

Caregivers Use of Herbal Medicines in Managing Diarrhea in Children Under the Age of Five Years at Kavango East Region, Namibia

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Abstract: Herbal medicines refers to plants and plant materials that are used to prevent or treat illnesses based on the indigenous knowledge and cultural practices. Declaration of Alma Ata and Astona recognized herbal medicine as part of the primary healthcare. Approximately 80% of the global population depends on herbal medicines for primary health care especially in developing countries. The study assessed the caregivers use of herbal medicines in managing diarrhea among children under the age of five at Outpatient department, Intermediate Hospital Rundu, Kavango East Region.

The study used quantitative approach, descriptive and cross-sectional designs. A systematic sampling technique of random sampling method was used to employ 400 caregivers. The researcher administered five rated Likert scaled questionnaires to caregivers to collect data. Data was prepared and entered into SPSS version 29 for analysis.

Majority of respondents use herbal medicines to treat diarrhea in children. This pose a health threat to children as the interaction, dosages and efficacy of herbs being used are not clinically established. Thus, emphasis on regulations and quality control measures on the use of herbal medicines is needed.

Keywords: Caregivers; Herbal Medicines; Diarrhea; Management; Children; Under-Fives.

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I. INTRODUCTION

Diarrhea remains the leading cause of childhood morbidity globally, resulting in 525,000 deaths annually[1]. In Africa, children under five years of age experience diarrhoea illnesses on average three times annually; 80% of diarrhea related deaths occur before the age of two years[2]. [1]Support evidence-based integration of safe and effective traditional practices into health systems, therefore herbal medicines should go rigorous scientific evaluation for safety, quality and efficacy before recommended for clinical use.

Globally, there are absence of formal surveillance systems for traditional and herbal medicines related adverse

events; likely leads to under-reporting of toxicity cases, meaning the true burden may be under estimated[3]. However, studies report approximately 80% of the world's population utilize traditional medicine[4]. In Africa, the use of herbal remedies ranges from 70% to 95% of the population[4]. Although preferences vary by country, across 32 Sub-Saharan African countries most of the caregivers still use herbal medicines, while some consult traditional medicine practitioners for children diarrhoea[5]. A similar study revealed that respondents use herbs to treat diarrhea in children under five years while at home[6].

In Namibia, a significant portion of caregivers at Engela do not strongly believe that modern medicine is always best

for managing diarrhoea[7]. In addition, a noticeable number of children in Namibia receive traditional herbs at home prior seeking assistance at the health facilities. There are limited scientific evidence on the safety and clinical effectiveness of herbal medicines used by parents on childhood diarrhea, thus challenging policy makers and healthcare providers seeking to address safety concerns related to herbal medicine use. In Namibia, there are no studies acknowledged to have explored the parents and caregivers’ use of herbal medicine in managing diarrhea among children under five years.

II. METHODOLOGY

➤ *Study Approach and Design*

The study employed a quantitative approach, descriptive and cross-sectional design.

➤ *Study Setting*

The study was conducted at Intermediate Hospital Rundu, Outpatient Department located in Kavango East region. Rundu hospital is a referral and training hospitals in Namibia, which serves the communities of Zambezi, Kavango East and West region.

➤ *Study Population*

The target population for this study was caregivers of children under five years old.

➤ *The Sampling and Sample Size Determination*

A probability, systematic sampling technique was used in this study. The sample size was determined using the Yamane formula.

$$n = \frac{N}{1 + N(a^2)}$$

Therefore:

$$n = \frac{4128}{1 + 4128(5\%)^2}$$

$$n = 399.90 \approx 400$$

➤ *Validity and Reliability*

Questionnaire was shared with the research supervisor and research statistician to evaluate the appropriateness and relevance of the data collection tool. In addition, the questionnaire was appraised by the University of Namibia Postgraduate Research Ethical Committee and the MoHSS Research professionals who assessed the data collection tool

for institutional standards. A pilot study was done to test the feasibility of the study and the reliability of the questionnaire.

➤ *Data Collection Tool*

A self-developed Likert scaled questionnaire, grounded by previous literature review and theoretical framework was used to collect the data.

➤ *Data Collection Procedures*

After seeking ethical clearance and approvals from all the relevant bodies, the caregivers who met the inclusion criteria were sampled. The researcher obtained written consent from the respondents and administered English or Rukwangali questionnaire used to collect data from the caregivers.

➤ *Data Analysis*

The data was prepared, coded and entered into the International Business Machine (IBM) Statistical Package for Social Sciences (SPSS) version 29 for analysis. Descriptive data analysis was used in this study.

➤ *Ethical Consideration*

Ethical clearance was first sought and granted from the University of Namibia Decentralised Ethical Committee (DEC OSH 007) and permissions were obtained from the Ministry of Health and Social services (REF 22/4/2/3) as well as the Rundu medical superintendent. Written informed consents were obtained from respondents in both Rukwangali and English. The study adhered to ethical principles outlined in the Declaration of Helsinki.

III. RESULTS

➤ *Demographic Data*

Majority of the respondents (71.25%) were female, whereas 28.25% were male. The results revealed that 65.6% respondents were single, while 27.7% were married. In addition, 3.4% were divorcees, whereas 13.2% were minors under the age of 18 years old. The results of the study indicated that 96% of respondents were Christians, while 4% of the respondents were Islamic. Out of the 400 respondents, majority of the caregivers (52.3%) had tertiary education, 37.5% respondents had secondary education, while 6.3% had primary education and 3.8% of respondent had no formal education. The study revealed that 29.2% of the respondents were employed, while majority of the respondents were unemployed 70.8%. The 64.2% of respondents reside in urban area, while 35.8% of respondents reside in rural areas.

Table 1 Sociodemographic Data of the Caregivers

Sociodemographic Characteristics	Frequency	Percentage (%)
Gender		
Male	115	28.75
Female	285	71.25
Total	400	100
Marital Statuses		
Single	263	65.6
Married	111	27.7
Divorcee	13	3.4
Minor	13	3.2

Total	400	100
Religion		
Christian	385	96
Islam	15	4
Total	400	100
Educational Level		
Tertiary education	209	52.3
Secondary education	150	37.5
Primary education	25	6.3
No formal education	15	3.8
Total	400	100
Employment Status		
No	283	70.8
Yes	117	29.2
Respondent Residence		
Urban	257	64.2
Rural	143	35.8
Total	400	100

Table 2 Analysis of the Caregivers Use of Herbal Medicine in Managing Diarrhea

Questions/Statements	Always Frequency %	Most of the time Frequency %	Sometimes Frequency %	Rarely Frequency %	Never Frequency %
1. Do you give ORS to children after every loose stool?	11 (2.7%)	53 (13.2%)	114 (28.4%)	102 (25.4%)	120 (30.2%)
2.Hospitals are expensive and far from people.	98 (24.4%)	114 (28.4%)	46 (11.5%)	92 (23.2%)	50 (12.5%)
3. I prefer using herbal medicine before going to the hospital.	139 (34.8%)	125 (31.3%)	117 (29.3%)	19 (4.7%)	5 (1.3%)
4. Have you ever delayed going to the hospital because you were using herbal medicine?	255 (63.9%)	102 (25.5%)	30 (7.4%)	10 (2.5%)	3 (0.7%)
5. Do you give children herbs when they have diarrhoea?	187 (46.7%)	98 (24.6%)	72 (17.9%)	27 (6.7%)	16 (4.1%)
6. Do healthcare workers give health education on diarrhea management?	39 (9.7%)	50 (12.4%)	31 (7.7%)	120 (30%)	50 (12.5%)
7. Friend and elders advise of herbal use on diarrhea management.	135 (33.8%)	87 (21.6%)	55 (13.6%)	45 (11.3%)	78 (19.5%)
8.Herbal medicine is effective in treating childhood diarrhea	136 (34.2%)	188 (47%)	45 (11.1%)	26 (6.4%)	5 (1.2%)

The study found out that only 11 (2.7%) caregivers always give ORS to children after every loose stool, most of the times 53 (13.2%), 114 (28.4%) sometimes, 102 (25.4%) rarely, while 120 (30.2%) never give ORS. Majority of the caregivers indicated that hospitals are expensive and far from people, whereby 98 (24.4%) respondents always found hospital to be far, 114 (28.4%) most of the times, 46 (11.5%) said hospitals are sometimes far, 92 (23.2%) rarely found hospitals far, and only 50 (12.5%) never regard hospitals as far. Out of 400 caregivers, 139 (34.8%) always prefer using herbal medicine before going to the hospital, 125 (31.3%) most of the times, 117 (29.3%) respondents prefer herbal

medicine sometimes, 19 (4.7%) rarely and only 5 (1.3%) respondents never prefer herbal medicine.

Regarding hospital delay, 255 (63.9%) always delayed going to the hospital because you were using herbal medicine, 102 (25.5%) delayed most of the times, 30 (7.4%) sometimes, 10 (2.5%) rarely delayed going to the hospital because you were using herbal medicine, and 3 (0.7%) never. 187 (46.7%) always, 98 (24.6%) most of the times, 72 (17.9%) sometimes, 27 (6.7%) rarely, while 16 (4.1%) never give children herbs when they have diarrhea. Out of 400 caregivers, only 39 (9.7%) indicated that healthcare workers give health education on diarrhea management, indicated 50 (12.4%)

most of the times, 31 (7.7%) sometimes, 120 (30%) rarely and 50 (12.5%) indicated that healthcare workers never give health education on diarrhea management. Regarding advises from friend and elders, 135 (33.8%) always advise caregivers on herbal use in diarrhea management, 87 (21.6%) said most of the times, 55 (13.6%) sometimes got advises from friends and elders, 45 (11.3%) rarely got advised, and only 78 (19.5%) caregivers never get advises on herbal use on diarrhea management in children. The study found that 136 (34.2%) caregivers always regarded herbal medicine as effective in treating childhood diarrhea, 188 (47%) most of the times, 45 (11.1%) regarded it sometimes, 26 (6.4%) rarely and 5 (1.2%) caregivers regard herbal medicine as effective in treating childhood diarrhea.

IV. DISCUSSION

The unregulated practice of traditional medicine poses a potential health risk due to toxicities that maybe experienced from herbal remedies. Children, in particular, are at a higher risk of these toxicities owing to their developing systems and organs[8]. This is especially so, because most herbal preparations are mixed and some are taken concurrently with conventional medicines, despite their unknown interactions, subsequently leading deterioration of children health conditions and deaths.

The use of herbal medicines by the caregivers in managing childhood diarrhea remains widespread, particularly in low- and middle-income countries due to cultural beliefs, perceived effectiveness, affordability and limited access to formal healthcare services[6]. Despite World Health Organization recommendations advocating Oral rehydration solution (ORS) and Zinc supplement as first-line management, herbal treatments are frequently used as initial and complementary therapy in home-based management of diarrhea in children under five years old. The study found out that majority of the caregivers do not administer ORS to children with diarrhea. ORS has vital electrolytes needed to restore energy and replace body fluids lost through watery stools[1]. In essence, out of 400 caregivers, 139 (34.8%) always prefer using herbal medicine before going to the hospital, 125 (31.3%) use herbal medicines most of the times, 117 (29.3%) respondents prefer herbal medicine sometimes, 19 (4.7%) rarely and only 5 (1.3%) respondents who never used herbal medicine. This may be due to the perceived barriers reported by majority of the caregivers that hospitals are expensive and far from people. These results are similar elucidated that the caregivers in the communities use herbal medicines in managing various diseases, including diarrhea[6]. In addition, in North East Tanzania, majority of the respondents treat children under five years old who suffer from diarrhea using herbal medicines and to date they still use herbs[6]. A study conducted in Engela District assessed parents' attitudes towards diarrhea causes and management. While herbal medicine was not the focus, the results revealed a diverse belief about diarrheal causes such as supernatural towards western medicine, which may often influence the uptake of herbal treatment[7].

A significant indirect adverse effect of herbal medicine use is the delay in seeking appropriate medical care. Subsequently to this study, a substantial number of 255 (63.9%) caregivers always delayed going to the hospital care when the child condition worsens, 102 (25.5%) delayed most of the times and only 3 (0.7%) caregivers who never delay seeking hospital assistance. The caregivers often attempt home based remedies first, including the use of herbal medicine treatment and only seek hospital when the children condition worsens. This delay is dangerous in diarrheal illnesses, where early administration of oral rehydration solution and Zinc supplement is critical for preventing dehydration, conversely deaths[5]. Therefore, this pattern suggests that the use of herbal medicines does not always replace formal healthcare but often postpones effective treatment, thereby increasing the severity of diarrheal illness. The study done in Zanzibar, Tanzania[9] concurred that more than half of the respondents (56%) visited the health facilities when the children's conditions deteriorated.

An alarming number of caregivers 187 (46.7%) always; 98 (24.6%) caregivers administer herbal medicine most of the times to children under five years old with diarrhoea at home. In an analogous study[6] found out that administration of traditional medicines to children with diarrhea while at home was the first line treatment among caregivers at North-Eastern, Tanzania and if the traditional treatments fail, the caregivers only took children to the hospitals where they arrive in critical conditions. These study results are similar to the study done at Amhara regional State, North-West Ethiopia, concurred that caregivers give traditional herbs to children during the episode of diarrhoea in attempts to treat the diarrhea symptoms[10]. In addition, these results reinforce the results of [10] which reveals that majority of mothers used traditional ways of treating diarrhea illnesses at home.

Healthcare workers poorly give health educations on management of diarrhea in children and possible adverse effects of administering herbs to children under the age of five years. Generally, healthcare facilities are reliable sources of information regarding home-based managements. Unlike the study done in Kenya indicated majority of the caregivers received information regarding home management of diarrhea from health facilities[11]. The study revealed that only 39 (9.7%) respondents reported that healthcare workers always give health education on diarrhea management, while 50 (12.5%) indicated that healthcare workers never give health education on diarrhea management. [12]The results reported 30% of the caregivers learnt diarrhea information from the healthcare workers, while in the current study, the results are lower. the sources of information is an integral role on the type and quality of information received.

Affirming to the results at North-Eastern Tanzania where majority of the caregivers claimed their knowledge of treating diarrhea illness was acquired through being taught and inherited from from parents, guardians and grandparents, while others claim to have acquired the herbal treatment through spirits where treatment appears to them as dreams at night[6]; the results of the study shows that a concerning

number of respondents get advises on herbal use in diarrhea management from friend and and elders. None of the respondents in the previous studies had ever attended formal education related to herbal medicine. In addition, a high number of caregivers who partake in the study regard herbal medicine as effective in treating childhood diarrhea than hospital medications. The health belief model (HBM) explicated the human health behaviors that the cultural believes, perceived barriers and benefits influenced the health seeking behaviors of individuals. [6]The study revealed that the caregivers claimed that the herbal medicines treat the diarrheal illnesses effectively well than hospital medications. Therefore the caregivers use herbal medicines at home, visits traditional healers in the communities before presenting sick children at the health facilities. Researchers frequently note the need for education on safe use and for health system to integrate culturally sensitive guidance on the use of herbal medicine in managing diarrhea infections.

V. CONCLUSION

More than 60% of the respondents in this study used herbal medicines on their young children. The herbal medicines were used for to manage diarrhea illnesses in children under five years while at home. Children acquired knowledge on herbal medicines from the parents. There was a general belief that herbal medicines were more effective than conventional medicines especially when handled correctly.

➤ *What is Already Known About the Topic:*

- The causes of determinants of diarrhea in children under the age of five years.
- The prevalences of childhood diarrhea globally.
- Measures to prevent diarrhea in children under the age of five years.

➤ *What the Study Add:*

- The study has contributed to the existing knowledge on caregivers' use of traditional medicines in management of diarrhea in children.
- The results provide empirical evidence that may contribute to the refining of human behavioral theories, models and conceptual frameworks related to the use of herbal medicine in the management of diarrheal diseases.
- The outcome of the study inform the caregivers on the importance of adopting positive practices while discouraging unfavorable attitudes on managing diarrhea in children.

LIMITATIONS OF THE STUDY

This study was limited to Intermediate Hospital Rundu, Kavango East, Namibia. Language barrier was a limitation for the study, as respondents spoke different languages. The study was methodologically limited to quantitative method.

RECOMMENDATIONS

➤ *Policy Recommendations:*

The Ministry of Health should implement the policies governing herbal medicine trade and distribution.

Furthermore, structured training on potential risks associated with the use of unproven efficacy should be incorporated into induction programs for healthcare workers (HCWs). Conversely to equip HCWs with adequate knowledge to disseminate accurate information to community members.

➤ *Recommendations for Further Research:*

A mixed methods study should be done in a broader geographical region for generalization of the results.

In addition, interventional studies are recommended to scientifically assess the efficacy of various medical plants and plant-derived materials in the management of diarrheal illnesses.

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COMPETING OF INTEREST

All authors declare no conflict of interest.

AUTHORS CONTRIBUTIONS

Nambombola KT Apprehended and designed the study, wrote the proposal, sought ethical approval collected, compiled the data and wrote the final version of the manuscript. S I Uushona critically reviewed the proposal, reviewed the manuscript drafts and approved the manuscript for publication. J Amadhila reviewed the manuscript drafts and approved the manuscript for publication.

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