https://www.inosr.net/inosr-experimental-sciences/
Kateregga
INOSR Experimental Sciences 12(3):1-14, 2023.

International Network Organization for Scientific Research ISSN: 2705-1692
https://doi.org/10.59298/INOSRES/2023/1.1.12322

Investigating Key Determinants of Childhood Diarrheal Incidence among Patients at Hoima Regional Referral Hospital, Western Uganda

Kateregga Joseph

Faculty of Clinical Medicine and Dentistry Kampala International University Western Campus Uganda.

ABSTRACT

This study aimed to analyze the determinants impacting diarrhea incidence among children under five at Hoima Regional Referral Hospital, Western Uganda. Through a cross-sectional investigation, quantitative data was collected via self-administered and investigator-led questionnaires utilizing digital tools such as Google Sheets for both online and offline data collection. From a randomized sample of 323 caregivers selected through convenience sampling, a diarrhea prevalence of 27.3% among children under five was observed at the time of data collection as reported by caregivers. Among the children studied, 136 (43.7%) were male, and 175 (56.3%) were female. The average age of the participants was 2 years with a standard deviation of 1.25 years. The analysis revealed higher rates of diarrhea among children aged 1 and 3 years, constituting 24 (28%) cases in each group, followed by 20 cases (24%) in the 2-year-old group. Additionally, 12 (14%) cases were reported in children aged 6-11 months, while only 5 (6%) cases were found in 4-year-olds out of the total 85 reported cases of diarrhea. Regarding breastfeeding practices, 11 (3.7%) children were breastfed 1-3 times a day, 77 (26.1%) were breastfed 3-5 times, 150 (50.8%) were breastfed 5-7 times, 34 (11.5%) were breastfed 7-9 times, and 23 (7.8%) were breastfed more than 9 times a day. The introduction of supplementary food varied with 25 (8.0%) initiated at 3-4 months, 80 (25.7%) at 5-6 months, and the majority, 181 (58.2%), introduced to supplementary food after 6 months. The study highlighted maternal occupation influencing weaning practices; 152 (48.9%) of mothers who weaned their children at 2 years were self-employed, followed by 56 (18.0%) engaged in casual labor and 36 (11.6%) in civil service. Merely 6 (1.9%) civil servant mothers, 47 (15.1%) self-employed, and 14 (4.5%) casual laborers practiced weaning at three years of age. The elevated prevalence of diarrhea (27.3%) was associated with factors such as health-seeking behavior, early introduction of supplementary foods, premature weaning, and breastfeeding frequency. Notably, exclusive breastfeeding practices were scarce, with mothers introducing other foods early and weaning their children prematurely.
Keywords: Diarrhoea, Children under five, Breastfeeding, Weaning, Supplementary foods.

INTRODUCTION

Conventionally diarrhoea is defined as frequent passage of loose or watery stool three or more times in twenty-four hours [1, 2]. Diarrhoea is commonly a sign of an infection in the intestinal tract that is caused by different bacteria, viruses, and parasitic entities. In low-resource areas, Rotavirus and *Escherichia coli* bacteria cause the highest incidents of diarrhea [3, 4]. Infection is more common when there is a shortage of adequate sanitation and hygiene and safe water for drinking, cooking, and cleaning [5, 6]. Acute diarrheal diseases are one of the main problems affecting children in the world, reducing their well-being and creating considerable demand for health services. Previous studies showed that diarrheal

episodes cause the death of 700,000 under-five children [7]. Diarrhoea disease accounted for 4.6 Billion cases and 2.16 Million deaths worldwide in the year 2004 of which more than 50% were from low-income countries and most of the cases were children under five years [8]. In sub-Saharan Africa, diarrhoea is the primary cause of childhood morbidity and mortality [9]. Most deaths from diarrhoea occur among children less than 2 years of age living in South Asia and sub-Saharan Africa [10]. Diarrhoea causes death by depleting body fluids resulting in profound dehydration. Diarrhea can have an adverse impact on children's growth and cognitive progress [11]. Many children's lives can be saved through proper management of childhood diarrhea. Too many children do not receive adequate care because of the high prevalence of diarrhea in developing countries, and inadequate health infrastructures are partly responsible [10]. Diarrhoea devours micronutrients, especially minerals and vitamins. Minerals and vitamins contribute to the regulation of biological homeostasis by playing important functions [11-15]. Thus mineral and vitamin supplements are commonly added to anti-diarrhea medications.

Diarrheal disease is highly preventable, yet accounts for nine percent of all deaths among children under age five worldwide. In 2013, this translated into about 580,000 child deaths, or, on average, 1,600 children dying each day due to preventable diarrhoea. Most deaths from diarrhoea occur among children less than 2 years of age living in South Asia and sub-Saharan Africa [10]. The prevalence of diarrhoea in Uganda has remained above 20% in the past 10 years according to UDHS data. It was reported at 26% in 2006, 23% in 20ll and 20% in 2016 [17]. Children under five years are more susceptible to diarrhoea disease and the prevalence is high (43%) among children aged 6 – 11 months [5]. Studies on factors influencing diarrhoea in children under the age of five at Western Uganda are scanty. Therefore, this study was designed to determine factors influencing diarrhoea in children under the age of five attending Hoima Regional Referral Hospital Western Uganda.

METHODOLOGY

Study Design

A cross-sectional study was conducted whereby quantitative data was acquired using participant self-administered questionnaires, investigator investigator-administered questionnaires.

Area of Study

This study was conducted within Hoima Regional Referral Hospital in Hoima District in Western Uganda.

Study Population

The study was focused on children below the age of five years of which their guardians were interviewed about diarrhea. The guardians in this included the children's mothers, fathers, caretakers, or any other relative who has sufficient information on the child and the household.

Sample Size

The sample size was calculated using the formula.

$$n = \frac{z^2 p(1-p)}{d^2}$$

n= Sample Size
p= Expected Prevalence of Diarrhea in Children Under Five (p=30%)
d= Margin of Error (d= 0.05)
z= Standard Normal deviation at 95% confidence level (1.96)
Therefore,

$$n = \frac{0.05^2}{1.96^2 x 0.3(1-0.3)}$$

n = 323

Inclusion and Exclusion Criteria

All caretakers to one or more children within the age range of 6 months to 4 years who had given informed consent were included in the study. All households found to be under the custody of elder children below the age of eighteen at the time of the study were excluded. All caretakers who did not give consent were excluded from the study.

Data collection tools.

The questionnaire used in this study was both interviewer and participant-guided to minimize bias and loss of data. The questionnaire focused on collecting demographic and descriptive data; and was divided into four main sections. Section 1 embraced an assessment of socio-demographic characteristics of both the caretaker and child which included age, sex, marital status, religious faith, tribe, level of education and occupation; Section 2 embraced respondents' knowledge about diarrhoea; Section 3 embraced the prevalence of diarrhoea among children under five; Section 4 embraced factors associated with diarrhoea.

Training of Research Assistants

This study involved research assistants who were recruited and intensely trained prior to the study. Major criteria for recruitment included knowledge about diarrhoea and fluency in the Runyakitara language.

Pre-testing of the questionnaire.

The questionnaire used in this study was pre-tested to ensure the feasibility and acquaintance of research assistants with interview skills and questionnaire administration. Questionnaires were tested to check whether they generated the intended data and whether errors that were noted were corrected before the actual data.

Data Management

Properly filled questionnaires were checked for completeness at the end of each data collection day within the field so as to spot any missing data before leaving the field. At the end of each data collection day, all field questionnaires were handed over to the principal investigator for safe custody and all digital data collected was merged to the online database management system for saving.

Data Analysis

Data capture was done based on the dependent and independent variables of the study. The data field included the questionnaire codes in order to ensure excellent data entry. The data was entered; cleaned and analyzed using IBM Statistics SPSS 20 and graphics by Microsoft Excel.

Ethical Consideration

Informed consent was sought from participants after a thorough establishment of rapport and an explanation of the purpose of the study. This was backed up by an introductory letter from the administration of Kampala International University.

RESULTS

Social-demographic characteristics of the study population

A total of 323 children from the age of 6 months to 4 years were studied with a response rate of 96.3%. Table 1 below shows the distribution of the study population by demographic characteristics. The results based on the 311 respondents showed that about 136(43.7%) of the children studied were male and 175(56.3%) were female. The mean age of the study population was 2 years (with a standard deviation of 1.25 years).

Table 1: Distribution of the Study Population by Demographic Characteristics

Characteristics	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
Sex				
Male	136	43.7	38.6	49.2
Female	175	56.3	50.8	61.4
Age				
6-11 Months	55	17.7	13.5	22.2
1 Year	89	28.6	23.1	33.8
2 Years	60	19.3	15.0	23.5
3 Years	80	25.7	20.6	30.9
4 Years	27	8.7	5.5	12.0

Social Demographic characteristic of Respondents

Table 2 shows the Caretaker's characteristics where the majority 249 (80.1%) were mothers, with a mean age of 31 years (with a standard deviation of 12 years), of which 188 mothers were married, 52 were single mothers and 9 were widowed mothers. Other caretakers included fathers who were 5(1.6%), uncles who were 6(1.9%), aunties who were 32(10.2%) others 19(6.1%) who included grandmothers and other guardians who were not close parents to the children of the study population.

Table 2: Distribution of respondents by their demographic characteristics

Characteristics	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
Caretaker's Relationship to Child				
Mother	249	80.1	75.2	84.6
Father	5	1.6	0.3	3.2
Uncle	6	1.9	0.6	3.9
Auntie	32	10.3	7.3	13.8
Others	19	6.1	3.2	9.0
Caretaker's Age Group				
18-29	97	31.2	25.7	36.7
30-41	196	63.0	57.8	68.8
42-53	8	2.6	1.0	4.5
53-64	10	3.2	1.3	5.1

Education level and Occupation of the caretakers

The education level and occupation of the caretakers are represented below in Figure 1 and Figure 2 respectively showing that 40 caretakers attended primary school, 38 caretakers attended secondary school, 149 caretakers attended tertiary school and 84 caretakers attended university of which 70(23.0%) were casual labourers, 199(64.0%) were self-employed and 42(13.0%) being civil servants.

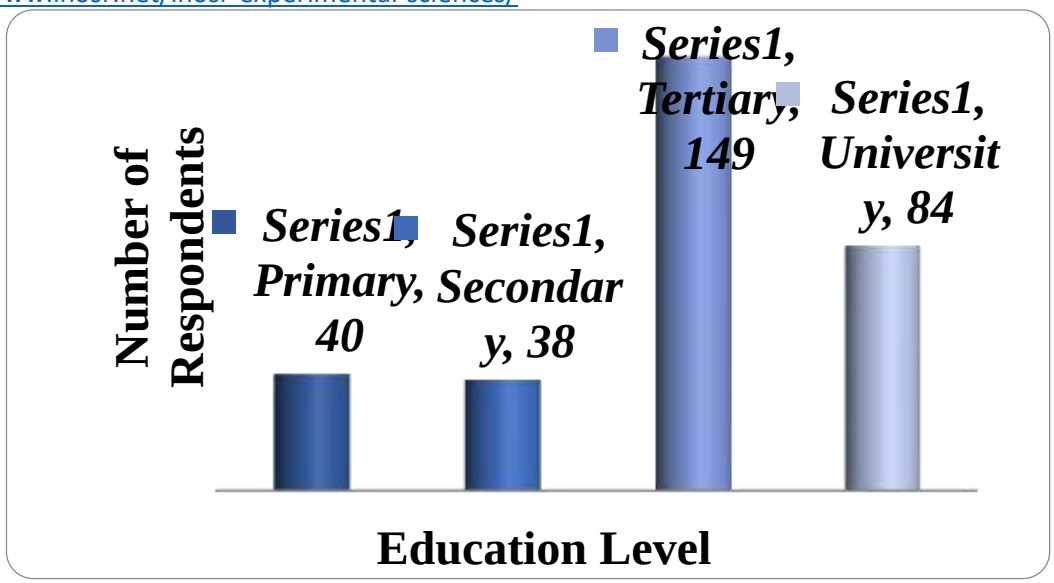

Figure 1: Education Level of Caretakers.

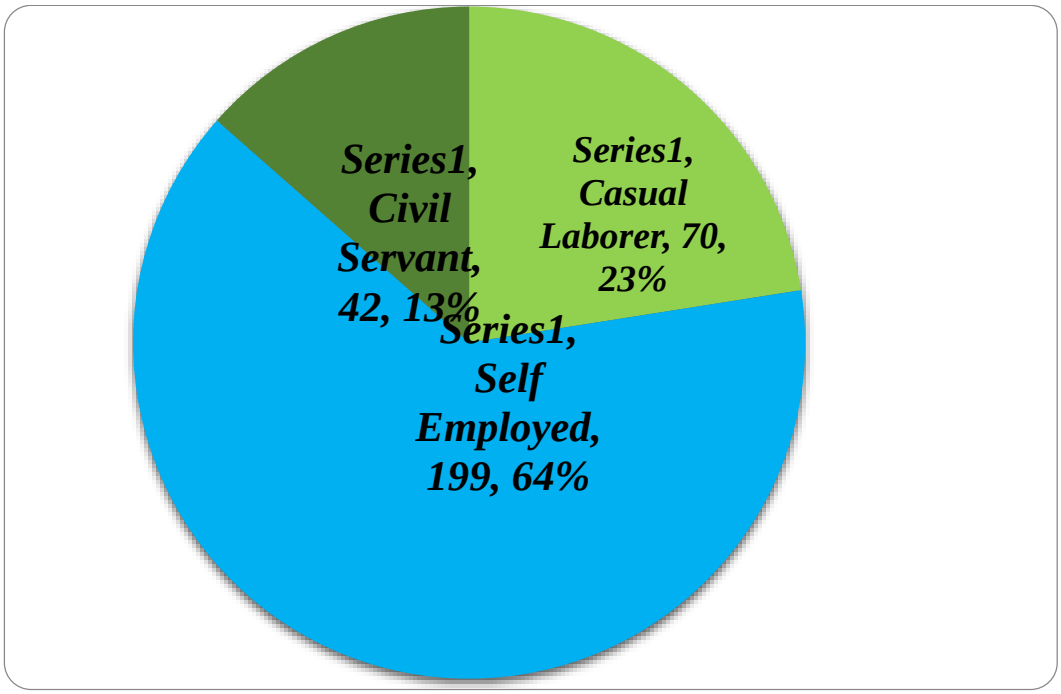

Figure 2: Occupations of Caretakers.

Breastfeeding Practice of Mothers.

Figure 3 shows the frequency of how mothers breastfeed their children per day in accordance with their education level. It is clearly shown in the figure that a total of 295 children were breastfeeding regularly with 11(3.7%) children breastfeeding for 1-3 times a day, 77(26.1%) breastfeeding for 3-5 times a day, 150(50.8%) breastfeeding for 5-7 times a day, 34(11.5%) breastfeeding for 7-9 times a day, and 23(7.8%) breastfeeding for more than 9 times a day.

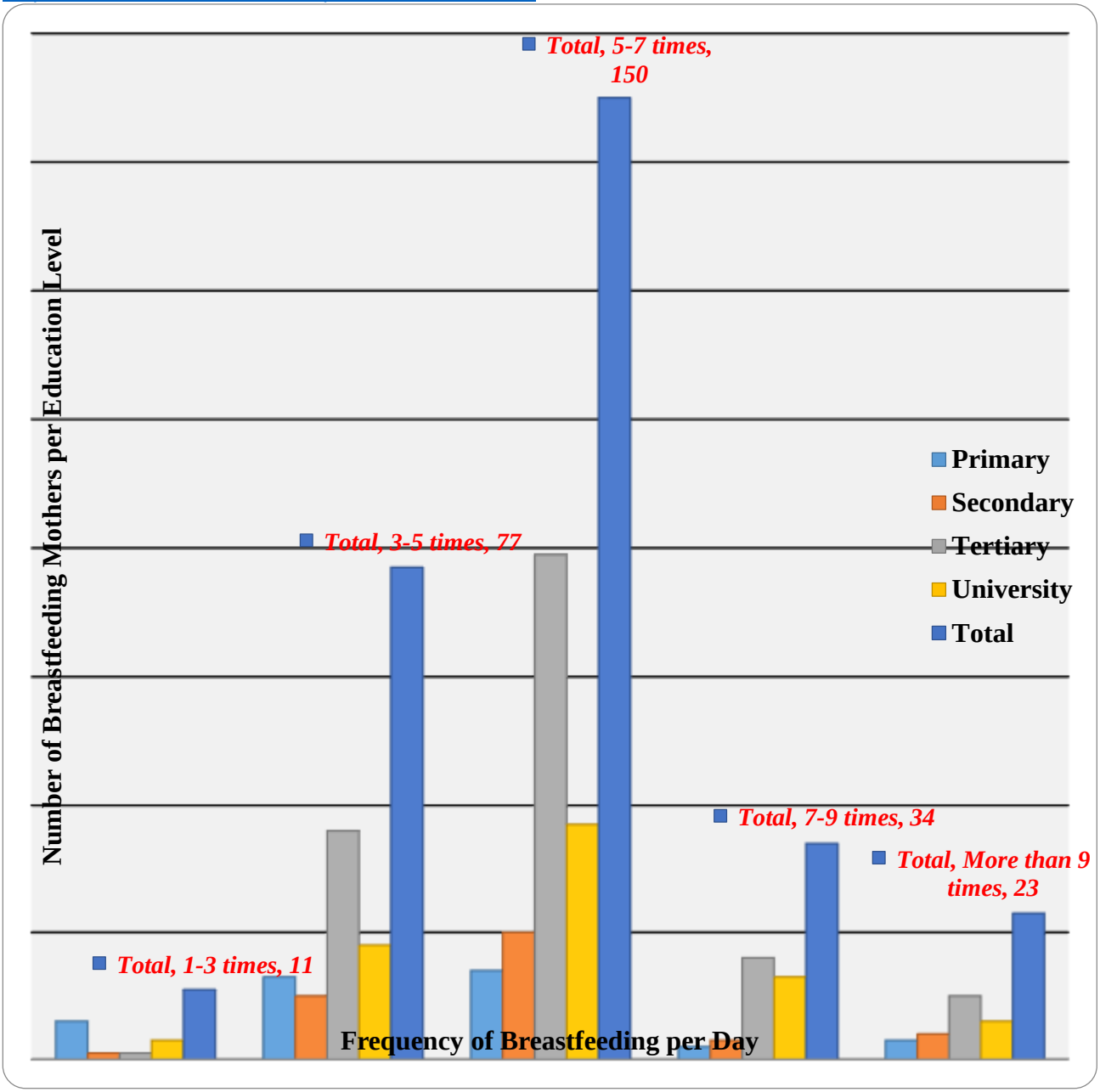

Figure 3: Frequency of Breastfeeding per day in accordance with Education Level of Mothers.

Initiation of Supplementary Food to Children by Caretakers.

Figure 4 shows the number of children who are introduced to supplementary feeding at different months of age. It is depicted that 25(8.0%) children are initiated on supplementary food at the age of 3-4 months, 80(25.7%) at 5-6 months whereas 181(58.2%) who are the majority are initiated to supplementary food at above 6 months of age.

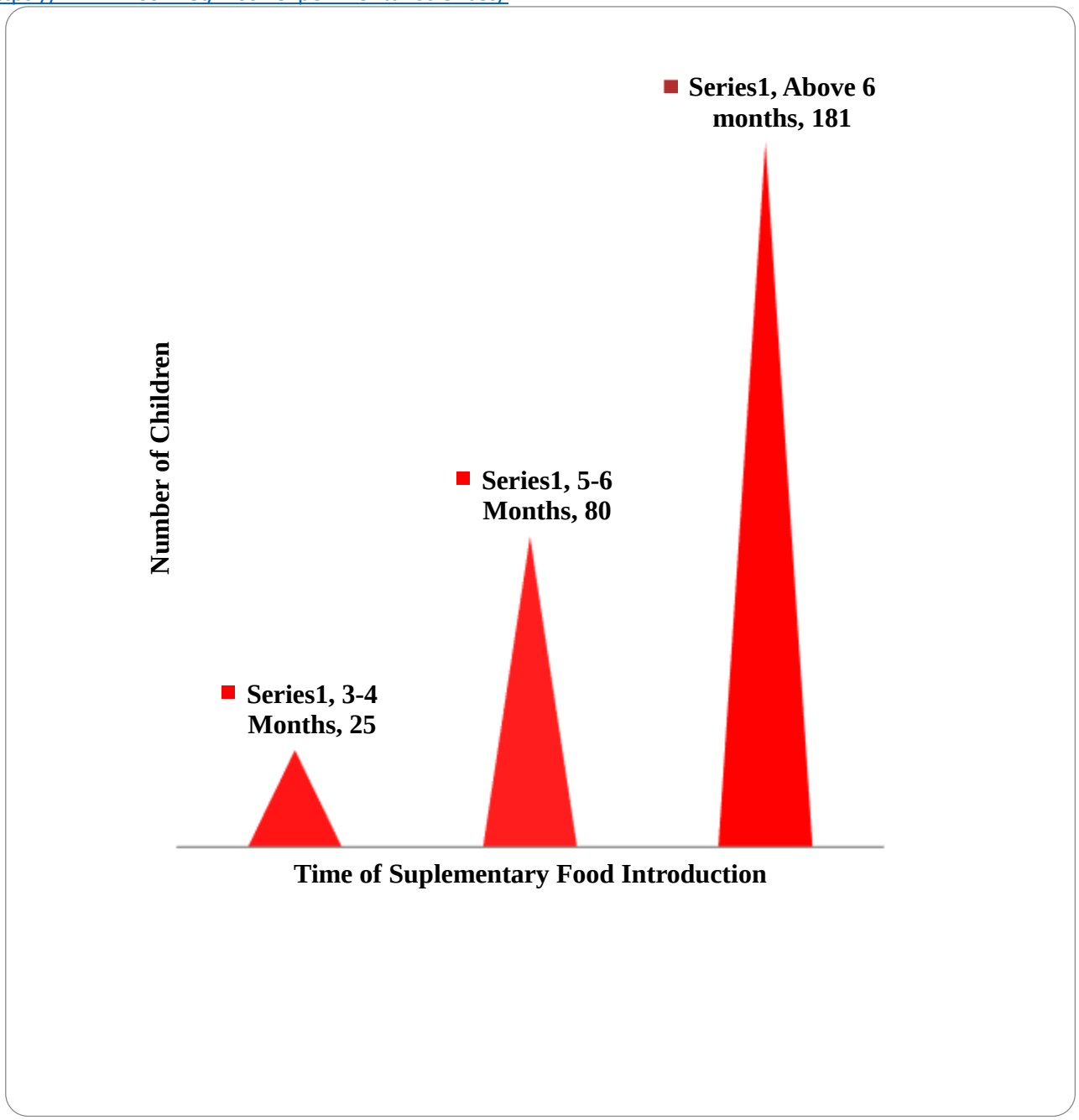

Figure 4: Introduction of Supplementary Food to Children.

Weaning Practice of Mothers

Table 3 shows that mothers usually wean their children off breast milk at the ages of 2 and 3 years. It depicts that 244(78.5%) mothers wean their children at 2 years while 67(21.5%) mothers wean their children at 3 years of age.

Table 3: Weaning practice of mothers.

Characteristics	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
Weaning Age				
2 Years	244	78.5	74.0	83.0
3 Years	67	21.5	17.0	26.0

Health Service Seeking Behavior of Respondents.

Table 4 shows the overall health service-seeking behaviour of the caretakers for their children regarding the treatment of diarrhoea. It is clearly shown that 296(95.2%) of the caretakers take their children to the health center when they develop diarrhoea whereas 15(4.8%) treat their children with local herbs at home.

Table 4: Health Service Seeking Behavior of Respondents.

Characteristics	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
I take him or her to the health center.	296	95.2	92.6	97.4
I treat him or her myself with local herbs at home.	15	4.8	2.6	7.4

Domestic Handling of Water

Table 5 shows that the majority; 157(50.5%) of the caretakers fetch water for domestic use from the public taps supplying piped water, 124(39.9%) fetch water from the spring wells, and 30(9.6%) fetch water from the ponds; however, all the 311(100%) caretakers treat drinking by the method of boiling.

Table 5: Domestic handling of water

Type of Water Source	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
Pond	30	9.6	6.4	12.9
Spring Well	124	39.9	34.7	44.8
Public Tap	157	50.5	45.7	55.9
Do you treat water for drinking?				
Yes	311	100.0	100.0	100.0
If Yes. How?				
Boiling	311	100.0	100.0	100.0

Latrine Coverage for the respondents according to different types

Figure 5 shows the distribution and possession of fecal waste disposal facilities among the respondents; 170(54.7%) had ventilated improved pit latrines,97(31.2%) had traditional pit latrines and 44(14.1%) had water-borne toilets.

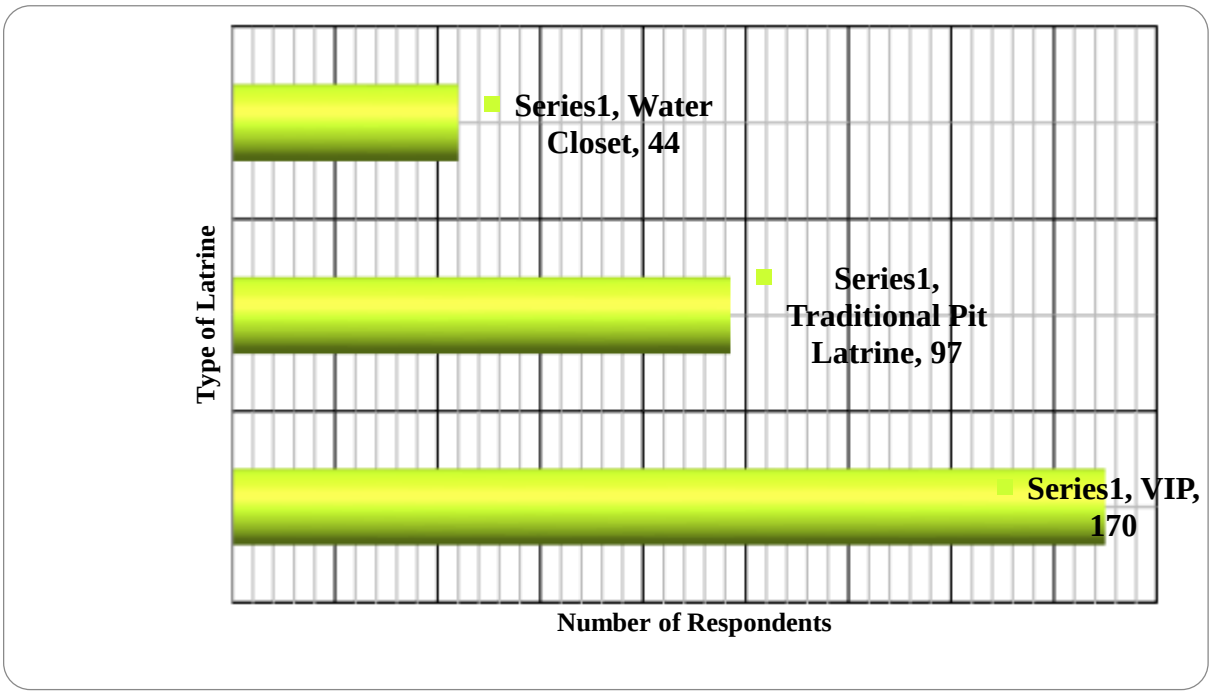

Figure 5: Latrine coverage for the respondents.

Prevalence of Diarrhea.

Table 6 shows the prevalence of diarrhoea where out of the 311 children studied, 85(27.3%) children were reported to be having diarrhoea whereas 226(72.7%) children were reported not to have diarrhoea.

Table 6: Prevalence of reported diarrhoea in children under the age of five.

Characteristic	Frequency	Percentage (%)	95% Confidence Interval	
			Lower	Upper
Does Your Child Pass Loose Stool?				
Yes	85	27.3	22.4	31.8
No	226	72.7	68.2	77.6

Figure 6 shows the prevalence of diarrhoea in children under five with a total number of 85 children having diarrhoea accounting for 27.3% of the total study population of 311 children on which the research was conducted. With respect to different children's ages, the figure shows that diarrhoea is mostly in children of 1 year and 3 years accounting for 24(28%) in each age group, this is followed by the age group of 2 years which has a number of 20(24%) of all children reported to have diarrhoea; Children aged 6-11months with diarrhoea are 12(14%) whereas those of 4 years were 5(6%) of the total number of children reported to have diarrhoea.

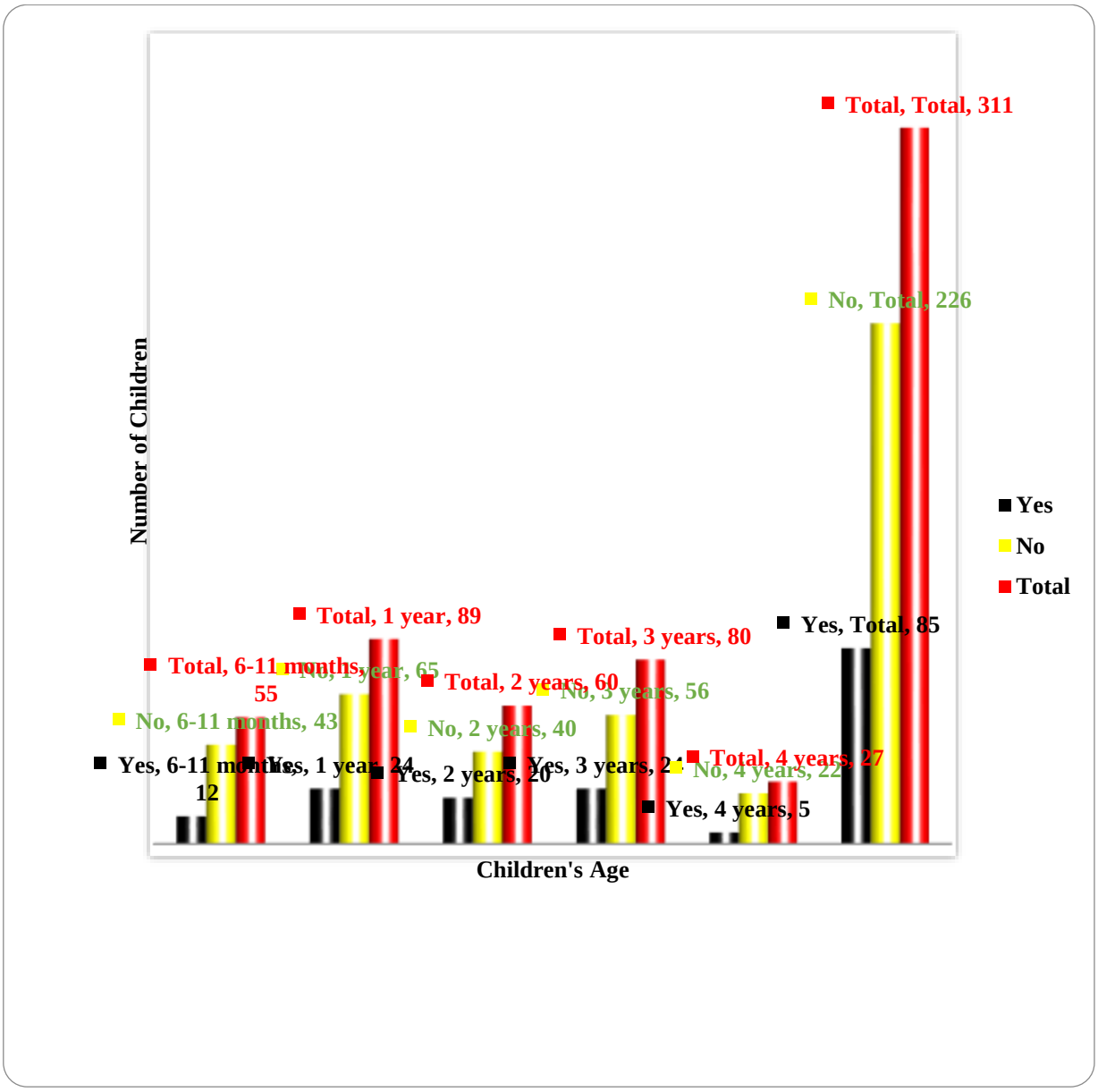

Figure 6: The burden of diarrhoea in children under the age of five depicted above as of the question responded to by caretakers; Does your child have diarrhea?

Multivariate Analysis

Table 7: Factors associated with diarrhoea in children under the age of five years.

Predictors	Diarrhea		AOR	95% Confidence Interval		P-Value
	Yes	No		Lower	Upper	
Care Taker's Education						
Primary	8	32	1.000			0.257
Secondary	15	23	1.333	0.532	3.342	0.539
Tertiary	41	108	0.511	0.226	1.157	0.107
University	21	63	0.878	0.477	1.617	0.676
Occupation						
Casual Laborer	18	52	1.000			0.830
Self-Employed	54	145	0.929	0.500	1.729	0.817
Civil Servant	13	29	0.772	0.331	1.799	0.549
Child's Age						
6-11 Months	12	43	1.000			0.545
1 Year	24	65	0.819	0.256	2.624	0.737
2 Years	20	40	0.627	0.210	1.866	0.401
3 Years	24	56	0.462	0.151	1.418	0.177
4 Years	5	22	0.535	0.181	1.585	0.259
Child's Sex						
Male	39	97	1.000			
Female	46	129	0.947	0.566	1.586	0.837
Health Service Seeking						
I treat him/her at home with local herbs	8	7	1.000			0.796
I take the child to the Health Centre	77	219	3.250	1.141	9.262	0.027
When do you normally Introduce Supplementary feeding to your children?						
3-4 Months	12	13	0.536	0.211	1.363	0.191
5-6 Months	29	51	0.290	0.120	0.700	0.006
Above 6 months	36	145	0.444	0.244	0.807	0.008
Weaning Age						
2 Years	67	177	2.570			0.267
3 Years	18	49	0.857	0.452	1.624	0.636

DISCUSSION

Prevalence of Diarrhea

This study was a cross-sectional study that focused on the determination of factors influencing diarrhoea in children under the age of five attending Hoima Regional Referral Hospital. The study showed that the overall prevalence of diarrhoea among children under five was 27.3% at the instant of data collection based on the responses given by the children's caretakers. This prevalence was shown to be significantly associated with a number of factors including health service-seeking behaviour, weaning age, breastfeeding practices, and initiation of supplementary feeding which showed the highest odds of influencing diarrhoea in children under the age of five. The significance of these variables was computed using Pearson's correlation of with health service-seeking behaviour being significant with a value of 0.139*(P=0.021); frequency of breastfeeding being significant with a value of 0.286* (P=0.000); health service-seeking behaviour was shown to be significant with a value of 0.131*(P=0.021) with a 2 tailed test at 95% confidence level, P<0.05. The prevalence of diarrhoea among children under five in Agago district was 27.3% (CI: 0.353– 0.454). This

is higher than the 23% diarrhoea prevalence in Uganda and the 24% prevalence in northern Uganda [17]. The high prevalence of diarrhoea within two weeks is comparable with studies carried out in Uganda by Bbaale [18] and Mbonye ([19]. These two studies also reported diarrhoea prevalence above the national rate at 32% and 40.3% respectively [5]. It is widely recognized that diarrhoea is a major cause of morbidity and mortality among children, especially children in developing countries. Low socio-economic status, limited education, poor environmental sanitation, and low hygienic practices pose a serious threat to people's health, especially children's health. The presence of other factors live HIV/AIDs, poor nutrition, malaria heighten the risk to diarrhea [20-25]. Risk factors for diarrhoea vary with the child's age, the pathogens involved, and the local environment [26].

Maternal age is positively associated with diarrhea in children. The older the mother, the less likely children under 5 years old will have diarrhea. The mother's education level is also positively related to the occurrence of diarrhea in children under 5 years old: the higher the mother's education level, the higher the child's risk of experiencing diarrheal episodes [27]. In this study, there was no significant difference in diarrhea incidence by child gender. This is in tandem with a similar finding study by Bernard [5].

CONCLUSION

The prevalence of diarrhoea in children under five is high (27.3%). Factors including health service-seeking behaviour, the introduction of supplementary foods to children at early ages, weaning children at early ages, and frequency of breastfeeding per day influence this prevalence. Mothers do not practice exclusive breastfeeding, however, they introduce their children to other foods at a very early age coupled with early weaning of children.

Recommendations

More efforts are needed to educate mothers about appropriate health services so that they seek specialized health care in properly equipped health facilities staffed by trained medical staff. All mothers need to be informed about the dangers of diarrhea and how to prevent it immediately after giving birth in a medical facility.

REFERENCES

1. Odo, C. E., Nwodo, O. F., Joshua, P. E., Ugwu, O. P., & Okonkwo, C. C. Acute toxicity investigation and anti-diarrhoeal effect of the chloroform–methanol extract of the seeds of Persea americana in albino rats. *Journal of pharmacy research*, 2013; *6*(3), 331-335.
2. Collins Atuheire, T. P., & Nabaasa, S. Roof-harvested rainwater is a potential source of bacteria associated diarrhea in a Peri-urban Southern Uganda setting: Cross-sectional study. *International Journal of Development Research*, 2017; *7*(11), 16494-16498.
3. Alum, E. U., Uti, D. E., Agah, V. M., Orji, O. U., Ezeani, N. N., Ugwu, O. P., Bawa, I., Omang, W. A. and Itodo, M. O. Physico-chemical and Bacteriological Analysis of Water used for Drinking and other Domestic Purposes in Amaozara Ozizza, Afikpo North, Ebonyi State, Nigeria. *Nigerian Journal of Biochemistry and Molecular Biology*. 2023; 38(1), 1-8. https://doi.org/10.2659/njbmb.2023.151.
4. Asogwa, F. C., Okoye, C. O. B., Ugwu, O. P. C., Edwin, N., Alum, E. U., Egwu, C. O. Phytochemistry and Antimicrobial Assay of *Jatropha curcas* Extracts on Some Clinically Isolated Bacteria - A Comparative Analysis. *European Journal of Applied Sciences,* 2015; **7**(1): 12-16.DOI: 10.5829/idosi.ejas.2015.7.1.1125.
5. Bernard, O. G. Prevalence Of Diarrhoea And Associated Factors Among Children Under Five Years In Agago District, Uganda. Kampala: Makerere University, 2018.
6. Asogwa, F. C., Ugwu, O. P. C., Alum, E. U., Egwu, C. O., Edwin, N. Hygienic and

Sanitary Assessment of Street Food Vendors in Selected Towns of Enugu North District of Nigeria. *American-Eurasian Journal of Scientific Research,* 2015; **10** (1): 22-26.DOI: 10.5829/idosi.aejsr.2015.10.1.1145.

7. Mohammed, S., & Tamiru, D. The Burden of Diarrheal Diseases among Children under Five Years of Age in Arba Minch District, Southern Ethiopia, and Associated Risk Factors: A Cross-Sectional Study. Int Sch Res Notices. 2014 Nov 18;2014: 654901. doi: 10.1155/2014/654901.
8. Kakulu, R. K. Diarrhoea among Underfive Children and Household Water Treatment and Safe Storage Factors in Mkuranga District, Tanzania. Muhimbili University of Health and Allied Sciences, Dar es Salaam, 2012.
9. Bethesda J. O Connell, M. A. Risk factors of diarrheal disease among children in the East African countries of Burundi, Rwanda and Tanzania. *Global Journal of Medicine and Public Health*, 2017;1-8.
10. Carvajal-Vélez, L., Amouzou, A., Perin, J., Maïga, A., Tarekegn, H., Akinyemi, A., et al. Diarrhea management in children under five in sub-Saharan Africa: does the source of care matter? A Countdown analysis. BMC Public Health. 2016 Aug 19;16:830. doi: 10.1186/s12889-016-3475-1.
11. Offor, C. E., Ugwu, O. P. C., Alum, E. U. Determination of ascorbic acid contents of fruits and vegetables. Int J Pharm Med Sci. 2015; 5(1):1-3. doi: 10.5829/ idosi.ijpms.2015.5.1.1105.
12. Alum, E. U., Aja, W., Ugwu, O. P. C., Obeagu, E. I., Okon, M. B. Assessment of vitamin composition of ethanol leaf and seed extracts of *Datura stramonium. Avicenna J Med Biochem.* 2023; 11(1):92-97. doi:10.34172/ajmb.2023.2421.
13. Ogbanshi, M. E., Ebenyi, L. N., Ominyi, M. C., Nwali, B. U., Edwin, N., Ugadu, A. F. and Alum, E. U. Comparative Evaluation of Nutritional and Toxicological Implication of Consumption of Wild Fishes from Ebonyi River and Fishes Cultured in Concrete Pond with Different Feed Formulations, International Journal of Basic and Clinical Toxicology, November 2022; 1 (2): 1-7. https://sbctnigeria.org/articles/0c1a6ef2-06b3-4413-8e3d-fc516cc4736b.pdf.
14. Nwachoko, N., & Alum, E. U. Production and Nutritional Studies of Guinea Corn Spiced Drink and Cassava Fried Balls. *World Journal of Pharmaceutical Research* (*WJPR*). 2014; **3** (9): 102-108. www.wjpr.net. https://wjpr.s3.ap-south-1.amazonaws.com/article_issue/1415270353.pdf
15. Alum, E. U., Oyika, M. T., Ugwu, O. P. C., Aja, P. M., Obeagu, E. I., Egwu, C. O., & Okon, M. B. Comparative analysis of mineral constituents of ethanol leaf and seed extracts of *Datura stramonium. IDOSR Journal of Applied Sciences,* 2023; **8**(1):143-151. https://doi.org/10.59298/IDOSR/2023/12.1.7906.
16. Ezimah, U. A., Obeagu, E. I., Ezimah, C. O., Ezimah, A., & Nto, N. J. Diarrhoeal diseases of acquired immunodeficiency syndrome stimulate more depletion of total antioxidant status. *Int. J. Adv. Multidiscip. Res*, 2016; *3*(4), 23-25.
17. Uganda Bureau of Statistics (UBOS) and ICF International Inc. 2012. Uganda Demographic and Health Survey 2011. Kampala, Uganda: UBOS and Calverton, Maryland: ICF International Inc.
18. Bbaale, E. Determinants of diarrhoea and acute respiratory infections among children aged under-fives in Uganda. Australasian Medical Journal (AMJ) 2011, 4, 7, 400-409. http//dx.doi.org/10.4066/AMJ.2011.723.
19. Mbonye, A. K. Risk Factors for Diarrhoea and Upper Respiratory Tract Infections among Children in a Rural Area of Uganda, Centre for Health and Population Research. 2004; 22(1):52-58
20. Alum, E. U., Obeagu, E. I., Ugwu, O. P. C., Samson, A. O., Adepoju, A. O., Amusa, M. O. Inclusion of nutritional

counseling and mental health services in HIV/AIDS management: A paradigm shift. Medicine 2023; 102:41(e35673). http://dx.doi.org/10.1097/MD.0000000000035673. PMID: 37832059.

21. Egwu, C. O., Aloke, C., Chukwu, J., Agwu, A., Alum, E., Tsamesidis, I, et al. A world free of malaria: It is time for Africa to actively champion and take leadership of elimination and eradication strategies. Afr Health Sci. 2022 Dec;22(4):627-640. doi: 10.4314/ahs.v22i4.68. PMID: 37092107;
22. Obeagu, E.I., Alum, E.U. and Obeagu, G.U. Factors Associated with Prevalence of HIV Among Youths: A Review of Africa Perspective. *Madonna University Journal of Medicine and Health Sciences*, 2023; **3**(1): 13-18. https://madonnauniversity.edu.ng/journals/index.php/medicine
23. Alum, E. U., Ugwu, O. P. C., Obeagu, E. I., Aja, P. M., Okon, M. B., & Uti, D. E. Reducing HIV Infection Rate in Women: A Catalyst to reducing HIV Infection pervasiveness in Africa. International Journal of Innovative and Applied Research. 2023; 11(10):01-06.DOI**:** 10.58538/IJIAR/2048. http://dx.doi.org/10.58538/IJIAR/2048
24. Kungu, E., Inyangat, R., Ugwu, O.P.C., & Alum, E. U. Exploration of Medicinal Plants Used in the Management of Malaria in Uganda. *Newport International Journal of Research In Medical Sciences*. 2023; 4(1):101-108. https://nijournals.org/wp-content/uploads/2023/10/NIJRMS-41101-108-2023.docx.pdf
25. Alum, E. U., Ugwu, O. P.C., Obeagu, E. I., & Okon, M. B. Curtailing HIV/AIDS Spread: Impact of Religious Leaders. *Newport International Journal of Research in Medical Sciences (NIJRMS),* 2023; 3(2): 28-31. https://nijournals.org/wp-content/uploads/2023/06/NIJRMS-32-28-31-2023-rm.pdf.
26. Hung, B. V. The most common causes of and risk factors for diarrhoea among children less than five years of age admitted to Dong Anh Hospital, Hanoi, Northern Vietnam. Oslo, 2006.
27. Hussein, H. Prevalence of Diarrhea and Associated Risk Factors in Children Under Five Years of Age in Northern Nigeria: A Secondary Data Analysis of Nigeria Demographic and Health Survey 2013. Nigeria: Uppsala Universitet, 2017.

CITE AS: Kateregga Joseph (2023). Investigating Key Determinants of Childhood Diarrheal Incidence among Patients at Hoima Regional Referral Hospital, Western Uganda. INOSR Experimental Sciences 12(3):1-14. https://doi.org/10.59298/INOSRES/2023/1.1.12322