Research Article

Prevalence and Knowledge of Self-Medication: A Cross-Sectional Study in Mbeya Urban, Southwestern Tanzania

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Abstract

Background: Self-medication is still an important public health problem in developing countries and is highly practiced. Therefore the aim of this study was to document the prevalence and knowledge of self-medication with antimalarials and antibiotics.

Methodology: A cross-sectional study was conducted in Mbeya urban district in Mbeya region. Participants were recruited from hospital settings and from the community. A total of 500 adults aged ≥18 years were prospectively included.

Results: Prevalence of self-medication was found to be 55.6% with either antibiotic or antimalarials. Among those who practiced self-medication, 57.3% were outpatients and 53.0% were from the community (p>0.05). Fever (35.2%) and other conditions (30.8%) such as abdominal pain, typhoid, urinary tract infections are most common conditions for which people have used self-medications, (p=0.008).

Conclusion: In conclusion, the frequency of self-medication was quite high and therefore, educative and preventive health programs should be emphasized on the consequences of self-medication.

Keywords: Self-medication; Antibiotic; Antimalarials and Tanzania

Background

Self-medication is a common practice and is becoming a public health problem in most developing countries. According to World Health Organization (WHO), self-medication is defined as "the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms" [1]. Self-medication with antimicrobial agents (antibiotics or antimalarials) is common globally with the prevalence differing from country to country [2]. It has been reported that self-medication is performed for about 80% of medical symptoms without professional supervision [3]. This is challenge especially to patients and community in developing countries where there is high rate of illiteracy [4].

Tanzania being one of the developing countries it suffers for high rate of antimicrobial resistance which may be caused by high rate of self-medication. Tanzanian Food, Drugs and Cosmetics Act (TFDA) of 2003 [5] recommends training of drug dispensers through the Tanzania's Accredited Drug Dispensing Outlet (ADDO) program followed by regulation to achieve quality standards [6,7], and registered over 3,500 functioning ADDOs in 2013 [8], consequently more individuals have access to drug dispensing outlets. Given high burden of infectious diseases in Tanzania [9], 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 antimalarials is still a common practices in some part of Tanzania such as Kilosa, Morogoro [10]. This resulted in increased disease burden and deaths from malaria or bacterial related illnesses through recurrences, recrudescence and development of drug resistance [11,12].

Limited information is available regarding the prevalence and knowledge of self-medication among outpatients and in the community in Mbeya Urban. Therefore, it is important to establish prevalence and quantify knowledge on self-medication in Mbeya Urban. Thus, the objective of the present study was to document the prevalence and knowledge of self-medication among the general population (community members) and outpatients.

Material and Methods

Study settings and area

This was a hospital and community based prospective cross-sectional study conducted in Mbeya urban district. The district lies between latitudes 8° and 9° South of equator and between longitudes 33° and 35° East of Greenwich. Mbeya urban has a population of 305, 319, and administratively is divided into 25 wards and 143 villages [13]. Mbeya Referral hospital is a tertiary, consultant hospital located in Mbeya, Tanzania. It provides medical services to a population of more than two million residents. The hospital receives referrals from nearby Municipal health facilities, district hospitals in Mbeya region and regional hospitals in three Southern Highland regions (www.mzrh.go.tz).

Population sampling and sample size

This study involved all adults individuals aged 18 years and above who were residents in Mbeya district. Patients with severe conditions and those with mental problem were excluded from the study. Mixed

sampling methods were employed whereby for community at least 10 participants were randomly selected from each ward while for hospital (outpatients) convenient sampling methods were employed.

The sample size necessary to reach the study objective was estimated on the assumption that the proportion of response to most of the main questions is 50% of subjects who have practiced self-medication (either by using antibiotics or antimalarial). This was due to the fact there are no previous similar studies from Mbeya region was conducted. Considering a 95% confidence interval, a 5% margin of error and with an allowance of 50% for non-response, a minimum of 200 participants from the community + 300 participants from hospital were recruited.

Data collection

Questionnaire: A structured questionnaire adopted from [14] with few modifications was used for data collection. The designed questionnaire was piloted on 10 participants in order to test items' understandability and content validity. Data collected from these participants were used to make final refinements to the questionnaire. Each enrolled participant was interviewed using a similar set of questions in the questionnaire that had three sections (Additional file 1).

Section one gathered information related to basic demographics characteristics such as gender, age, the highest attained education qualification, marital status and employment status.

In section two, the participants were asked about the information on knowledge of self-medication. A five-point Likert scale (strongly disagree-strongly agree) was used to evaluate the participants' responses. Nine knowledge statements were included such as "self-medication can be practiced on all the drugs?, whenever one is sick, should always take medication at home before going to the hospital?, self- medication is better than going to the hospital?, medicine can be shared between two people having different illnesses?, self- medication can result into harmful effects?, self- medication can cause addiction?, self- medication can delay one to seek for hospital intervention?, self-medication can lead to resistance?, self- medication can complicate illness?".

Ethical consideration: Ethical clearance was obtained from the Kilimanjaro Christian Medical University College Ethics Committee. Permission to conduct the study was obtained from the District Executive Director of Mbeya Municipality, District Medical Officer and Director of Mbeya Referral Hospital. Written informed consent was obtained from all individuals who agreed to participate in the study and information collected was used only for the intended purposes and confidentiality was ensured.

Data analysis

The Chi-square test (χ2) or Fisher exact test were used to compare categorical data such as between self- medication and knowledge statements or commonly treated condition. In all statistical analyses, a p-value of < 0.05 was considered significant. All data were analyzed using SPSS 20.0 software (SPSS Inc., Chicago, IL, USA).

Results

Socioeconomic and demographic characteristics of the studied population

Out of 500 participants interviewed, most participants were

Table 1: Socioeconomic and demographic characteristics of the studied population.

Variables	Patients	Community	Total	P value
	n = 300, (%)	n = 200, (%)	n = 500, (%)	
Age (in Years)				
18- 39	202 (67.3)	102 (51.0)	304 (60.8)	χ²_13.55
40- 59	78 (26.0)	76 (38.0)	154 (30.8)	P = 0.001
≥ 60	20 (6.7)	22 (11.0)	42 (8.4)	
Gender				
Male	150 (50.0)	92 (46.0)	242 (48.4)	χ² = 0.76
Female	150 (50.0)	108 (54.0)	258 (51.6)	P = 0.3
Education level				
Illiterate	18 (6.0)	10 (5.0)	28 (5.6)	χ² = 5.04
Primary	98 (32.7)	52 (26.0)	150 (30.0)	P = 0.1
Secondary	66 (22.0)	60 (30.0)	126 (25.2)	
Tertiary	118 (39.3)	78 (39.0)	196 (39.2)	
Marital status				
Single	124 (41.3)	66 (33.0)	190 (38.0)	
Married	124 (41.3)	102 (51.0)	226 (45.2)	χ² = 4.80
Divorced	20 (6.7)	12 (6.0)	32 (6.4)	P = 0.1
Widowed	32 (10.7)	20 (10.0)	52 (10.4)	
Income (TZs)				
<100 USD/=	164 (54.7)	108 (54.0)	272 (54.4)	χ² = 0.59
110 - 555 USD/=	98 (32.7)	62 (31.0)	160 (32.0)	P = 0.7
>555 USD/=	38 (12.7)	30 (15.0)	68 (13.6)	
Occupation				
Employed	123 (41.0)	72 (36.0)	195 (39.0)	
Business	104 (34.7)	58 (29.0)	162 (32.4)	χ² = 22.76
Unemployed	22 (7.3)	44 (22.0)	66 (13.2)	p<-0.001
Student	51 (17.0)	26 (13.0)	77 (15.4)	

patients 300 (60.0%) interviewed at health facility and 200 (40.0%) were from the community. Participants mean age was 36.28±13.81. Majority of participants 304 (60.8%) were aged between 18-39 years, among these 202 (67.3%) were recruited from the hospital and 102 (51.0) were recruited from the community, p=0.001). Most participants had tertiary education 196 (39.25). The proportion of participants who were employed was 123 (41.0%) in the hospital and 72 (36.0%) in the community (p<0.001). The demographic characteristics are shown in (Table 1).

Prevalence of self-medication and most commonly self-treated conditions

Overall prevalence of self-medication was 278 (55.6%). Among those who practice self-medication 172 (57.3%) were patients and 106 (53.0%) were from the community (p>0.05). Self-medication with antibiotic only was 94 (18.8%), while 74 (24.7%) were patients and 20 (10.0%) were from the community (p<0.001). Those who self-medicate with antimalarials only was 98 (19.6%), among these 60 (20.0%) were patients and 38 (19.0%) were from community, (Figure 1).
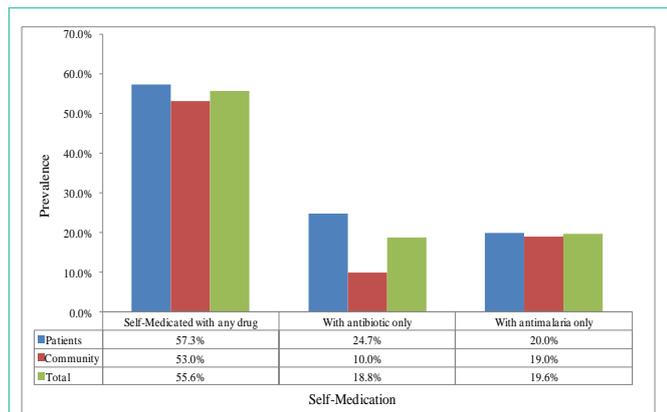
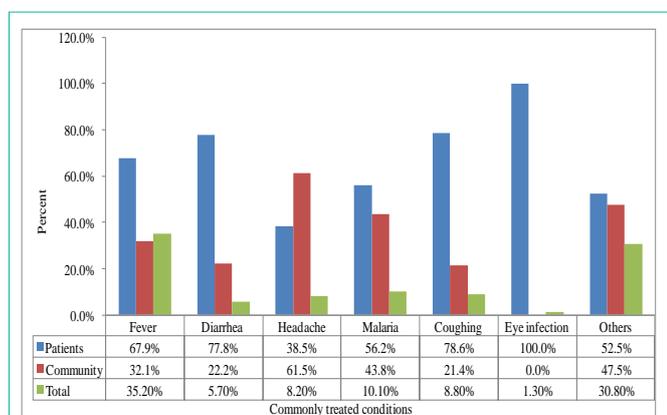**Figure 1:** Prevalence of self-medication.

Figure 2: Type of commonly treated conditions.

In general fever was the most self-treated condition 35.2% (112), whereas patients 67.9% (76) practiced self-medication as compared to community 32.1% (36). Other conditions 30.8% (98) like urinary tract infection, digestive disorders (abdominal pain and typhoid), influenza (cold) as well as joint pain and backache. Malaria was among the frequently self-treated condition 10.1% (32). There was significant difference in conditions, which compel participants for self-medication between patients and community (χ2 =17.3, p =0.008), (Figure 2).

Knowledge on self-medication

Most participants who were patients 156 (52.0 %) and community 128 (64.0%) disagreed with the question "self- medication can be practiced in all drugs" respectively (p=0.001). Almost half of participants 156 (52.0%) and 104 (52.0%) from hospital and community respectively disagreed that they should take medication at home before going to hospital (p=0.02). Majority of patients disagreed that that "self-medication is better than going to the hospital" (p<0.001). Patients 96.0% (288) and 194 (97.0%) from community were aware that self-medication could result into harmful effect. More than 90% of patients hospital and those from community were aware that self-medication can lead to resistance while 236 (78.7%) and 158 (79.0%) from hospital and community respectively were aware that self-medication can complicate illness, (Table 2).

Discussion

The study aimed at determining the prevalence and knowledge of self-medication with either with antimalarials or antibiotics in Mbeya region. Studies on self-medication with antibiotics/antimalarial are important in order to examine the extent of the problem and hence advice on the prevention of the consequences associated with self-medications.

Generally, results of this study show that there is generally high prevalence of the practice of self- medication in Mbeya (>50%) with either antimalarials or antibiotics. This is alarming and should not be overlooked and also the possible occurrence of risk associated with such practice such as antimicrobial resistance cannot be ruled out.

We found that self medication among outpatients was 57.3%; this is relatively same as the study conducted in Dar Es Salaam Tanzania [15], which showed a prevalence of 58.9%. However; this is different from a study done in Nigeria among general outpatients who reported a prevalence of 89.70% [16] and 85% [17]. In the general population the prevalence of self-medication with antibiotics/antimalarials was also high. Similar findings have been reported in Sudan [18], Kenya [19] and Uganda [4], however in Ethiopia the prevalence is lower as well as lower among those who self- medicate either with antibiotic or antimalarial alone [20].

Fever, headache, malaria and other conditions such as abdominal pain, typhoid, urinary track infections are most common conditions for which people have used self-medications [10,12]. The more reported self-treated condition in this study was fever 35.2% followed by other conditions such as urinary tract infection and digestive disorders like abdominal pain and typhoid 30.8% and malaria 10.1%. Results are relatively in line with a study conducted in India [21] which reported that fever (31%), headache (19%), and abdominal pain (16.7%) are most common illnesses where self-medication is being used. Of all the medicines used for self- medication, it was observed that antimalarial 19.6% was the most commonly used medication by the respondents and 18.8% self-medicated using antibiotics. This could be these two groups of drugs are readily available in most drug shops. Tanzania; together with other malaria endemic countries reported decline in malaria but in some part of Tanzania there is high prevalence of febrile illness which are not malaria [22,23]. The reason could be more of the patients they experience negative malaria test and yet symptoms persist believing that the test was wrongly done due to lack of diagnostic test of non-malarial illness; therefore most opt to purchase antimalarials or antibiotic in the fear of missing infections.

The current study revealed that most participants have good knowledge about self- medication and its implications. It points out to an increased level of knowledge while other findings reveal an alarming inadequacy of knowledge [2,12] about self-medication and its implications. Majority of participants are aware of the harmful effects of self-medication such as resistance to medication and complication of illness due to delay of hospital intervention but they still self-medication is practiced in the study area. As observed in others studies, reasons for persistence of self medication could be inability to pay for medical charges and also to avoid waiting for long time at health facilities [10,24].

Table 2: Knowledge of self-medication, questions and responses (%).

Variables	Patients	Community	P-value
Self- medication can be practiced on all the drugs?			
Agree strongly	14 (4.7)	8 (4.0)	
Agree	34 (11.3)	4 (2.0)	0.001
Do not agree nor disagree	28 (9.3)	12 (6.0)	
Disagree	156 (52.0)	128 (64.0)	
Strongly disagree	68 (22.7)	48 (24.0)	
Whenever you are sick, should always take medication at home before going to the hospital			
Agree strongly			
Agree	0 (0.0)	0 (0.0)	
Do not agree nor disagree	14 (4.7)	4 (2.0)	0.02
Disagree	32 (10.7)	38 (19.0)	
Strongly disagree	156 (52.0)	104 (52.0)	
	98 (32.7)	54 (27.0)	
Self- medication is better than going to the hospital			
Agree strongly	0 (0.0)	0 (0.0)	
Agree	6 (2.0)	0 (0.0)	
Do not agree nor disagree	38 (12.7)	52 (26.0)	<0.001
Disagree	144 (48.0)	84 (42.0)	
Strongly disagree	112 (37.3)	64 (32.0)	
Medicine can be shared between two people having different illnesses			
Agree strongly			
Agree	14 (4.7)	2 (1.0)	
Do not agree nor disagree	16 (5.3)	14 (7.0)	0.06
Disagree	22 (7.3)	24 (12.0)	
Strongly disagree	152 (50.7)	96 (48.0)	
	96 (32.0)	64 (32.0)	
Self- medication can result into harmful effects			
True	288 (96.0)	194 (97.0)	
Not true	2 (0.7)	0 (0.0)	0.5
Unsure	10 (3.3)	6 (3.0)	
Self- medication can cause addiction			
TRUE	212 (70.7)	138 (69.0)	
Not true	30 (10.0)	20 (10.0)	0.8*
Unsure	58 (19.3)	42 (21.0)	
Self- medication can delay to seek for hospital intervention **True**			
Not true			
Unsure	296 (98.7)	198 (99.0)	0.5
	4 (1.3)	2 (1.0)	
	0 (0.0)	0 (0.0)	
Self- medication can lead to resistance			
True	278 (92.7)	182 (91.0)	
Not true	4 (1.3)	2 (1.0)	0.6
Unsure	18 (6.0)	16 (8.0)	
Self- medication can complicate illness			
True	236 (78.7)	158 (79.0)	
Not true	4 (1.3)	0 (0.0)	0.2
Unsure	60 (20.0)	42 (21.0)	

Strengths and Limitations

Major strength is that this study involved participants from community and outpatients in health facility hence it has pointed out the difference in prevalence of self-medication among community members who are healthier and patients. This study point out that patients are the ones with high prevalence of self-medication with both antimalarials and antibiotics since most of patients go to health facilities after condition is worse while they have already treated themselves with several medicines. However, several limitations of the present study have been pointed out. First; it was difficult for some participants to mention the names of the medications which they used for self-medication because of the difficult names of most of the medicines. Second; recalling of the medications used for the past one year was a challenge. Third; many participants seemed to be aware that self-medication practice is not encouraged, hence tend to withhold some information while they may be practicing it. This may have an impact on the prevalence of self-medication as observed in this study.

Conclusion

In conclusion, the frequency of self-medication was quite high despite the awareness of the consequences and therefore, educative and preventive health programs should be emphasized on the consequences of self-medication.

Acknowledgement

Authors' Contributions

EAM participated in data collection, wrote the manuscript, provided critical advice and performed data analysis. MEM wrote the manuscript, provided critical advice and performed data analysis. GM wrote the manuscript and provided critical advice. JGM provided critical advice. DCK designed the study and critically reviewed the manuscript. All authors critically reviewed the manuscript and approved the final version of the manuscript.

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