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Household Survey on Access to Medicines Used for the Treatment of Diarrhoea in Musoma Municipal Council, Tanzania

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Abstract

Background: Access to medicines is part of the human right to health. According to WHO, access to medicine is measured by how easily households obtain medicines for acute and chronic conditions including diarrhoea through household surveys. Diarrhoea is among the top ten leading causes of death. Anti-diarrhoea medicines save lives but, should be available and obtainable to do so. The objectives of this study were to determine anti-diarrhoea medicines used by households, their sources and factors affecting their accessibility in Musoma Municipal. **Methods:** A cross-section survey was conducted in Musoma Municipal Council, Mara, Tanzania. The lottery method of simple random sampling was used to select three wards and pick three streets from each ward. The study population was 255 household heads from households selected by systematic random sampling from each street. A structured questionnaire was used to obtain information from household heads. **Results and Discussion:** Males (51.8%) had more diarrhoea illnesses than females (48.2%). Distinctive household heads (52.6%) had primary education. The majority, (79.1%) of all diarrhoea patients were recommended/prescribed anti-diarrhoea medicines. Of those whom anti-diarrhoea medicines were prescribed/recommended, 63.5% adhered to the prescriber's/dispenser's instructions and obtained and used anti-diarrhoea medicines. The most frequent source of anti-diarrhoea medicines was ADDO (38%). Widely used anti-diarrhoea medicines were antimicrobials (77.5%) followed by ORS (17.5%). Reasons not to seek or obtain anti-diarrhoea medicines were; Patient started feeling better (56.3%), Alternative treatment (26%), Financial reasons (10%), Decided medicines weren't needed (3.5%), Distance from source (2.2%), Reactions to medicine (1%). Utilization of primary health care services was only 21.5%.

Under-fives were mostly prescribed with antimicrobials (62.5%) than ORS (31.2%) and Zinc (6.3%) in mild to moderate dehydration contrary to Standard treatment guidelines (STG) in Tanzania. **Conclusion:** Anti-diarrhoea medicines are moderately easily obtainable in Musoma Municipal (50% of all diarrhoea patients obtained medicines). Alternative treatment (26%) and financial reasons (10%) were vivid factors hindering access. Treatment of diarrhoea in under-five years old is not adhered to in Musoma Municipal (use of 62.5% of antimicrobials and only 31.2% of ORS in mild diarrhoea cases).

Keywords

Access to Medicine, Diarrhoea, Household

1. Introduction

1.1. Background Information

Household (HH) survey is part of the WHO (World Health Organization) activity to assess pharmaceutical conditions in countries using a standardized method. It can be done on the district, region or country level. Its importance is to know HH status on how they access their medicines, where they get them, and how much they pay, to determine obstacles to affordability and to survey the use of medicines in conditions of acute and chronic illness [1].

Access to medicines is part of the fundamental Right to Health as found in international law. "*The right to health first emerged as a social right in the WHO Constitution* (1946) *and the Universal Declaration of Human Rights* (1948)" [2].

Access to medicines denotes access to Essential Medicines which is defined by WHO: "*Essential Medicines are the medicines that satisfy the priority health care needs of the population*" [3]. Individuals should have access to them at all times in adequate amounts.

"*Access is defined as having medicines continuously available and affordable at public or private health facilities or drug outlets that are within one hour's walk from homes of the population*" [4]. Numerous factors affect access to medicines some of which are too expensive medicine prices, reduced availability, irrational use of medicines, defective medicine supply systems and poor observance of patients [4] [5].

Indicators to measure medicine access are best obtained at healthcare facilities and medicine outlets. We can acquire slight information from end users. "*While indicators measured at health care facility* (*HCF*)*/provider level are useful, the HH survey is an important tool to obtain accurate information on how people obtain and use medicines*" [6].

One-third of the global population, especially in regions of Asia and Africa are incapable of getting or buying essential medicines consistently. Failure to ensure the availability and affordability of essential medicine leads to deaths associated with untreated symptoms of the disease [7].

"*Diarrhoea disease is the second leading cause of death in children under five years old and is responsible for killing around* 525,000 *children every year*" [8], the major cause is contaminated water and food. Globally, 780 million people do not access clean drinking water and 2.5 billion people lack better sanitation. There are three clinical types of diarrhoea which are acute watery diarrhoea e.g. in cholera, acute bloody diarrhoea e.g. in dysentery and persistent diarrhoea [8]. Most diarrhoea conditions may be treated at home or resolved without treatment while some of them will worsen and cause death without medical attention. Therefore, it is useful to visit households to ask about diarrhoea illness and the treatment given [9].

1.2. Problem Statement

Untreated diarrhoea is the second leading cause of death of children in Africa and among the top ten most common causes of death in the general population [8]. Diarrhoea is one of the presented illnesses to water-borne diseases and is one of the leading causes of school and work absenteeism. "*Each year*, *children lose* 443 *million school days because of water-related illnesses*, *of which* 272 *million are lost due to diarrhoea alone*" [10]. Essential medicines can save lives and improve health but to do so, they should be available and obtainable [11]. However, in many countries, this is not the case. A large population of people is unable to access essential medicines for diarrhoea even when they are urgently needed. Therefore in developing countries, like Tanzania, problems with access to medicines remain a severe public health challenge [11] [12]. Tanzania, being a developing country may be faced with the challenge of access to essential medicines for diarrhoea and the extent of this challenge is not well documented including Musoma district. Only a few regions were surveyed in 2002; Mwanza, Kilimanjaro, Mbeya and Dar es Salaam. Hence this study was opted to test the availability of anti-diarrhoea medicines (Zinc tablets, ORS, Anti-motility Loperamide tablets/capsules and Antibiotics (Co-trimoxazole-Septrin, Ciprofloxacin and Tetracycline)) by conducting surveys in households to know their situations on how easily they obtain medicines, where they get them and several barriers to obtaining the medicines for the treatment of diarrhoea as one of the life-threatening acute illness, especially in children [8].

1.3. Rationale of Study

National programmes to control diarrhoea1 and other acute diseases need information on the population's knowledge about the diseases, care-seeking practices, and treatment practices to effectively plan, manage, and evaluate activities [9]. Some of this information can be obtained through reports from health facilities. However, circumstances seen in health facilities characterize a minor reality of what happens in the community. Many cases may be treated at home or get well without treatment. Some cases will get worse and die at home without coming to the attention of the health system. Therefore, it is useful to visit households to ask about illnesses, types of care pursued, and treatment that is

given [9]. Musoma district was selected as a target population because of its geographical location alongside Lake Victoria. A large portion of people in the Musoma district works nearby the lake shores for Farming and Fishing activities. Although Lake Victoria is nearby, many families do not have reliable and safe sources of water. Children are also seen working and playing alongside their parents who are fishing or farming. Also, in their refreshment of water, these children inevitably come across unsafe water. As a result, waterborne diseases are a constant threat to children's health and the population at large [13]. The study will add knowledge to the magnitude of the disease, challenges and factors affecting anti-diarrhoea medicine accessibility and may help solve the problem through the implementation of various elements of the National Drug Policy [14] as well as be useful in subsequent government implementations concerning health sector so as to ensure accessibility of anti-diarrhoea medicines in Musoma district and the whole of Tanzania.

1.4. Research Question

Are anti-diarrhoea medicines easily obtainable by household members in Musoma Municipal Council?

1.5. Objectives

1.5.1. Broad Objective

To assess the accessibility to essential medicines used for the treatment of diarrhoea in Musoma Municipal Council.

1.5.2. Specific Objectives

1) To identify the anti-diarrhoea medicines used by households in Musoma Municipal Council.

2) To determine the sources of anti-diarrhoea medicines used by households in Musoma Municipal Council.

3) To identify the factors affecting the accessibility of anti-diarrhoea medicines by household members in Musoma Municipal Council.

2. Literature Review

2.1. The World Medicines Situation

Medicine availability in public and private sectors is one of the key indicators of access to medicine. Studies of medicine availability, conducted using a standard methodology provided by WHO have shown that reduced medicine availability, particularly in the public sector, is an obstacle to access to medicines. The private sector's availability of medicines is higher than in the public sector. Due to the poor availability of medicines in the public sector, patients are forced to seek medicines in the private sector [15].

2.2. Key Indicators to Measure Access

Availability: The percentage of respondents who say that prescribed medicines

were not taken because medicines were not available at the healthcare facility. Others are an Average number of medicines at home. Percentage HH with no medicines at home. Percentage of respondents who agree that the location of their public healthcare facility is convenient [6].

Affordability: The percentage of respondents who say that prescribed medicines were not taken because HH cannot afford medicines. Percentage of respondents who can get free medicines at public HCF. Percentage of respondents who agree medicines are more expensive at private facilities. Percentage of respondents who can usually afford to buy medicines they need. Percentage of respondents who agree that better insurance coverage would increase their use of medicines. Percentage of respondents who have had to borrow money or sell things to pay for medicines [6].

2.3. Diarrhoea and Drug Options

National programmes controlling diarrhoea disease need information on care-seeking practices and treatment practices to effectively plan, manage, and evaluate activities [9]. Diarrhoea is normally caused by bacteria, viruses and parasites. Infection is transmitted by contact with unclean food or drinking water, or from person to person [8]. Diarrhoea can be managed by several options: Most options are for children under five as over 90% of deaths result from diarrhoea in under-fives. Low Osmolarity Oral Rehydration Salts (ORS) are used to prevent dehydration. Supplemental Zinc is used to reduce the duration, recurrence and severity of the condition. Use of antimicrobials and ant diarrhoea drugs: Antimicrobials are not to be used frequently because they need knowledge of the sensitivity of the causing organism. Helpful in children with bloody diarrhoea (dysentery). Anti-protozoal drugs are not frequently indicated. Anti-diarrhoea drugs and anti-emetics have no practical benefit for all age groups but more so for children with acute or persistent diarrhoea. Some have dangerous and fatal side-effect and should not be administered to children below 5 years. Breast-feeding should not be discontinued during the occurrence of diarrhoea to prevent malnutrition in children. The third edition of National Essential Medicines also lists medicines used in diarrhoea: ORS—A, Zinc Tablets—A, and Loperamide Tablets/capsules—B [16].

2.4. Previous Studies on HH Survey

Household Surveys have been undertaken in a few countries.

In Tanzania, a survey was done in 2002 to assess the pharmaceutical sector. This cross-sectional survey involved four regions, Mwanza, Kilimanjaro, Mbeya and, Dar es Salaam. From each region, a total of 5 public health facilities were randomly selected and around each of the health facilities 15 households and one private pharmacy/drug outlet were surveyed. The study population: Clients and workers of public health facilities and ADDO, private pharmacies and households around the health facilities through interviews and questionnaires.

In response to several problems encountered in the sector, the government of Tanzania through its Ministry of Health took several steps in an attempt to improve the situation example introduction of Community Health Funds, etc. Positive results from the survey included: Availability of key drugs in health facilities (about 90% of key drugs). Prescribing according to EDL (adherence of 98.5%).

A negative result amongst others was the observance of suggested guidelines for treating diarrhoea in children [17].

In the HH survey, the main reason for not getting all the drugs used to treat the top 10 diseases as recommended by the Ministry of Health, Tanzania for some patients include amongst others, affordability due to high prices for the drugs, especially in private facilities. The other reason is contributed by stock out duration. The results also revealed the utilization of healthcare services by 38%. Recommendations on availability where Health facilities should adhere strictly to properly scheduled procurement cycles to avoid stock-outs and on Affordability, strategies to alleviate poverty among Tanzanian communities should be established. Diseases surveyed at the HH level were cough, fever and diarrhoea (with the least frequency) [17].

Another HH survey on access to essential medicines was done in Kenya in 2009. The survey was conducted in 30 households around six reference public healthcare facilities. Data were collected using standardized survey forms. Some key indicators to measure access were: % respondents with an acute illness who cannot afford to buy all medicines they need, % of HH with no medicines at home, % of medicine at home obtained from a public health facility, %of prescriptions for an acute illness covered by health insurance. More respondents said that medicines were available at private pharmacies than in public healthcare facilities. Over half the respondents agreed that they cannot afford to buy all the medicines they need. Medicines at home: Gastrointestinal medicines were 79 (5.5%), Water/electrolyte/acid-base solutions were 3 (0.2%).

Nearly half of the medicines found in HH were obtained from Private health providers. 1/3 of poor HH and 1/10 of wealthy HH of medicines were obtained from a public health facility. Of the individuals who did not take medicines as prescribed, 8 in 10 could not afford them, especially in the poor HH. Medicine insurance coverage is low for poor HH. Medicine insurance coverage was to be expanded and the improvement in the availability of medicines was recommended. Diarrhoea was one of the perceived serious acute diseases taking up 11% of acute diseases [18].

Another study was done in Ghana. Around 36 reference public health facilities and 1065 households were interviewed employing a structured paper questionnaire. Most (84%) observe that geographic access is easy. The availability of medicines in public health care facilities affects access to medicines. Availability is believed to be superior in private pharmacies (63%) than in public health facilities (56%). The common source of medicines for acute illness is public health facilities (55% compared to 27% in private pharmacies). 46% of prescriptions for

acute illness were completely covered by health insurance. Indicators of affordability of medicines propose that price is an obstacle to accessing medicines. Indicators of access as those provided by the WHO manual [19].

The same study was done by WHO in the Philippines in 2009. This study was conducted using a standardized methodology developed by the WHO. Around 36 reference public health facilities and 1079 households were interviewed employing a structured paper questionnaire. Data entry was performed with EpiData software and analysis with Excel. 45% of respondents said the public HCF closest to their HH usually has the medicines they need. HH who get free medicines at the public HCF (59%). Medicines are costlier at private pharmacies than at public HCF (78%). HH that had to borrow money or sell things to pay for medicines was 68%. Example of medicines at home: Ant diarrhoea—73 (4%). 8% of medicines found in HH came from a public HCF and 78% came from private pharmacies or drug sellers [20].

2.5. The Gap Remaining in Tanzania

The HH survey on access to medicines is not conducted in a large proportion of Tanzania as only four regions out of around 30 regions have been surveyed. With support from data from the 2002 survey, diarrhoea treatment in children did not adhere to the treatment guidelines.

3. Methodology

3.1. Study Area

The survey was conducted at Musoma Urban District, Mara, Tanzania with a population of 134,327 (62,694 me and 71,633 women) according to the 2012 census, 63 km^2 area, 1140 - 1320 m above sea level. Musoma is a district in Tanzania. It is the capital of the Mara Region, one of the administrative Regions of Tanzania. Musoma urban is divided into thirteen administrative wards. The Latitude and Longitude of Musoma are −1˚30'S and 28˚48'60 E respectively [21].

3.2. Study Design

The study was a cross-sectional survey involving households.

3.3. Study Duration

The study period was from December 2017 to August 2018.

3.4. Study Population

The study population was household members in Musoma Urban District.

3.5. Selection Criteria

1) Inclusion Criteria

Heads of households who stays in the household for 12 months or more.

2) Exclusion Criteria

Head of household with a medical profession. This is to avoid manipulation of the results as he/she may give information according to his/her experience.

3.6. Sample Size

The sample size was obtained by using a formula by Kish Leslie for cross-sectional studies [22].

$$N = \frac{Z^2 p(1-p)}{d^2}$$

N—Sample size.

Z—Standard normal deviation at 95% confidence interval corresponding to 1.96.

p—Estimated population prevalence.

d—Level of precision or maximum error allowed which equals to 5% (0.05).

Prevalence from the previous survey was 79% (percentage of household members who had access to medicine) [17].

Therefore;

$$N = \frac{(1.96)^2 \times 0.79(1-0.79)}{(0.05)^2}$$

$N = 255$

The sample size was 255 households.

3.7. Sampling Procedure

Random sampling was used. Musoma urban has thirteen administrative wards which were grouped into three clusters of high, moderate to low population density that is Bweri (25,943), Makoko (9,888) and Mwigobero (2179) respectively. From the three groups, one ward will be picked using the lottery method of sampling from each group. The wards and streets are shown in (**Table 1**).

From each ward, a list of villages/streets was generated as a sampling frame. From this list, three villages/streets were picked using the lottery method of sampling.

The sampling frame of households was generated with the help of the Village Executive Officer. The average number of households was 360. Twenty-nine households were selected using a systematic random sampling method from each village/street.

Table 1. Wards and streets.

	WARDS		
	BWERI	**MAKOKO**	**MWIGOBERO**
STREETS	Bweri	Ziwani	Mwigobero B
	Morembe	Nyamirongo B	Mwigobero A
	Songe	Nyarigamba	Mwigobero C

3.8. Data Collection

Data for this survey was collected through a structured questionnaire with closed-ended and partially open-ended questions. Those who were able to read and write filled out the questionnaire but those who were unable to read and/or write were assisted by the researcher to fill the questionnaire. Incomplete and inconsistent filled questionnaires were omitted from the analysis.

3.9. Data Analysis Procedure and Statistical Analysis

Surveyed data entry and analysis were done by SPSS (Statistical Package for the Social Sciences) software, Version 20. Data was presented in tables, graphs and crosstabs in terms of mean, proportions and percentages. Chi-square tests were done to check the association of dependent variables such as medicine choice along with independent variables such as age, sex and education level. A p-value of less than 0.05 showed statistical significance.

3.10. Ethical Considerations

Ethical clearance was sought from CUHAS/BMC Institutional Review Board. Consent was sought from Village Executive Officers before the collection of data from households. Consent was also sought from household respondents before participation by signing a special consent form. Household members or heads were identified by numbers. No names were disclosed.

3.11. Dissemination of Results

Results were distributed to the office of the District Medical officer of Musoma district and the Ministry of Health. The results will also be submitted to the Catholic University of Health and Allied Sciences Library and accessed by Students, Pharmacists and other Researchers with similar interests in the accessibility of essential Medicines.

4. Results

4.1. Socio-Demographics

The profile of respondents, size and composition of sampled households are presented in (Table 2). A total of 255 households were surveyed covering a population of 1073 individuals. 255 respondents (household heads) were asked to disclose information on a recent case of diarrhoea. Complete information was obtained from 253 respondents because two questionnaires were incompletely filled and hence omitted from the analysis.

Out of these 253 diarrhoea cases, the majority of cases, 51.8% (131) were men and 48.2% (122) were women. Thirty-five per cent (35.6%) (90) of the patients had their ages ranging from 20 - 35 years, 16.6% (42) of the patients were aged between 6 to 11 years, 17.8% (45) were aged 12 - 19 years, 7.5% (19) were aged 36 - 49 years, 3.6% (9) were 50 years of age and above and the rest 19% (48) were children under 5 years. Ninety-four percent (94.1%) of household heads went to

Table 2. Socio-demographic characteristics.

CHARACTERISTIC	DESCRIPTION	FREQUENCIES	PERCENTAGE
Number of households	253		
Mean household size	4		
Age of patient (years)	Below 5	48	19.0%
	6 - 11	42	16.6%
	12 - 19	45	17.8%
	20 - 35	90	35.6%
	36 - 49	19	7.5%
	50 and above	9	3.6%
Gender of patient	Male	131	51.8%
	Female	122	48.2%
Education attainment of household head	None	15	5.9%
	Primary	133	52.6%
	Secondary	49	19.4%
	Vocational/ University/	55	21.8%
	Postgraduate	1	0.4%

school, 52.6% (133) had primary education, 19.4% (49) had secondary education and 22.2% (56) had vocational, university or postgraduate education. The mean household size was 4, with a range of 1 to 11 household members.

The seriousness of diarrhoea disease among household members is summarized in (Figure 1). The severity of diarrhoea disease by age group is summarized in (Table 3).

4.2. Sources of Anti-Diarrhoea Medicines Used by Household Members

More than three-quarters of the population surveyed, 75.9% (192) sought health care outside the home. Twenty-four percent (24.1%) (61) Of the population did not seek health care outside the home either because medicines were available at home or lack of access to health care. In the majority, 79.1% (200) of all diarrhoea cases anti-diarrhoea medicines were prescribed/recommended. For those cases where anti-diarrhoea medicines were prescribed/recommended, 63.5% (127) adhered to the prescriber's/dispenser's instructions, obtained and used anti-diarrhoea medicines while 36.5% (73) did not take any drugs. (Table 4) summarizes the frequencies of the sources of anti-diarrhoea medicines.

4.3. Anti-Diarrhoea Medicines Used by Household Members

Table 5 shows medicines that were used during diarrhoea disease, listed by frequency of occurrence and by generic names. Among the 4% (8) of medicines

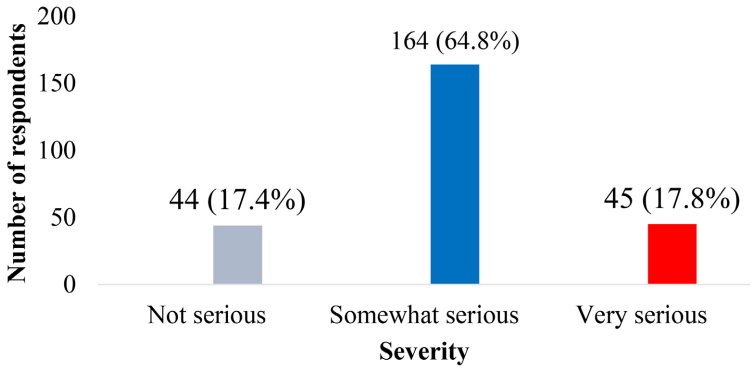

Figure 1. Seriousness of diarrhoea disease.

Table 3. Seriousness of diarrhoea disease by age.

Category of age	Seriousness of diarrhoea			Total
	Not serious	Somewhat serious	Very serious	
below 5	4	34	10	48
6 - 11	7	29	6	42
12 - 19	8	33	4	45
20 - 35	16	55	19	90
36 - 49	7	8	4	19
50 and above	2	5	2	9
Total	44	164	45	253

Table 4. Sources of anti-diarrhoea medicines.

SOURCE	FREQUENCY	PERCENTAGE
Available at home	8	4%
Friend or neighbour	24	12%
Public hospital	20	10%
Mission/NGO hospital	6	3%
Public health centre	16	8%
Dispensary	1	0.5%
Traditional healer	20	10%
Pharmacy	29	14.5%
ADDO	76	38%
TOTAL	200	100%

that were available at home, 50% (4) used Doxycycline, 25% (2) used Metronidazole and 25% (2) used ORS. The majority of medicines used, 77.5% (155) were antimicrobials, followed by 17.5% (35) ORS, 3% (6) Zinc, and 2% (4) anti-motility Loperamide.

Table 5. Medicines used during the time of diarrhoea illness.

MEDICINE	FREQUENCY	PERCENTAGE
ORS	35	17.5%
Zinc	6	3%
Loperamide	4	2%
Ciprofloxacin	10	5%
Doxycycline	42	21%
Tetracycline	3	1.5%
Sulphamethoxazole + trimethoprim	25	12.5%
Chloramphenicol	1	0.5%
Metronidazole	73	36.5%
Tinidazole	1	0.5%
TOTAL	200	100%

4.4. Factors Affecting the Accessibility of Anti-Diarrhoea Medicines by Household Members

The main reasons for not getting all or some of the drugs for some patients include amongst others, patients starting to feel better, someone deciding medicine was not needed, the sick person having bad reactions to medicines in the past, someone in the household choosing a different treatment, the place where medicines could be obtained was too far away, the price was too high, did not have enough money, already had some of the medicines at home. The reasons not to seek health care from reliable sources by percent are presented in (Figure 2). Health insurance coverage among household members was low and is presented in (Table 6).

Pearson Correlations were analyzed by SPSS and there was an association between the educational level of the household heads and the source of medicine. This information is presented in (Table 7).

5. Discussion

From the household survey, it was found that more males (51.8%) were sick compared to females (48.2%) in contrast to a survey that was done in Tanzania(Mwanza, Mbeya, Dar es Salaam and Kilimanjaro) where more females (57%) were sick than males (43%) [17].

Males aged 25 - 36 presented with the highest burden of diarrhoea which is different from a study in Kenya where under-fives presented the group at risk [18].

The most affected age group was 20 - 35 years by frequency and severity.

5.1. Anti-Diarrhoea Medicines Used by Household Members

The majority of medicines (77.5%) used were antimicrobials which is higher compared to a household survey in Tanzania (42%) comprising the four regions

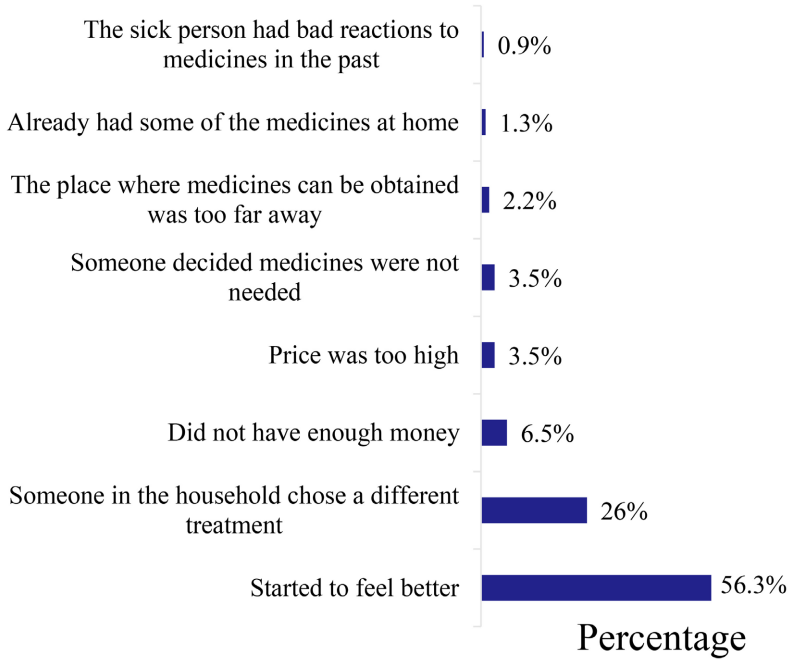

Figure 2. Reasons not to seek health care from reliable sources.

Table 6. Health insurance coverage.

INSURANCE	FREQUENCY	PERCENTAGE
No	183	91.5%
Partly	7	3.5%
Yes, entirely	10	5%
TOTAL	200	100%

Table 7. Association between the educational level of household head and source of medicine—Pearson correlations.

		Education attainment of household head	Where was medicine obtained
Education attainment of household head	Pearson Correlation	1	−0.154*
	Sig. (2-tailed)		0.027
	N	253	207
Where was medicine obtained	Pearson Correlation	−0.154*	1
	Sig. (2-tailed)	0.027	
	N	207	207

*Correlation is significant at the 0.05 level.

[17]. Antimicrobials were used even though the symptoms, and signs were mild without evidence of bacterial involvement. Under-fives were mostly prescribed with antimicrobials (62.5%) than ORS (31.2%) and Zinc (6.3%) in mild to moderate dehydration. Standard treatment guidelines of Tanzania recommend the

use of more ORS and not antimicrobials in mild to moderate conditions in under-fives [16]. Therefore, this trend is not adhering to Standard Treatment Guidelines in Tanzania similar to the previous survey in 4 regions (Tanzania) [17].

5.2. Sources of Anti-Diarrhoea Medicines Used by Household Members

The most common source of medicines was from private retail pharmacies and private ADDO shops (52.5%) almost similar to a study in Kenya (47%) followed by government facilities (18%) [18]. This trend is also similar to a study in the Philippines where the major sources (78%) were private pharmacies or drug sellers [20].

The chi-square test and the Pearson correlation showed an association between the educational attainment of the household head and the source where households obtain medicines.

The decision rule for assessing if the test is significant is the alpha value (p-value) = 0.05. If $p < 0.05$ the test is significant i.e., there is a significant relationship between the educational attainment of the household head and the medicine source

The results are, $r(40) = -0.154$, $p = 0.027$. Therefore, there is a significant negative relationship between the level of education of the household head and the medicine source. This can be seen in the preference for ADDO shops by household heads with primary education.

5.3. Factors Affecting the Accessibility of Anti-Diarrhoea Medicines by Household Members

The survey reveals the utilization of primary health care services by 21.5% as compared to a study in Tanzania concerning the four regions surveyed (2002) where the utilization of health care services was 38% [17]. There is a decrease observed above regardless of substantial investment in the primary healthcare provision by the government and partners.

The remaining percent (78.5%) who had no access to primary health care or reliable sources of medicines had some of the factors contributing to this tendency including economical reasons (affordability) (10%), self-medication at home (1.3%) or neighbors, seeking such services from traditional healers and for socio–cultural reasons which includes 3.5% of diarrhoea patients who did not need to take medication.

Among diarrhoea patients who sought anti-diarrhoea medicines, 63.5% obtained them which is equal to 50% of all diarrhoea patients.

Ten (10%) of respondents agreed they cannot afford to buy medicines similar to a study in Tanzania [17] and lower to a study in Kenya (80%), 2009.

Only 8.5% of prescriptions were covered by insurance compared to 46% in a study done in Ghana [19]. This shows inadequate insurance coverage.

The majority of the respondent (30.9%) paid between 1000 - 3000 T.sh. for medicines.

5.4. Study Limitations

The HH survey has been designed to provide a picture of the national pharmaceutical situation in a country but not all geographical regions are represented. Unavailability of house leaders at the time of visits. A household may withhold some of the information or may not be ready to disclose some of the information. Nearby households may give stereotype information copying from each other.

6. Conclusions

Anti-diarrhoea medicines are moderately easily obtainable in the Musoma Municipal Council (50% of all diarrhoea patients obtained anti-diarrhoea medicines).

The reasons contributing to not seeking health care from reliable sources which lead to lack of access include alternative treatment (26%), financial reasons (10%), distance, and sociocultural factors like traditional medicines.

The most frequent source of medicines used for diarrhoea is ADDO shops (38%).

Treatment of diarrhoea in under-five years old is not adhered to in Musoma Municipal (more use of antimicrobials (62.5%) than ORS (31.2%) in mild to moderate dehydration).

There is an unnecessary use (misuse) of antimicrobials in the management of diarrhoea in the Musoma municipal council (77.5%).

Recommendations

Mara Regional Health Authority should encourage healthcare staff and practitioners to strictly adhere to the treatment guidelines.

Municipal Council Health authority to promote and increase knowledge to household members in Musoma Municipal about the importance of primary health care utilization.

The District Health authority should promote and expand social and community health insurance enrolment coverage.

The Ministry of Health should conduct further studies in other areas of Tanzania to establish more details facing the Tanzania pharmaceutical sector regarding access to medicine for diarrhoea and other serious acute illnesses.

Researchers should conduct further studies to assess the management of diarrhoea.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Abbreviations

ADDO—Accredited Drug Dispensing Outlets
HCF—Health care facility
HH—Household
ORS—Oral Rehydration Salts
STG—Standard Treatment Guidelines
WHO—World Health Organization

Operational Definitions

Access to Medicine—Having medicines continuously available and affordable at public or private health facilities or drug outlets that are within one hour's walk from the homes of the population.

Diarrhoea—Defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual). Frequent passing of formed stools is not diarrhoea, nor is the passing of loose, "pasty" stools by breastfed babies. WHO definition.

Essential Medicines—These are those medicines that satisfy the priority health care needs of the population. They are selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness.

Health Care Facility—Hospitals, primary health-care centres, isolation camps, burn patient units, feeding centres and others.

Household—Those who dwell under the same roof and compose a family; a social unit composed of those living together in the same dwelling.