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Prevalence and knowledge of childhood diarrhoea among mothers in Katsina state, Nigeria

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Abstract
Diarrhoea is an immediate health threat to children whose prevalence has remained high in Northern Nigeria. Adequate and correct knowledge of the disease is essential for reducing its occurrence. The aim of this study was to assess the knowledge, hygiene practices and prevalence of childhood diarrhoea among mothers in Katsina State. The study design was cross sectional descriptive study. Multistage sampling technique was used to select respondents. Structured, open and close ended interviewer administered questionnaire and observer checklist were used for data collection. The Statistical Product for Service Solution (SPSS) version 26 was used for data analysis. A total of 332 respondents were interviewed. Out of which 30.7% was reported as diarrhoea prevalence among under-five children. Majority (65.2%) knew correctly that diarrhoea is said to occur when a child passes loose stool more than three times within 24hours. Most (77.4%) of the respondents knew that drinking dirty water can cause diarrhoea, 75.3% were of the view that faeces is a source of diarrhoea, while 66.0% believed in poor personal hygiene as a cause of diarrhoea. Conclusively, this study has demonstrated high mothers' knowledge and hygiene practices of childhood diarrhoea. However, the prevalence of childhood diarrhoea is high in Katsina. This may be attributable to the challenges of poor water sources and insanitary environmental conditions. Public health interventions that will focus on environmental sanitation and water supply in suburban and rural communities is recommended.

Keywords: Childhood diarrhoea, Katsina

Introduction

Diarrhoea is defined as the passage of three or more loose or liquid stools per day and It is usually a symptom of an infection in the intestinal tract, which could be bacterial, viral, or parasitic [1]. Diarrhoea disease are major causes of childhood morbidity and mortality worldwide particularly in developing countries, with contaminated food and water sources being the primary culprits [2].

Diarrhoea disease is the third leading cause of death among children under five, globally and it is responsible for killing around 443 832 children annually with most occurring in resource-limited countries [3]

In Africa, it is estimated that every child has five episodes of diarrhoea per year and that 800,000 children die each year from diarrhoea and dehydration. Diarrhoea is the second biggest killer of children in Nigeria, responsible for about 16% of child's death every year. An estimated 151,700 children die in Nigeria every year from diarrhoea disease [4]. The estimated childhood mortality secondary to diarrhoea in Nigeria is about 151, 700 – 175,000 annually [5].

Globally, it is estimated that about 1.7 billion episodes of childhood diarrheal disease occur annually, and over 700,000–800,000 of these cases result in preventable deaths [6]. According to the latest report of World Health Organization (WHO), nearly 8% of under five children death is due to diarrhoea disease [7] The National Family Health Survey (NFHS) shows an increment of the prevalence of childhood diarrhoea from 9 to 9.2% from 2016 to 2020 in India [8]. The diarrhoea prevalence rate among under-five children in Nigeria is 10% [9]. According to various studies conducted in Ethiopia between 2016 and 2019, its prevalence among children <5 years varied from 11% to 23% [10]. A prevalence of diarrhoea was also observed in Southern Ethiopia 13.6 % [11]. High prevalence rates have been reported across different parts of these regions, reaching to as high as 35%, with both seasonal fluctuations and spatial variations observed. In Nigeria, north-south regional variations have been reported in the prevalence of diarrheal disease, with northern Nigeria being more severely affected [12].

A national study conducted in Nigeria showed a higher prevalence (37.7%) of the diarrhoeal disease among infants in the northern part of Nigeria compared to the south (21.1%) [13].

This burden is significantly high in many parts of Asia and sub-Saharan Africa [14] including Nigeria as compared to most parts of the world. Most childhood diseases occur at home and the initial management as well as decision to such health care is primarily undertaken by mothers. Therefore, their knowledge of diarrhoea as well as actions to prevent and manage the disease will help to reduce the morbidity and mortality associated with diarrhoea.

Materials and methods

Study Area

The senatorial zones of Katsina State comprise of Daura, Funtua and Katsina Central. Katsina State is located on latitude 120 591 7.911611 and longitude of 70 371 1.71841 E (aps co-ordinates). Katsina State has a total area of about 24,235km2 (9.341 sq.ml). The total population of people in the senatorial zones is 5,801.584 based on projection of 2006 census. The indigenous inhabitants of the study area are mainly Hausa and Fulani.

Study Design
The study design was a cross-sectional descriptive study.

Study Population
These were consenting mothers of children aged less than 5 years, who attended selected hospital from the three senatorial zones of Katsina State primarily due to acute diarrhoea.

Sample Size Determination
With the aid of a statistical formular for descriptive study ($N= Z^2pq/ L^2$) by Weller [15] and a prevalence of diarrhoea (38.45%) observed in previous study by Bichi *et al*. [16], a minimum sample size of 363 was calculated, however, a total of 332 subjects were recruited.

Ethical Considerations
Written assent was obtained from mothers and their participation was voluntary. It was emphasized to every mother that she is free to withdraw from the study at any stage she is no longer comfortable. The protocol for this study was approved and ethical clearance was given by the ethical committees of Katsina State of Ministry of Health (MOH/ADM/SUB/1152/1/932) and permission was also obtained from the State Hospital Services Management Board for the inclusion of hospitals in each Senatorial Zones in the state (KHSMB/S.185/VOL.1B).

Subjects Selection
A multistage sampling technique was used to select the respondents. The three LGAs in the senatorial zone were stratified by districts and two or more hospitals were randomly selected from each LGAs by balloting procedure. Three hundred and thirty-two (332) respondents were then selected from seven Hospitals in Katsina state by systematic random sampling.

Inclusion Criteria
Mothers with at least one child that is under the age of five years and those who has given written assent to participate in the study were involved.

Exclusion Criteria
Mothers without children under the age of five years and those who did not give their consent to participate in the study.

Instrument and Method of Data Collection
The instrument for the study is a structured interviewer administered questionnaire on the recruited mothers to collect information on demographic details, knowledge and hygiene practices of childhood diarrhoea from the sampled population. Correct response to knowledge questions were scored one mark and any wrong response was scored zero mark. Mothers were consecutively recruited until the minimum sample size was achieved.

Data analysis
Data generated were analyzed using Statistical Products for Service Solution (SPSS) Version 26.0. The descriptive tool in SPSS was used and data were presented a simple frequencies and percentages.

Results
Socio-demographic profile of the respondents
A total of 332 volunteers' mothers-infant pair from 360 selected were available for the study giving a response rate of 92%. Table 1 shows that almost half of the respondents were aged 18–29 years (44.3%) and women over the age of 40 years were the least in proportion (13.6%). Less than one-third of the respondents (29.7%) had post-secondary level of education and 39.2% were traders. Majority of infants infected with diarrhoea were of the age ranging from 1 to11 months and more than half (51.2%) of the infants were females. The results also shows that about (86.4%) of infants were still breast feeding at the time data were collected. Only 13.6% of the infants were pre-lacteally fed using infant milk.

Prevalence of Childhood Diarrhoea
In terms of frequency, among 332 eligible participants, 102 (30.7%) children had experienced diarrhoea, while the remaining 230 (69.3%) had no experience of diarrheal disease (Table 2).

Knowledge of Childhood Diarrhoea and its Control
Table 4 shows that 65.2% of the respondents correctly knew that diarrhoea is said to occur when a child passes loose stool within 24 hours for more than three times. Majority of the respondents (51.4%) mentioned that they were managed by a doctor for diarrhea, whereas a small minority were managed by Nurse (9.3%), Herbal provider (5.4%) and Pharmacist (4.8%). The respondents attributed diarrheal diseases to poor hygiene (66.0%), poor management of faeces (75.3%) and unclean and dirty drinking water (77.4%).

Table 1: Socio-demographic characteristics of study participants

Demographic features		n	% (percentage)
Mothers age (years)			
	18-29	147	44.3
	30-39	140	42.2
	40-49	45	13.6
Educational status group			
	None	96	28.9
	Primary	87	26.2
	Secondary	109	32.8
	Tertiary	40	12.0
Occupation			
	Trader	130	39.2
	Farmer	82	24.7

	Civil Servant	40	12.0
	None	80	24.1
Infant gender			
	Male	162	48.8
	Female	170	51.2
Infant age (years)			
	0 - < 1	122	36.7
	1 - < 2	106	31.9
	2 - < 3	56	16.9
	3 - <4	27	8.1
	4 - < 5	21	6.3
Infan feeding			
	Breast milk	287	86.4
	Infant milk	45	13.6

n=number, %=percentage. <= less than

Table 2: Prevalence of diarrhoea among under-five children in Katsina

Subjects	Number	Prevalence (%)
Diarrhoea children	102	30.7
None diarrhoea children	230	69.3
Total	332	100

Table 3: Knowledge on management and control of diarrhoea among participants

Responses	Correct responses n (%)
Definition of Diarrhoea	
When a child passes loose stool for more than (3) times in 24 hrs	216 (65.2)
Management of diarrhoea by health care provider	
Doctor	172(51.8)
Pharmacist	16(4.8)
Nurse	31(9.3)
Chemist	95(28.6)
Herbal provider	18(5.4)
Mothers' awareness about diarrhoea through health provider	199(59.9)
Causes and control of diarrhoea	
Poor personal hygiene	219(66.0)
Poor management of faeces	250(75.3)
Unclean and dirty drinking water	258(77.4)

n=number, %=percentage.

Discussion

Diarrhoea is an immediate health threat to children whose prevalence has remained high in Northern Nigeria with significant regional difference in developing countries including Nigeria [4]. This study assessed the knowledge, managements and prevalence of childhood diarrhoea among mothers in Katsina State. The study found a high prevalence of diarrhoea among children under five years that was comparable to findings from similar studies in the North Central and North-Western Nigeria [17, 6] but at variance with findings from similar studies in South Eastern Nigeria [1] that reported % and 8.1% in South Western Nigeria (Ondo state) [17]. The high prevalence of diarrhoea in developing countries including Nigeria may be attributed to their socio-economic status. Diarrheal illness is more predominant in low–and middle-income countries due to low socio-economic status [18]. Although 62% of the global under-5 population resides in the low and lower-middle-income countries, they account for more than 90% of global diarrhoea death [19].

Studies have shown a regional discrepancy in the distribution of diarrhoea with an increasing prevalence (51.8%) of the diarrhoeal disease among infants in the Northern part of Nigeria [20] compared to the Southern region with a prevalence of 5.3% [21]. This regional difference may be a reflection of the underlying inequality that exists across the geopolitical zones in Nigeria.

Adequate knowledge is one of the factors likely to guarantee informed and improved health-seeking behavior among mothers. This study found good level of knowledge amongst the respondents with regards the correct definition of diarrhoea. Similar results were found in the northcentral and Southeast regions of Nigeria [22, 23]. But in Benin, South-south region, only few (26%) of mothers who brought their children to the hospital on account of diarrhoea knew the correct definition of diarrhea [24]. However, most mothers in other countries like India (96%) and Kenya (76.4%), knew the meaning of diarrhea [25, 26]. This disparity may not be un-connected with the differences in the mothers' level of education status, good enlightenment campaigns and information on diarrhoea management through media and health workers in different studies.

The finding that more than half of the respondents were aware of taking the child to a medical doctor for appropriate management of diarrhea disease is similar to 23% and 34% obtained in Ethiopia [27] and Kenya [28] respectively. Only a small proportion of mothers preferred taking cases of childhood diarrhoea to a herbal provider for treatment. This is similar to the finding of in Akwa-Ibom (3.0%) and in Kwara (2.6%) states where mothers preferred taking their children with diarrhoea to traditional healers for treatment [29, 23]. This practice of taking childhood diarrhoea cases to traditional healers in place of hospital should be discouraged as it may predispose the child to increase mortality and morbidity.

Though mothers knew the cause of diarrhoea in this study. Mothers' knowledge with regarding the cause of diarrhoea due to poor personal hygiene, contaminating food and drinking dirty water was high. These findings were similar to those reported in other geopolitical regions of Nigeria [22, 30-34].

Conclusion

The study demonstrated a high prevalence of diarrhoea and good mothers' knowledge of diarrheal disease which is essential for childhood diarrhoea occurrence. This may be attributable to the challenges of poor water sources and insanitary environmental conditions. Public health

interventions that will focus on environmental sanitation and water supply in suburban and rural communities is recommended.

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References

1. Dairo MD, Ibrahim TF, Salawu AT. Prevalence and determinants of diarrhoea among infants in selected primary health centres in Kaduna North local government area, Nigeria. Pan African Medical Journal,2017:28:109.
2. World Health Organization. Diarrhoeal disease,2024. Available:https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease. Accessed:6 October 2024.
3. Black RE, Allen LH, Bhutta ZA. Maternal and child under nutrition under global and regional exposures and health consequences. Lancet,2008:371(9608):243–60.
4. Jiwok, JC, Adebowale, AS, Wilson, I, Kancherla V, & Chukwuma David Umeokonkwo. Patterns of diarrhoeal disease among under-five children in Plateau State, Nigeria,2013–2017. BMC Public Health,2021:21(2086).
5. Boschi-Pinto C, Velebit L, Shibuya K. Estimating child mortality due to diarrhoea in developing countries. Bull World Health Organ,2008:86:710-7.
6. Omole VN, Wamyil-Mshelia TM, Aliyu-Zubair R, Audu O, Gobir AA, Nwankwo B. Knowledge and prevalence of diarrheal disease in a suburban community in north western Nigeria. Sahel Medical Journal,2019:22:114-20.
7. Ghosh K, Chakraborty AS, Mog M. Prevalence of diarrhoea among under five children in India and its contextual determinants: A geo-spatial analysis, Clinical Epidemiology and Global Health,2021:12100813
8. Koustav G, Atreyee SC, Mithun M. Prevalence of diarrhoea among under five children in India and its contextual determinants: A geo-spatial analysis. Clinical epidemiology and global health,2021:12:100813.
9. National Population Commission (NPC) [Nigeria] and ICF International. Nigeria Demographic Survey,2018:538
10. Shine S, Muhamud S, Adanew S, Demelash A, Abate M. Prevalence and associated factors of diarrhea among under-five children in Debre Berhan town, Ethiopia 2018:a cross sectional study. BMC Infectious Disease,2020:20:174.
11. Melese B, Paulos W, Astawesegn FH. Gelgelu TB. Prevalence of diarrheal diseases and associated factors among under-five children in Dale District, Sidama Zone, Southern Ethiopia: A cross-sectional study. BMC Public Health,2019:19(1):1235.
12. Matthew AK, Amodu AD, Sani I, Danbauchi SS. Infant feeding practices and nutritional status of children in North Western Nigeria. Asian Jounal of Clinical Nutrition,2009:1:12-22.
13. Mohammed S, Tamiru D. The Burden of Diarrhoeal Diseases among Children under Five Years of Age in Arba Minch District, Southern Ethiopia, and Associated Risk Factors_A Cross-Sectional Study. International Scholarly Research Notices, 2014.
14. UNICEF report. (2016). One is too many: Ending child deaths from pneumonia and diarrhoea. Unicef, Retrieved from https://www.unicef.org/publications/index_93020.html
15. 15 Weller SC. Sample Size Estimation: The Easy Way,2015:27(4):1-10.
16. Bichi AA. Adamu A. Bichi MA. Gadanya MA. Environmental Sanitation and National Development. Journal of Research and National Development,2012:10(9):1-7.
17. Jinadu MK, Olusi SO, Agun JI, Fabiyi AK. Childhood diarrhoea in rural Nigeria: Studies on prevalence, mortality and socio-environmental factors. Journal of Diarrhoeal Diseases Research,1991:9(4):323-327.
18. Hashi A, Kumie A, Gasana, J. Prevalence of diarrhoea and associated factors among under-five children in Jigjiga District, Somali Region, Eastern Ethiopia. Open Journal of Preventive Medicine,2016:6(10),233-246.
19. UNICEF. One is Too Many: Ending Child Deaths from Pneumonia and Diarrhoea. https://www.unicef.org/publications/files/UNICEF-Pneumonia-Diarrhoea-report-2016-web-version5.pdf,2019.
20. Ucheh EAA, Tyoalumun K, Nanpen DM. Assessment of the incidence of diarrhoea in children under 5 years at the Institute of Clid Health, Banzazzau, Zaria. Annals of Nigerian Medicine,2017:11(1):6.
21. King R, Mann V, Boone DP. Knowledge and reported practices of men and women on maternal and child health in rural Guinea Bissau: a cross sectional survey. BMC Public Health,2010:10:319.
22. Adimora GM. Ikefuna AN, Ilechukwu G. Home management of childhood diarrhoea: Need to intensify campaign. Nigerian Journal of Clinical Practices,2011:14(2):237-241.
23. Muslim OJ, Giwa A, Okoro NR, Giwa HB. Evaluation of mothers´ knowledge and attitudes of oral rehydration therapy in childhood diarrhoea. Bulletin of Pharmaceutical Research,2018:8(2):157.
24. Iduoriyekemwen NJ, Osarogiagbon OW. Maternal knowledge of practices that cause diarrhoea and diarrhoeal disease prevention. Kanem Medical Journal of Sciences,2011:5(2):50–56.
25. Chaudhary P, Basu S, Dzeyie AK, Gulla S, Khade S, Patel A *et al*. Knowledge, Attitude and Practice of Mothers regarding Diarrhoeal Illness in Children under Five Years of Age: A Cross-Sectional Study in an Urban Slum of Delhi, India. J Commun Dis,2014:46(3):13-21.
26. Workie HM, Sharifabdilahi AS, Addis EM. Mothers´ knowledge, attitude and practice towards the prevention and home-based management of diarrhoeal disease among under-five children in Diredawa, Eastern Ethiopia 2016 a cross-sectional study. BMC Pediatr,2018:18(1):358.
27. Othero DM, Orago ASS, Groenewegen T, Kaseje DO, Otengah PA. Home Management of Diarrhoea among

Under fives in a Rural Community in Kenya: Household Perceptions and Practices. East African Journal of Public Heath,2008:5(3):142-146.
28. Ahmed IS, Eltom AR, Karrar ZA, Gibril AR. Knowledge, attitudes and practices of mothers regarding diarrhoea in a Sudanese rural community. East African Medical Journal,1994:71(11):716-9.
29. Akpan MU, Ijezie E. Knowledge and home management of diarrhoeal disease among mothers with under-five children attending university of Uyo teaching hospital, Nigeria. International Journal of Pediatric Research,2018:5(4):162-168.
30. Abiola AOA, Ndaman AL, Idris SH, Jiya NM, Ibrahim MTO. Home management of childhood diarrhoea among mothers in Sokoto, Nigeria. Tropical Journal of Health Sciences, 2010, 17(1).
31. Ogunrinde OG, Raji T, Owolabi OA, Anigo KM. Knowledge, attitude and practice of home management of childhood diarrhoea among caregivers of under-5 children with diarrhoeal disease in Northwestern Nigeria. Journal of Tropical Pediatrics,2012:58:143-146.
32. Ogbeyi GO, Audu O, Ogbonna C. Assessment of caregivers' knowledge of diarrhoea and practice of home management of diarrhoea disease among under two children in Opialu, a rural community in Benue State, Nigeria. Glob J Med Public Health,2016:5:1-11.
33. Asiegbu UV, Asiegbu OG, Ezeonu CT, Ezeanosike OB. Knowledge attitude and practices of mothers regarding diarrhoea in children in Abakaliki LGA of Ebonyi state, South East Nigeria. SAS J Med,2017:3:194-198.
34. Ene-Obong HN, Iroegbu CU, Uwaegbute AC. Perceived causes and management of diarrhoea in young children by market women in Enugu state, Nigeria. Journal of Health Population and Nutrition,2000:18:97-102.
35. Khalili M, Mirshahi M, Zarghami A, Rajabnia M, Farahmand F. Maternal Knowledge and Practice Regarding Childhood Diarrhoea and Diet in Zahedan, Iran. Health Scope,2013:2(1):20-24.