one month before the day of interview. Other information included, drug groups used for self-medication, and symptoms/illness and reasons for self-medication. Data was collected in a face-to-face interview on a structured questionnaire.

Data analysis

Data collected were entered into statistical analysis software, Statistical Package for Social Science (SPSS) version 25 for analysis (Chicago Inc., USA). Descriptive statistics such as socio-demographic characteristics were summarized using frequencies and percentages. The magnitude of SMP was determined by dividing the number of participants who reported to practice SMP to the total number of participants enrolled in the study. The Chi-square and logistic regression test were used to determine factors associated with self-medication practice. A P value for significance was considered at < 0.05 .

Ethical considerations

Ethical approval to conduct this study was sought from Muhimbili University of Health and Allied Science Research and Publications Committee (Reference No. DA.25/111/01/). Furthermore, permissions to collect data were obtained from the respective local authorities. Confidentiality of participants' information was insured through the use of codes (numbers) during data collection, analysis, interpretation and presentation. Participants were enrolled after obtaining an informed verbal consent. This study was conducted accordance to the law and regulations of the United Republic of Tanzania.

Results

Participants socio-demographic characteristics

In total 422 participants were enrolled, most of the participants had age between 25-34 years 145(34.4%). More than half of participants were males 217 (51.4%). The level of education and average monthly household income were significantly ($p \text{ value} < 0.05$) associated with SM practices. Table 1).

Magnitude, common symptoms and drugs used for self-medication

The study revealed that the magnitude of self-medication among household adults at Shinyanga municipal were 363(86%) as results summarized. But among 363(85.6%) participants, 183(59.7%) participants use self-medication very rarely whereas 192(60.7%) participants used self-medication one month before or within the months of study conducted. The common symptoms of illness that lead to self-medication were headache 75(38.9%), fever 71(37%) and cough 52(27.1%) (Figure 1a). The study revealed that paracetamol 84(43.8%), ampiclox 30(15.5%) and artemether lumefantrine (ALU) 25(13%) were the major drugs that used (Figure 1b).

Reasons participants for self-medication practice

Perceptions of illness as mild 141(38.8%), previous experience of self-medication 138 (38%) and emergency illness 34(9.4%) were the major reasons for self-medication practice (Table 2)

Univariate and multivariate analysis on the factors associated with SM practice

Participants who had not completed secondary school were about 7.136 fold more likely to practice self-medication compared with those attained university education (aOR=7.136, 95%CI=1.447-35.180, P value=0.016). Also those completed primary school were 4.919 fold more likely to practice self-medication as compared to those university level (aOR=4.919, 95%CI=1.515-15.973, P value=0.008). Participants with 180,000 Tshs average household monthly income were 57.6% self-medication practices as compared to those with 180,000 Tshs (aOR=0.424, 95%CI=0.214-0.840, P value=0.014) (Table 3).

Discussion

This study aimed to determine self-medication practices among adult household members living in Shinyanga Municipal Council, Tanzania. In this study, the magnitude of self-medication practice was found to be 86%, a level which close to observations reported in Northern Uganda 75.7% (3), and Kenya 79%(14). The level of self-medication reported in this study, is higher than that reported in other Tanzania studies in Pwani Region 64.8% (4), and Siha district in Kilimanjaro 58%(15), and among pregnant women in Mwanza 46.24% (10) and Mbeya 55.6% (11). These variations could be due to difference in drug shops and pharmacy to obtain drugs for SMP. Area such as Pwani and Siha rural area such that in rural there is few (23–24). Also another reason could be participants enrolled during clinic visit/ admitted at health centre (10) or hospital (11) more likely to respond that had never SMP.

The common symptoms of illness that lead to self-medication included headache 38.9%, fever 37%, and cough 27.1%, an observation that is comparable to several other studies in which headache and fever were the leading symptoms(1, 4, 11, 12, 15).

We found out that the reasons for self-medication practices were perceptions of illness as being mild 38.8%, history of previous experience of self-medication 38%, emergency illness 9.4%, peer/family pressure 7.7%, presence of medication at home 7.2%, long queues 5%, long distance to health facilities

4.1%, close proximity to pharmacy/drug shops 3.9%, poor quality of health facilities 3.9% and inability to afford health care fee 3.6%. This was similar to previous studies(1, 4, 5, 12, 15, 17).

This study showed that paracetamol 43.8%, ampiclox 15.5% and ALU13% were the most frequently used medications. In Tanzania aforementioned drugs can be available and accessed through Accredited Drug Dispensing Outlets (ADDO) Programme, even without a prescription (20–22).

The reported outcomes were majority of participants getting better after SM 86.2% and few of them not get better after SM 3.8% and the actions were visited health facility 70%, nothing 20%, repeated SM 8% and went to tradition healers 1(2%). The expiations for this could be due participants having sufficient knowledge about drug choice, dose and time of intake (25).

In this study, the results of multivariate logistic regression analysis showed that participants who had not completed secondary school and those completed primary school were more likely to practice self-medication as compared to those university level. This results were similar to other studies (4, 10, 26–30). This is due to fact high education level is associated with promptness in seeking care from health care providers(31) and attendance to clinic (32).

Also, in this study, showed that low income household less likely to SMP compared to those had high income. This is due the fact that rich people more likely to opt to have freedom to purchase medications from private pharmacy/ drug shops as they can afford (33). This is contrary to most of the studies which showed no significant association of level of income to the SMP (1, 4, 5, 10). This difference could be due to difference in socio-economic status of the participants.

Study Limitations

In this study, there were two potential study limitations. First, because information about SM was self-reported, one would anticipate the possibility of recall bias. The recall bias was minimized by minimizing the reporting window to be as short as one month before the survey. Second, some participants were not able to remember the names of medicines; they were requested to bring the container of drugs used and/or leftover medications.

Conclusion

The magnitude of SMP in Shinyanga Municipal was found to be high. SMP was significantly associated with level of education and average monthly household income. Strengthening of the community's awareness in Shinyanga Municipal on the side effects of self-medication practice including antimicrobial resistance and regulation of pharmacies/drug shops are very important mechanisms to decrease the practice. Thus, integrated efforts of individuals, communities, health facilities, and the regulatory bodies are highly important.

Declarations

Ethical approval and consent to participate

Ethical approval to conduct this study was sought from Muhimbili University of Health and Allied Science Research and Publications Committee (Reference No. DA.25/111/01/). Furthermore, permissions to collect data were obtained from the respective local authorities. Confidentiality of participants' information was insured through the use of codes (numbers) during data collection, analysis, interpretation and presentation. Participants were enrolled after obtaining an informed verbal consent. This study was conducted accordance to the law and regulations of the United Republic of Tanzania.

Authors' contributions

MSM participated in conception, research design, data collection, data analysis and interpretation and drafting of the manuscript. MINM participated in research design, data analysis, data interpretation and revising the manuscript. GMB and LM participated in data analysis and revising the manuscript. All authors read and approved the final version of this manuscript.

Competing interests

Authors declare that there is no competing interest

Consent to publish

Not applicable

Availability of data and materials

All relevant data generated and analysed during this study are available from the corresponding author on reasonable request

Funding

This study was carried out as part of our routine work.

Acknowledgements

Authors thanks the participants who participated in this study. We also thank the local authorities for granting permission to conduct this study.

Authors' information

¹Department of Microbiology and Immunology, School of Medicine, Muhimbili University of Health and Allied Sciences, P.O.Box 65001, Dar es Salaam, Tanzania. ²Department of Pharmaceutical Microbiology, School of Pharmacy, Muhimbili University of Health and Allied Sciences, P.O.Box 65001, Dar es Salaam, Tanzania

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Tables

Table 1. Association between sociodemographic factors and the factors associated with SMP

Variables	Category	Self-medication practice		P value
		Yes	No	
		n (%)	n (%)	
Sex	Male	187(86.2%)	30(13.6%)	0.924
	Female	176(85.9%)	29(14.1%)	
Age in year	18-24	94(83.9%)	18(16.1%)	0.595
	25-34	126(86.9%)	19(13.1%)	
	35-44	60(88.2%)	8(11.8%)	
	45-54	49(81.7%)	11(18.3%)	
	≥55	34(91.9%)	3(8.1%)	
Marital status	Single	125(80.6%)	30(19.4%)	0.096
	Married	218(89.3%)	26(10.7%)	
	Divorced	6(100.0%)	0(0.0%)	
	Widowed	12(85.7%)	2(14.3%)	
	Cohabiting	2(66.7%)	1(33.3%)	
Level of education	Not attended	24(85.7%)	4(14.3%)	0.004
	Not completed primary	13(100.0%)	0(0.0%)	
	Completed primary	93(93.9%)	6(6.1%)	
	Not completed secondary	45(95.7%)	2(4.3%)	
	Completed secondary	70(83.3%)	14(16.7%)	
	Collage	53(77.9%)	15(22.1%)	
	University	65(78.3%)	18(21.7%)	
Occupation	Housewife	51(89.5%)	6(10.5%)	0.066
	Businessman/woman	73(86.9%)	11(13.1%)	
	Farmer	78(94.0%)	5(6.0%)	
	Casual laborer	31(86.1%)	5(13.9%)	
	Employed	58(82.9%)	12(17.1%)	
	Unemployed	49(81.7%)	11(18.3%)	
	Others*	23(71.9%)	9(28.1%)	

Average monthly household income	<180,000Tsh	173(82.0%)	38(18.0%)	0.017
	≥180,000Tsh	190(90.0%)	21(10.0%)	

Table 2. Reasons that lead to self-medication

Variable	Category	Frequency	Percent
Previous experience of self-medication	Yes	138	38
	No	225	62
Presence of medication at home	Yes	26	7.2
	No	337	92.8
Perception of illness as mild	Yes	141	38.8
	No	222	61.2
Peer/family pressure	Yes	28	7.7
	No	335	92.3
Close proximity to pharmacy/drug shop	Yes	14	3.9
	NO	349	96.1
Inability to afford health care fee	Yes	13	3.6
	No	350	96.4
Poor quality of health care facilities	Yes	14	3.9
	No	347	96.1
Long queues	Yes	18	5
	No	345	95
Long distance to health care facilities	Yes	15	4.1
	No	348	95.9
Emergency illness	Yes	34	9.4
	No	329	90.6

Table 3. Univariate and multivariate analysis on the factors associated with SM practice.

Variable	Categories	Univariate analysis			Multivariate analysis		
		cOR	95%CI	P value	aCR	95%CI	P value
Age (years)	18 – 24	0.461	0.128-1.663	0.237	0.949	0.175-5.161	0.952
	24 – 34	0.585	0.163-2.094	0.410	1.008	0.205-4.947	0.992
	35 – 44	0.662	0.164-2.662	0.561	0.666	0.136-3.269	0.617
	45 – 54	0.393	0.102-1.515	0.175	0.369	0.081-1.679	0.197
	55	Ref					
Sex	Male	1.027	0.592-1.781	0.924	1.019	0.432-2.404	0.965
	Female	Ref					
Marital status	Single	2.083	0.183-23.743	0.554	3.353	0.143-78.872	0.453
	Married	4.192	0.367-47.842	0.249	6.229	0.265-146.29	0.256
	Widowed	3.000	0.177-50.784	0.447	6.212	0.163-238.31	0.325
	Cohabiting	Ref					
Level of education	Not attended	1.662	0.510-5.409	0.399	1.808	0.383-8.550	0.455
	Completed primary	4.282	1.616-11.400	0.003	4.919	1.515-15.973	0.008
	Not completed secondary	6.231	1.377-28.191	0.018	7.136	1.447-35.180	0.016
	Completed secondary	1.385	0.637-3.008	0.411	1.837	0.756-4.463	0.180
	Collage	0.978	0.451-2.124	0.956	1.160	0.495-2.718	0.733
	University	Ref					
Occupation	Housewife	3.326	1.059-10.445	0.040	1.358	0.303-6.085	0.689
	Businessman/woman	2.597	0.957-7.0444	0.061	1.606	0.482-5.346	0.440
	Farmer	6.104	1.861-20.026	0.003	3.166	0.765-13.110	0.112
	Casual laborer	2.426	0.717-8.210	0.154	1.783	0.464-6.850	0.400
	Employed	1.891	0.703-5.090	0.207	1.967	0.571-6.783	0.284
	Unemployed	1.743		0.281	2.174		0.168
	Students	Ref					

			0.634- 4.789			0.720- 6.562	
Average household income	<180,000 Tsh	0.503	0.284- 0.891	0.018	0.424	0.214- 0.840	0.014
	> 180,000Tsh	Ref					
Number of family members	<5	0.969	0.549- 1.712	0.915	1.358	0.700- 2.834	0.365
	≥5	Ref					
Position in the family	Father	2.058		0.110	1.058	0.247- 4.537	0.940
	Mother	1.677		0.220	0.825		0.812
	Child	0.910		0.822	0.865	0.170- 4.018	0.762
	Relative	Ref				0.340- 2.203	
Ref: reference category predicted the probability of self-medication, cOR: crude odds ratio, aOR: adjusted odds ratio, statistical significant values are indicated in bold							

Figures

Figure 1a

Figure 1b

Figure 1

Common symptoms of illness (Figure 1a) and drugs (Figure 1b) used for SMP