

Full Length Research Paper

Management of childhood diarrhea by patent medicine vendors in Enugu north local government area, South-east Nigeria

Emmanuel Nwabueze Aguwa*, Patricia Nonye Aniebue and Ikechukwu Emmanuel Obi

Department of Community Medicine, University of Nigeria, Enugu Campus, Enugu, Enugu State, Nigeria.

Accepted 15 February, 2010

The study was a descriptive cross-sectional study carried out in Enugu North LGA, Enugu State, Nigeria in November, 2008. Ninety patent medicine vendors were studied using semi-structured interviewer administered questionnaires. Information on knowledge and management of diarrhea in under-fives was obtained. The patent medicine vendors had good knowledge (64.0%) of the types, causes, signs and effects of diarrhea but their knowledge on steps to prevent or improve diarrhea outcome was poor (33.3%). Their knowledge of therapeutic use of oral rehydration solution (ORS) and salt sugar solution (SSS) was also poor (46.9%). Though sixty-two (68.9%) respondents identified ORS as their first line treatment of diarrhea in children, nineteen (21.1%) of them do not stock ORS. Metronidazole is the drug most commonly used in management of childhood diarrhea. The knowledge of patent medicine vendors on the prevention of diarrhea in children is poor. There should be routine health education campaign on appropriate management of mild childhood diarrheal diseases.

Key words: Patent medicine vendors, Enugu north, diarrhea, children.

INTRODUCTION

Diarrheal diseases are some of the major killers of children in the developing countries. Each year there are approximately 4 billion cases of diarrhea worldwide leading to 4 million deaths especially among children aged 5 years or less (Azubuike and Nkagineme, 2007). In this age group, 38% of all deaths are associated with diarrheal diseases (WHO, 1990). In Southeast Asia and Africa, diarrhea is responsible for as much as 8.5 and 7.7% of all deaths respectively (WHO, 1990). Studies in Nigeria show diarrhea as the most common cause of death among hospitalized children under five years of age (Azubuike and Nkagineme, 2007). Early identification and appropriate management of cases by replacement of lost fluid and electrolytes are crucial to reducing mortality and morbidity especially in under-fives. In sub-Saharan Africa it has been shown that about 82% of the populations choose to first consult private drug shops and informal providers for advice about and assistance with treatment of childhood illnesses (Greer and Akinpelumi,

2006).

In most parts of Nigeria patent medicine sellers enjoy high patronage from the public. One of the reasons is that their stores are found in every nook and cranny in Nigeria (Adikwu and Okoye, 1996). Presently, many studies have been carried out on the integration of the patent medicine vendors in the management of common tropical diseases like malaria. This has become necessary because of the relative absence of health workers in many rural communities. This study is therefore aimed at identifying the possible role the patent medicine vendors can play in managing uncomplicated childhood diarrhea.

METHODS

The study was carried out in Enugu North Local Government Area (LGA) in Enugu state, Nigeria. It is one of the 17 LGAs in Enugu State and is inhabited mostly by Ibos (one of the major tribes in Nigeria). It is an urban area with all the infrastructures of urbanization. According to 2006 National Population Census, it has a population of 121,625 males and 123,227 females (total of 244,852). Literacy level in this region is high, when compared to the National average of 69.5% for males and 53.9% for females. About 86.0% of males and 82.2% of females in the study region have completed primary education (National population and health

*Corresponding author. E-mail: enaguwa@yahoo.com. Tel: 08034873064.

Table 1. Socio-demographic characteristics of patent medicine vendors.

Characteristics	Frequency
Age range (in years)	N = 90 (%)
11 – 20	10 (11.1)
21 - 30	45 (50.0)
31 - 40	21 (23.4)
41 - 50	11 (12.2)
51 - 60	3 (3.3)
Total	90 (100.0)
Sex distribution	
Male	46 (51.1)
Female	44 (48.9)
Total	90 (100.0)
Status	
Store owner	52 (57.8)
Apprentice	38 (42.2)
Total	90 (100.0)
Education	
No formal	0 (0.0)
Primary	9 (10.0)
Secondary	41 (45.6)
Post secondary	40 (44.4)
Total	90 (100.0)

survey, 2003). The vegetation is tropical rain forest and there are two main seasons: rainy season which runs from April to October and dry season from November to March. There is only one tertiary health facility (Enugu State Teaching Hospital, Park lane) and several private clinics. Many pharmacy stores and patent medicine vendors are also in the study area. However only 90 of the patent medicine vendors are registered with their union and so these are the ones studied. The study was a descriptive cross-sectional study carried out in November, 2008: Ethical Approval was obtained from the Ethics Committee of University of Nigeria Teaching Hospital, Enugu.

After obtaining verbal consent from the patent medicine vendors, the researchers collected data using semi-structured interviewer administered questionnaire. Data was collected, entered and analyzed using Statistical Package for Social Sciences (SPSS) software version 11 and Microsoft excel 2003. The responses in the questionnaire depicting knowledge of the subject by the respondents were analyzed as follows: each correct answer = 1 and each wrong answer = 0. Total score on knowledge = total correct answers divided by the total possible correct answers multiplied by 100%. The total percentage scores were graded thus <50% as poor knowledge, 50-75% as good knowledge and $\geq 75\%$ as excellent knowledge.

RESULTS

Out of the 90 patent medicine vendors interviewed, 46

(51.1%) were males and 44 (48.9%) were females. Forty five (50%) of the respondents were in the 21 - 30 year age range. Thirty eight (42.2%) of the respondents were store owners, while 52 (57.8%) were apprentices. All the respondents have had at least primary education (Table 1). Seventy-eight (86.7%) of the respondents recognize that diarrhea can cause death in children. The knowledge of the Patent Medicine Vendors had good knowledge (64.0%) of the types, causes, signs and effects of diarrhea (Table 2) but their knowledge on steps to prevent or improve diarrhea outcome was poor i.e. 33.3% (Table 3). Their knowledge of therapeutic use of oral rehydration solution (ORS) and salt sugar solution (SSS) was also poor, that is, 46.9% (Table 4). Sixty-two (68.9%) identified oral rehydration solution as their first line treatment of diarrhea in under fives, 20 (22.2%) wrongly identified antibiotics and only 4 (4.4%) identified salt sugar solution as such (Table 5). Nineteen (21.1%) of the respondents do not stock oral rehydration solution for various reasons like that people will not buy it (68.4%). Sixty seven (74.4%) of the respondents know how to prepare oral rehydration solution, while only 50 (55.6%) know how to correctly prepare salt sugar solution. Eighty five (94.4%) indicate that they refer their patients with

Table 2. Knowledge of Patent Medicine Vendors on types, causes, signs and effects of diarrhea.

Knowledge of PMV on diarrhea	No of respondents = 90 Correct answer (%)	Average percentage score	Total average score on types, causes, signs and effects of diarrhea
Is diarrhea a global killer disease?	78 (86.7)	86.7	
Types of diarrhea			
-Watery	73 (81.1)		
-Bloody	31 (34.4)	45.6	
-Persistent	19 (21.1)		
Causes of diarrhea			
-Poor hygiene	61 (67.8)		
-Inadequate clean water	53 (58.9)	65.6	64.0
-Contaminated food	63 (70.0)		
Signs of diarrhea			
-Watery stool, taking shape of container	48 (53.3)		
-3 or more loose stools	74 (82.2)	67.8	
Effects of diarrhea			
-Dehydration	71 (78.9)		
-Electrolyte loss and imbalance	41 (45.6)	54.4	
-Loss of nutrients	35 (38.9)		

Table 3. Knowledge of steps to prevent and improve the outcome of diarrhea in children.

Suggested activities that will improve diarrhea outcome	No of respondents = 90 (%)	Average percentage score
Health education to guardian/parent on how to improve diarrhea outcome	79 (87.8)	
Wash hands before preparing food	56(62.2)	
Improve personal hygiene	57(63.3)	
Proper waste disposal	30(33.3)	
No bottle feeding but with cup and spoon	19(21.1)	
Quick and sanitary disposal of baby stool	20(22.2)	33.3
Exclusive breast feeding	32(35.6)	
Continue routine immunization	8(8.9)	
Continue breast feeding during diarrhea episodes	15(16.7)	

diarrhea. The indications for referral in the respondents varied; the highest being for persistent diarrhea as indicated by 70 (77.8%) of the respondents (Table 5). Drugs most commonly used by patent medicine vendors in management of childhood diarrhea are Metronidazole (74.2%), Kaolin (65.2%) and Tetracycline (33.7%) (Figure 1).

DISCUSSION

Patent medicine vendors are ubiquitous and found in

several places where clinics are non-existent. They are closer to the people and several studies have attempted to find effect of including them in management of certain diseases in the tropics like malaria. Recent studies have even tried incorporating them in tuberculosis management.

Findings in a previous study show that about 25% of customers see the patent medicines seller as a source of advice and information about their illness (Brieger et al., 2004). For the patent medicine vendors to give appropriate advice to health care seekers it becomes necessary that they understand the etiology and manage-

Table 4. Knowledge of treatment options available and therapeutic effects of ORS and SSS in diarrhea management.

Treatment Options	No of respondents = 90 (%)	Average percentage score
Drugs	39 (43.3)	
ORS	88 (97.8)	64.1
SSS	46 (51.1)	
Therapeutic use of ORS and SSS		
Rehydration	71 (78.9)	
Replace electrolytes	41 (45.6)	
Replace nutrients	17 (18.9)	46.9
Kill micro-organisms	83 (92.2)	
Shorten duration of diarrhea	22(24.4)	
Relief of symptoms	19 (21.1)	

Table 5. Childhood diarrhea management by patent medicine vendors.

Choice of first line treatment	N = 90
Oral rehydration solution (ORS)	62(68.9)
Antibiotics	20(22.2)
Salt sugar solution	4(4.4)
Others	4(4.4)
Correct knowledge of ORS preparation	67(74.4)
Correct knowledge of SSS preparation	50(55.6)
The patent medicine vendors who stock ORS for sale	
	71(78.9)
Reasons for not stocking ORS	N = 19
People do not buy ORS	13(68.4)
It is not available	6(31.6)
Referral practices	
	N = 90
Patent medicine vendors who refer diarrhea cases	85(94.4)
Indication for referral	
Persistent diarrhea	70(77.8)
Presence of blood in stool	27(30.0)
Sunken Eyes	15 (16.7)

ment of common tropical diseases. In present study, about 10 (11.1%) of the respondents were less than 21 years. However, pharmacy law in Nigeria requires that the holder of a patent medicine seller's license be at least 21 years of age and submit the names of two referees (Egboh, 1984). It does not specify educational level, but by convention in Nigeria, the minimum educational attainment of patent medicines sellers has been primary school (Abiola et al., 1983; Akinde et al., 1982; Ojuawo and Oyaniyi, 1993; Osamor, 2001). Studies have shown that this minimal level of education does not confer on the patent medicines seller or his/her clerk or apprentice, correct knowledge about the medications in his/her store or the common illnesses experienced by his/her customers (Van der Geest, 1991; Oshiname et al., 1992;

Massele et al., 1993). It is often difficult to distinguish the functional difference between patent medicines shops and real pharmacy stores because the clerks hired by (the often absentee) pharmacist may themselves not be qualified to dispense drugs (Twebaze, 2001).

Other studies have also reported that patent medicines sellers vary widely in the amount, accuracy and quality of information they give (Twebaze, 2001). Patent and proprietary medicine vendors may even inflate information about the efficacy and purposes of the drugs they sell in order to impress the customer (Van der Geest, 1991).

Present study shows that though the patent medicine vendors knew that diarrhea in under-fives could be fatal they were not able to recognize the different types and

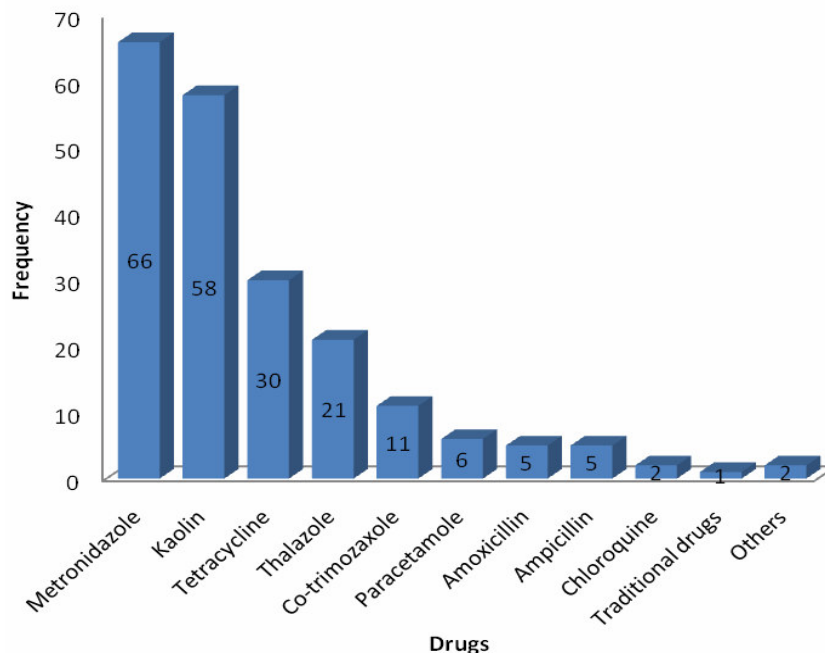


Figure 1. Drugs commonly used by patent medicine vendors in management of childhood diarrheas.

prevention of diarrhea diseases. A study in Ilorin, Kwara state Nigeria, in which the practices of patent medicines sellers towards childhood diarrhea was examined, it was observed that questions on diarrhea were rarely asked neither did the patent medicine vendors ask to see the child with diarrhea to determine whether there were signs of dehydration (Ojuawo and Oyaniyi, 1993). This contradicts another study in Ibadan, Nigeria, which observed that Patent Medicines Shop owners appeared responsive to the needs of their customers and that when the customer complained about his/her illness, the patent medicine vendors were more likely to ask questions, give ideas and educate on medication use (Brieger, 2004).

Unaware of the efficacy of oral rehydration therapy, some respondents recommended drugs to treat childhood diarrhea. Indeed present study showed that the first line of action in management of under-five diarrhea for 20 (22.2%) respondents was antibiotics. The commonest antibiotic used was metronidazole. This may be because this drug is relatively cheap and readily available when compared to most antibiotics. Incidentally there is paucity of literature on the choice of antibiotics by patent medicine vendors in the management of diarrhea in children. One of the few local studies done previously showed that the commonest drugs prescribe for childhood illnesses were metronidazole (38%) and cotrimoxazole (32%) (Ojuawo and Oyaniyi, 1993). More of the patent medicine vendors recommended oral rehydration solution sachet provided by UNICEF than the salt sugar solution and this may be due to their likelihood of making some financial gains with the sale of the oral rehydration solution sachet

unlike in salt sugar solution where the care giver is taught how to prepare the solution. Moreover only 50 (55.6%) of the patent medicine vendors knew how to prepare the salt sugar solution.

For patent medicines sellers that refer, a previous study revealed that when asked to state their mode of referral, the only patent medicines sellers who indicated having used a referral note was one with formal training - a nurse. The others referred the caregivers verbally (Okeke et al., 2006). This study observed that good percentages (94.4%) of the patent medicine vendors are willing to refer unresponsive diarrhea or when they perceive that the case was serious.

CONCLUSION AND RECOMMENDATION

Though the patent medicine vendors take part in management of illnesses, their knowledge of steps to prevent and improve the outcome of diarrhea in children is poor. Hence their management of these cases and the information they give to caregivers on disease prevention and care is doubtful. It is therefore recommended that there should be routine health education campaign aimed at educating them on management of childhood diarrheal diseases and appropriate recognition and immediate referral of moderately severe and severe cases to health facilities. Also the minimum educational qualification of the patent medicine vendors should be post secondary education level. This is so that they can derive benefit from routine health education campaigns and provide

improved health service to the community.

ACKNOWLEDGEMENT

We remain grateful to the following medical students who assisted in data collection: Uche Vincent I., Okere Nkiruka A., Mbagwu Iheanyi and O. Onyebuchi-Iwudibia.

REFERENCES

- Abiola AB, Adeyinka AF, Alhassan MR (1983). A qualitative assessment of medicine sellers in Igbo-Ora. Project submitted to the Department of Preventive and Social Medicine. Nigeria: College of Medicine, University of Ibadan.
- Adikwu MU, Okoye KC (1996). Patient factors militating against the laws governing prescriptions-only medicines in Nigeria. *Niger. J. Pharm.* 1992; 23(3): 7-11. In Adiukwu M U. Sales practices of patent medicine sellers in Nigeria. *Health policy plan.* 11(2): 202-205.
- Akinde JA, Effiong C, Obiejesie JOA (1982). Survey of patent medicine stores in Igbo-Ora. Project submitted to the Department of Preventive and Social Medicine. Nigeria: College of Medicine, University of Ibadan.
- Azubuike JC, Nkagineme KE (2007). Pediatrics and child health in a tropical region pp. 4-13.
- Brieger RW, Osamor PE, Salami KK, Oladepo O, Otusanya SA (2004). Interactions between patent medicine vendors and customers in urban and rural Nigeria. *Health Policy Plann.* 19(3): 177-182.
- Egboh AA (1984). Pharmacy laws and practice in Nigeria. Ikeja, Nigeria: Literamed Publications.
- Greer G, Akinpelumi A, Madueke L, Plowman B, Fapohunda B, Tawfik Y, Holmes R, Owor J, Gilpin U, Clarence C, Lennox B (2004). Improving management of childhood malaria in Nigeria and Uganda by improving practices of patent medicine vendors. www.usaid.gov/pop_health/. Accessed on 10th March 2009.
- Massele AY, Sayi J, Nsimba SE, Ofori-Adjei D, Laing RO (1993). Knowledge and management of malaria in Dar es Salaam, Tanzania. *East Afr. M. J.* 70: 639-42.
- Ojuawo A, Oyaniyi OT (1993). Treatment of diarrhoea by proprietary-medicine vendors. *Niger. J. Paediatr. Apr;* 20(2): 41-4.
- Okeke TA, Uzochukwu BSC, Okafor HU (2006). An in-depth study of patent medicine sellers' perspectives on malaria in a rural Nigerian community. *Malaria J.* 5: 97.
- Osamor PE (2001). Knowledge and selling practice of Patent Medicine Vendors regarding the treatment of malaria in Idikan Community, Ibadan, Oyo State. Dissertation, Department of Health Promotion and Education. Nigeria: College of Medicine, University of Ibadan.
- Oshiname FO, Brieger WR (1992). Primary care training for patent medicine vendors in rural Nigeria. *Soc. Sci. Med.* 35: 1477-84.
- Twebaze D (2001). A literature review of care-seeking practices for major childhood illnesses in Uganda. Basic Support for Institutionalizing Child Survival Project (BASICS II). Arlington, Virginia: United States Agency for International Development.
- Van der Geest S (1991). Marketplace conversations in Cameroon: how and why popular medical knowledge comes into being. *Culture, Med. Psych.* 15: 69-90.
- WHO (1990). Readings on diarrhea. Adapted from manual of WHO for the control of diarrhea diseases. p. 48.