

Full Length Research Paper

Self-Medication Practices by Caretakers for Children Underfive Years in a Rural District of Eastern Uganda

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Abstract

In Uganda and Africa, self-care practices in children under-five has not been well studied despite various reports of irregular drug use among most communities in developing countries. This study aimed at determining the prevalence of self-medication, described common drug use practices and the reported treatment outcomes for children less than five years in Tororo district of Uganda. We undertook a community survey involving parents/guardians of children less than five years from selected households in Tororo district using structured questionnaires and focused group discussions. Prevalence of self-medication was 30.1%. This significantly increased among children aged three to five (OR 1.66, 0.57-1.99, p-value 0.02) and a high socioeconomic status of parents (OR 1.71, 0.37-1.97, p-value 0.01). Self-medication was practiced mainly for cough 60% and fever 51.6%. Analgesics 73%, antibiotics 48% and anti-malarial drugs 43% were the main medicines used. Majority (54%) of caretakers acquired drugs from local drug shops. Dosage estimation was mainly by reference to old prescription notes (52%). A poor treatment outcome following self-medication was reported by in 57 % of children. Parents who self-medicated inappropriately used drugs with majority reporting poor treatment outcomes in their children. Strengthening advocacy for health education on appropriate child health practices is needed in rural communities.

Key words: Children, Self-medication, Practices.

INTRODUCTION

Drug utilization in children is a major public health concern globally with children under five years more vulnerable to irrational drug use and its short and long term health consequences (Le thi et al., 2009). Majority of caretakers/parents of children in both developed and developing countries prefer to treat their children with common symptoms of fever, cough or diarrhea without consulting a licensed prescriber or physician. They usually utilize multiple treatment options including self-medication.

Self-medication is a practice of self-care involving obtaining and consuming one or more drugs without the aid of a physician for diagnosis, prescription or surveillance of treatment (Olayemi, 2006). Hence for self-medication to have any beneficial role in early treatment of common childhood illnesses, the caretakers should have the relevant knowledge and ability to correctly identify the symptoms, use the appropriate drugs and timely consult a physician in case of any adverse outcome of treatment (Davidson, 2008)

Drug use in developed and developing countries however contrasts in standards of practice with countries in Europe and America. With the later having a well regulated and enforced policies on drug use. Self-medication in developed countries mainly involves non-

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prescription over the counter drugs (Knopt et al., 2004). Most developing countries have a high burden of irrational drug use and poorly enforced drug utilization policies with individual access to both prescription and non-prescription medications widely unregulated.

Uganda like most sub-Saharan countries has a high burden of infectious diseases especially in children under five. If merged with high illiteracy rates, poor socio-economic attributes and exposure of children to drugs without the aid of a skilled health worker may result into drug toxicities and antimicrobial resistance. Promoting primary health care by encouraging responsible self-treatment practices should therefore be guided by an accurate description of the burden and knowledge of common patterns of household drug use in children.

Few studies in Uganda and sub-Saharan Africa have explored the burden and common practices of self-medication in children under five despite widely reported literature on irrational drug use in sub-Saharan Africa communities. This study therefore aimed to determine the self-medication practices undertaken by caretakers for children under five in a rural setting with a purpose of providing local data to aid in promoting safe medicine use in children at community level.

METHODOLOGY

Study Design

This was a community survey with quantitative and qualitative approach coupled with an analytical component.

Study Setting

The study was conducted in Tororo district, situated in the eastern region of Uganda. The district comprises four counties with an estimated population of 555,574 people in 80,334 households and an average of 4.5 individuals per household.

Target Population

This consisted of parents/guardians with children less than five years of age who had received medication not more than two weeks prior to the study date.

Caretaker defines any person to include parent or guardian entrusted with the care of the child and was present on the day of interview.

Inclusion Criteria

Children under five years of age who had received

medicine(s) from the parent not more than two weeks prior to the study date.

Exclusion Criteria

Parents/guardians who were unable to effectively comprehend and express information regarding the child under their care due to various reasons like mental disability, very elderly and young among others.

Sample Size Estimation

A total of 454 parents/guardians were interviewed. The sample size was estimated using the Kish Leslie formula with a conservative design effect of 1.5 and a prevalence of self-medication of (73.1%) reported from Sudan. (Abdelmoneim, 2005).

Study Procedure

All the four counties in the study district were considered. Using multi-stage random cluster sampling technique, four villages were selected from each of the counties hence a total of 16 villages from the district were considered. The number of caretakers interviewed from each village was computed by dividing the total number of caretakers by the number of villages/clusters. Hence an equal number of 28 respondents per village were interviewed. At the selected villages, systematic sampling was used with the households to be surveyed, consecutively recruited following a direction decided by rotating a bottle from a landmark site. It was followed by way of a random walk in the resting direction of the spanned bottle until the desired number of households in the selected cluster/village was attained.

A set of one parent-child pair was selected from each household which met the study criteria. In the occurrence that a given household had no children below age of five years, the next household in the same direction was considered. If a household had more than one child less than five years of age meeting the selection criteria, the children were assigned random numbers and a random pick from a common pool used to choose one of the children. A household was defined as a group of people who live and cook together in the scope of our study.

Members of the study focus group discussions (FGDs) and key informant interviews (KIs) were purposively selected. They included local cultural leaders, local religious heads and some community health personnel. Two FGDs comprising eight participants were held at an agreed venue by all members who were selected. Eight key informants were interviewed from a venue which was convenient and agreed upon by the selected participants.

Permission to conduct the study was obtained from department of pediatrics, and ethical approval from School of Biomedical Sciences Research and Ethics Committee, Makerere University. Permission to conduct the study from the district and sub county authorities was sought and written informed consent from the parents/guardian of the children was obtained before conducting the interview.

Data analysis was by SPSS software.

RESULTS

For the choice of treatment, 137/454 (30.1%) caretakers reported administering drugs to their children by self-medication and 317/454(69.8%) consulted a health worker. There was no association between number of children in a household and self-medication (OR 0.56, 0.11-1.17 p-value 0.33). Children who lived in households greater than five kilometers from the health center had the highest prevalence 93/242 (38%). Self-medication significantly increased in children aged three to five (OR 1.66, 0.57-1.99, p-value 0.02) and among parents with high education status (OR 1.28, 0.61-1.89, p-value 0.04). Socioeconomic status of parents was independently associated with self-medication practice (OR 1.71, 0.37-1.97, p-value 0.01). See table1 and 2.

Symptoms reported

The majority of parents reported respiratory symptoms 118/137(86%) with cough 78/137(56.9%) being the most frequent symptom. Other symptoms commonly reported included fever 71/137(51.8%), abdominal symptoms including vomiting 26/137(19%), abdominal pain 15/137(10.9%), and diarrhea 14/137(10.2%). Notably, a few caretakers self-medicated their children for more severe symptoms like wheezing 5/137(3.6%), difficulty in breathing 5/137(3.6%) and 2 (1.5%) for convulsions and altered level of consciousness.

Common drugs used for symptoms reported.

For children with cough, treatment was mainly by use of analgesic/antipyretic (paracetamol) 53/78 (68%) followed by antibiotic co-trimoxazole, 34/78(43.6%). There was also a relatively high use of the antimalarial, co-artemether for cough in 20/78(25.6%) of children. Drugs used for treating diarrhea were mainly analgesic paracetamol 9/14(64.3%), anti-malarial co-artemether 3/14(21.4%) and quinine 3/14(21.4%). Twenty one per cent 3/14(21 %) of respondents indicated use of ORS for diarrhea. Fever which was the second most common symptom reported, was mainly treated with paracetamol in 47/71(66.2%), antibiotic co-trimoxazole in 20/71 (28.6%) and co-artemether in 14/71 (19.7%) of the

children reported.

Caretakers reporting vomiting in their children mainly used paracetamol 20/26(76.9%), co-trimoxazole 13/26(50%), and co-artemether 8/26(30.8%) to treat their children. See table 3.

Sources of drugs and information guiding drug choice

Approximately, one third of caretakers 39/137(28.5%) received information guiding their drug choice from previous visits to health centers, while another person in the community provided guidance to 33/137(24%) of caretakers. Radio /TV adverts and drug peddlers provided 27/137(19.7%) and 25/137(18.2%) respectively of guidance on drug choice to the parents respectively. The majority administered drugs purchased from local drug shops 74/137(54%).However 24/137 (17.5%) used left over drugs from previous prescriptions and 16/137(11.7%) acquired medicines from local clinics. Only 7/137(5%) of caretakers obtained drugs from a pharmacy.

Dosage estimation and Duration of drug use

Majority of care takers 72/137(52.6%) reported use of previous prescription notes as a source of reference for drug dosage. This was followed by those who took dosage advice from the drug peddlers or sellers in drug shops 41/137(29.9%). For duration of treatment, 46/137(33.6%) of caretakers reported use of medicines until their child's symptoms subsided or remitted. Another 45/137(33%) used drugs for more than two days before stopping or taking their children to hospital while 14/137(10.2%) reported self-medication for only one day.

Treatment Outcome following self-medication

Following self-medication of the children, 60/137(43.8%) of caretakers reported symptom relief, the rest 77/137 (56.2%) reporting poor outcome of which 33/137(24.1 %) reported no change of symptoms, and 23/137(16.8%) reported hospitalization of the children. See table 4.

DISCUSSION

Our study was conducted to determine the self-medication practices undertaken by caretakers for children less than five years. The main aims were, to determine the prevalence, establish the common self-medication practices and to determine the reported outcome of treatment.

We found the prevalence of self-medication was

Table 1. Bivariate analysis of factors associated with self-medication

Demographic factors	Self-medication			OR	95 CI	P-value
	Yes: n/N(%)	n	No: n/N(%)			
Relationship to the child						
Mother	120(31)	272(69)	392			
other	17(22)	62(78)	79	0.62	0.08,0.89	0.33
Socio economic status						
High	26(87)	04(13)	30	1.22	0.77,1.76	0.02*
Low	122(29)	302(71)	424			
No. of children						
1-2	44(27)	119(73)	163	0.56	0.11,1.17	0.33
>3	93(32)	198(68)	291			
Distance to health Centre						
<5km	44(21)	168(79)	212	0.42	0.09,0.89	0.51
>5km	93(38)	149(62)	242			
Age of child(Years)						
≤2	31(19)	131(81)	162	1.66	0.57,1.99	0.02*
3-5	104(36)	178(64)	292			
Education status						
High	80(34.3)	154(65.8)	234	1.28	0.61,1.89	0.04*
Low	57(26)	164 (74)	220			

Table 2. Multivariable analysis of factors associated with self-medication

Self-medication	OR	95% CI	P. value
Age of child	0.64	0.12,0.93	0.16
Social economic status	1.71	0.37,1.97	0.01*
Education status	0.87	0.11,0.96	0.11

Table 3. Drug use for symptoms reported

SYMPTOMS (N=154)	ANTIBIOTICS (%)		ANALGESICS (%)		ANTIMALARIALS (%)			ORS (%)
	Amoxicillincotrimoxazole		Paracetamol	Ibuprofen	Chloroquine	Co-artem	Quinine	
Cough (78)	10(12.8)	34(43.6)	53(67.9)	1(1.3)	6(7.7)	20(25)	9(11.0)	6 (7.0)
Fever (71)	1(1.4)	20(28.6)	47(66.2)	1(1.4)	2(2.8)	14(19.0)	5(7.4)	5(7.0)
Vomiting (26)	13(50)	13(50)	20(76.9)	2(7.7)	1(3.8)	8(30.0)	4(15.0)	-
Diarrhoea(14)	-	3(21.4)	9(64.3)	1(7.1)	-	3(21.0)	3(21.0)	3 (21.0)

Table 4. Reported treatment outcome following self-medication of children

Reported Treatment outcome	Frequency	Percent
Symptom relief	60	43.8
No change on symptoms	33	24.1
Child was hospitalized	23	16.8
New symptoms occurred	11	8.0
Symptoms worsened	10	7.3
TOTAL	137	100

30.1%. This was consistent with the global variation of prevalence of self-medication which has been reported by various studies to range between 30-70%. However, our prevalence was lower than that reported by some African countries like Nigeria 44% (Oshikoya, 2007) and

Sudan 73% (abdelmoneim, 2005). This variation in the prevalence could have arisen from the difference in the study populations and the socio-economic and cultural attributes between the communities. The Nigerian study included school children who were relatively older and

could have had more access to medicines than the children in our study while the study population in Sudan included adults who practice self-medication independently. There was an active village health team structure in most areas of our study setting. The VHTs are locally elected individuals who are trained by the Ministry of Health to provide basic health services to their communities and whose activities have been stated in the VHT policy of Uganda. Their presence and activities may have had a tremendous role in the findings of a low prevalence of self-medication in our study since they are much closer to the communities than health centers and their services include provision of basic drugs and advice on referral to hospital for sick children. Our study found self-medication use to increase with age of the child with children aged three to five years having higher likelihood to be self-medicated compared to those below 2 years of age. This finding reflects a general trend in majority of studies reporting higher prevalence of self-medication use in older children like in Germany 38% (Knopt, 2004) and 54% in USA (Kogan,1998).As mentioned above it may be because caretakers are more cautious about administering drugs to very young children with various fears or reservations. No studies in Uganda have reported on factors associated with self-medication in children, hence a local comparison in our setting would not be possible. The finding of self-medication to be significantly associated with socioeconomic and education status in our study correlates with similar reports of high prevalence of self-medication reported in studies carried out in most urban and more literate populations in Africa and Asia.

This trend could be because people of higher socioeconomic status have the resources to access the information on drug use and to purchase the drugs. This therefore requires broader comparative studies of the self-medication patterns between people of high and low socioeconomic status as their drug use patterns may be different from that of people of mainly low socioeconomic status seen in our study.

The common symptoms for which self-medication was used in children were cough 56.9%, fever 51.8% and abdominal symptoms including vomiting and diarrhea. It is not surprising that these symptoms were the ones for which caretakers provided self-medication, since they are the main symptoms of common childhood illness reported globally by the WHO (Ban Ki, 2007).

We observed a higher prevalence of common symptoms than that reported in Nigeria where cough (36%), catarrh (30%), fever (24%) were the main symptoms. The difference in symptom patterns and burden may be explained by the difference in study population and setting. The population in the Nigerian study included school going children, whose burden of diseases differ greatly from those less than five years enrolled in our community study.

The findings of a considerable number of caretakers self-medicating their children for symptoms of severe

childhood illnesses like wheezing, altered consciousness and convulsions which were not reported in most other studies in both developed and urban Africa, shows the lack of awareness and poor health seeking knowledge that needs to be addressed in our setting.

Drug use patterns

The highest drug use for all symptoms was with paracetamol 69.3%, co-trimoxazole 28.5% and artemether/lumefantrin (coartem) 27%. This pattern of drug use is similar to that reported in Nigeria where 69% of drugs used for self-medication were with analgesics. We found a relatively high use of antibiotics and anti-malarial drugs which are prescription drugs. The high use of antibiotics in reported, may have been an indicator of a widely reported pattern of irrational drug use and weakness in drug regulation among African communities.

Further observation in our study was the inappropriate drug choice for specific symptom as seen by the high frequency of anti-malarial use for complaints of cough 43.6%. In addition, the highest use of oral rehydration salt (ORS) was for cough and least for symptoms of vomiting and diarrhea, where it is recommended. It is clear from our findings that most caretakers were not knowledgeable on appropriate drug choice for symptoms reported in their children. With government promotion of early symptom recognition and treatment at home like the home based management of fever (HBM) and diarrhea program, education of caretakers in communities on appropriate symptom recognition and eventual management will need to be strengthened.

The majority of parents in our study received information on drug choice and dosage mainly from health centers 28.5% and from another person in the community 24%.This pattern compares well with results from Ethiopia where 40% used previous advice from health worker and 23% from other people like friends and relatives (33). Some however used public media like radio/TV adverts and drug sellers as sources of information for drug choice and use. Considering that some of the ministry of health information is delivered through public media like radio and television, the low usage of these as a source of health information may have to be further explored so as to improve on health information delivery to people in rural areas.

A considerable proportion (17.5%) of caretakers in our study obtained drugs from leftovers of previous prescription which was much higher than reports from the Ethiopian study. This practice demonstrates inappropriate medicine use with possibilities of partial treatment, over storage and drug sharing which could promote microbial resistance, delayed treatment of illnesses and use of expired drugs with eventual toxicity to children. This finding needs to be addressed by the

MOH and all stake holders of community health.

The patterns of dosage estimation also showed that the majority 52%, used old prescription notes to derive current treatment for their children and only 29% received dosage advice from the drug seller. The use of old prescription notes to derive treatment of current symptoms is an inappropriate practice that could lead to wrong symptom identification and hence incorrect treatment and drug dosage administered to children.

The duration of treatment was similar to that observed in other developing countries with majority parents administering drugs until symptoms subsided. However, a minority of caretakers 8% reported using drugs until symptoms worsened, a pattern not reported elsewhere. This may have been a result of a poor health seeking behavior coupled with both irrational and inappropriate treatment choices.

Most parents reported the main reason for self-medication of their children was to initiate early treatment, while others considered the symptoms to be minor. In contrast to Ethiopia, a study showed the main reasons for self-medication given by majority of caretakers were, many considered child's symptoms to be minor 36%, prior experience with similar symptoms 18.2% and to save health costs 12.6% (Tadege, 2010). The disparity in reasons for practicing self-medication with the Ethiopian study may be a result of the higher age groups including adults and the relatively higher socio-economic status and education level in their population. This pattern however shows a universal desire by all caretakers to make an early life saving intervention in their child's illnesses with a timely and affordable approach. But this good intention needs to be guided by appropriate knowledge to provide the intended benefit.

Outcome of treatment

The caretakers in our study reported a good outcome in only 43.5% of the children with symptom relief. The other treatment outcomes considered poor or undesirable were, no change in symptoms 24.1%, hospitalization 16.8% and worsening of symptoms in 8.0%. These findings are comparable to Ethiopia where 33% reported symptom improvement (Tadege, 2010). Few studies in Africa and globally describe the outcomes of self-medication in children under five years. The reported poor treatment outcome in children from our study could have been due to the caretaker inappropriate symptom-drug choice, use of old prescription notes for current symptoms and poor symptom recognition discussed above.

This was further emphasized by the results of the focused group discussions where most members admitted poor treatment outcome with many of the children eventually being taken to health centers for further care. One member reported, *"most times the*

condition of children worsened with eventual attendance of hospital especially for fever and diarrhea symptoms".

The reports of the FGDs indicated that the outcome was worse for symptoms of fever and diarrhea with most children being admitted in hospital even after initial treatment by self-medication. This outcome could have arisen from a general lack of knowledge on symptom recognition and appropriate early management in some communities of Uganda. In order to improve on the treatment outcome by self-medication like that observed in our study, appropriate early treatment of common childhood illnesses at home will need involvement and health education of the communities so as to achieve better health for children by all stakeholders.

Study limitations

Our study mainly relied on the recall of the caretakers who could have introduced a recall bias in the interviews. This was minimized by the use of drug pictorial charts and the physical inspection of any drugs/containers that were available at the time of study.

We had a survivor bias since we only interviewed caretakers of children that lived and being a cross sectional study we could not explore causality to self-medication. We also did not assess for multiple symptoms which would have helped further to ascertain the relevance and appropriateness of the administered treatment.

CONCLUSION

One third of caretakers of children under five years practiced self-medication for symptomatic children with a significantly higher drug use in older children and in households with higher socio economic status.

Majority of caretakers used old prescription notes as a source of reference for drug choice and dosage in children, which we considered an inappropriate practice. A considerable number of caretakers reported poor outcome of treatment following self-medication drug use for their children.

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Declarations

The investigators were independent from the funders. All authors had full access to the data and can take responsibility for the integrity of the data and the accuracy of the data analysis; the lead author affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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