

## ANALYSIS OF THE PERCEPTIONS OF MOTHERS ON HYGIENE FACTORS AFFECTING DIARRHEA OCCURRENCE IN ENUGU STATE, NIGERIA

Nwachukwu M. C<sup>1</sup>, Uchegbu S. N<sup>2</sup> and Okoye C. O<sup>3</sup>

<sup>1</sup>Department of Environmental Management, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

<sup>2</sup>Department of Urban and Regional Planning, University of Nigeria, Enugu Campus.

<sup>3</sup>Department of Environmental Management, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.

---

**ABSTRACT:** *Owing to the fact that hygiene of mothers and children has been a critical factor in combating diarrhea which has contributed to high mortality and morbidity in Enugu State, and the fact that perceptions of mothers on the hygiene factors affecting diarrhea occurrence determine their health behavior towards hygiene practices, there arises the need to analyze the perception of mothers on these hygiene factors in Enugu State. The methodology was longitudinal survey design. Schedules were used to collect data on diarrhea among children 0-5 years from seven District Hospitals representing District Health Boards from 2007 to 2016. Questionnaire was used to collect data on perceptions of mothers. A total of 1110 questionnaire were administered and 1106 collected. Analysis of variance ANOVA was conducted and the study found that the perceptions of mothers on hygiene factors affecting diarrhea occurrence differ significantly amongst the study locations ( $p = 0.000$ ). Furthermore, using multiple comparison tests to detect and rank the mothers perception in the different study locations, Enugu District Health Board has the highest perception, followed by Agbani and Udi. Nsukka, Awgu, Isi-Uzo and Enugu-Ezike District Health Boards have low perceptions. Nsukka and Awgu recorded highest cases of diarrhea within the period under study. Education on high level of personal hygiene of mothers and children is recommended to reduce infant mortality and morbidity. Further study of stools of these children to identify the pathogens responsible for the diarrhea is required.*

**KEYWORDS:** Hygiene, Diarrhea, Mothers Perception.

---

## INTRODUCTION

The World Health Organization (WHO) noted that diarrhea infections are one of the worlds communicable diseases group with high death rate among the children (WHO 2012: UNICEF 2012). According to record by UNICEF (2012) diarrhea kills 194,000 children less than five years annually in Nigeria. The World Health Organization (WHO) rated Nigeria 2<sup>nd</sup> among the developing countries of the world with a high incidence of diarrhea disease, while India was rated 1<sup>st</sup> (WHO, 2003). In Enugu State of Nigeria, diarrhea occurrence is a serious problem of public health (Ayogu, 2010). Between 2007 and 2011 diarrhea occurrence increased from 1212 cases to 1522 cases; and as at 2016 total of 1711 cases was recorded, Nwachukwu et al. (2018). Diarrhea has contributed to high infant mortality rate in Enugu State (Nwanna, 2012). Owing to the fact that diseases are distributed in human population as a result of the nature of their environment, this increase in diarrhea patients in Enugu State may be attributed to its association with environmental and hygienic factors where these children are groomed. Personal hygiene of mothers and children has been a critical factor in the control of diarrhea in

Enugu State. The study will identify locations in Enugu State where hygiene of mothers and children and their perceptions have posed threat to diarrhea control.

## LITERATURE REVIEW

Perception is the process of using the senses to acquire information about the surrounding environment or situation.

Tapati et al. (2010) worked on Relationship between Maternal Perceptions and Preventive Behaviors Regarding Acute Diarrhea of Children in Bangladesh. They used descriptive correlation study aimed at determining the level of maternal perception and maternal preventive behaviors about acute diarrhea and to examine the relationship between them. This study framework was guided by the Health Belief Model. One hundred and seven mothers were recruited who had children aged less than 5 years old admitted with diarrhea at the International Centre for Diarrheal Diseases Research Bangladesh (ICDDR,B). The questionnaire consists of three parts. These were a demographic characteristic questionnaire, maternal perceptions, and a maternal preventive behaviors questionnaire. This was used for data collection. Three experts ensured the content validity of the questionnaire. The internal consistency and reliability of the maternal perceptions of acute diarrhea questionnaire and the preventive behaviors of acute diarrhea questionnaire scales yielded .94, .84 respectively. Descriptive statistics and Pearson's correlation were employed for data analysis. The results showed that overall maternal perceptions and maternal preventive behaviors were at high and moderate levels respectively. There was a significantly positive moderate correlation between maternal perceptions and maternal preventive behaviors. The results supported the health belief model. Health care personnel should provide a theory based health education program in order to improve maternal preventive behaviors with respect to children. Also a qualitative study was conducted by Ziyanda et al. (2015) studied Knowledge and Perceptions of Parents and Caregivers on the Causes of Diarrhea Among Children Under Five Years Living in the rural areas of the Eastern Cape. This is to explore and describe the knowledge and perceptions of parents and caregivers on the causes of diarrhea among children under five years living in the rural areas of the Eastern Cape Province, South Africa. The aim was to assist in correcting the negative perceptions of the causes of under-five child diarrhea through improved educational interventions. Data were collected through individual, semi structured and face-to-face interviews from seven participants who were parents and caregivers of under-five children presenting with diarrhea or admitted for the management of diarrhea at a specific hospital and thematic analysis was done. The findings revealed that the participants had inadequate knowledge and lacked understanding of diarrhea and its causes. Participants could not mention all the causes and risk factors associated with diarrhea. Noteworthy is that the participants' perceived diarrhea as a serious condition. The study recommends that the implementation of policies regarding public education and health promotion programmes be targeted at educating parents and caregiver.

Estifanos (2014) carried a qualitative study of community perceptions about childhood diarrhea and its management in Assosa District, West Ethiopia. Qualitative research methods were employed among caregivers who reside in two villages (Amba 4 and Selga 22) of the district. The villages were selected purposively and all eligible participants were identified with the help of village leaders and health extension workers. Then, in-depth interviews and focus group discussions were used to collect data from the participants. For this purpose, a semi-structured interview checklist and discussion guides were prepared. Data was collected by experienced

and trained sociologists and public health professionals. The collected data was translated and analyzed thematically. No software was used. Majority of the caregivers perceived inadequate personal hygiene and poor environmental sanitation as the main causes of childhood diarrhea. However, few of them related its occurrence with sucking hot breast milk. On the other side, homemade management of diarrhea was commonly practiced in the community, i.e. providing boiled and cooled water with honey and *Haile Sellasie silver coin [Mariatriza]*. However, indigenous communities preferred traditional medications such as *Sirsafe, Bibi and Kebercho* to their children when they got diarrhea. They concluded that childhood diarrhea was perceived as the commonest disease in the community. Consequently, diverse misperceptions and malpractices on the causes and management of the problem existed. Thus, urgent effective interventions that consider the local culture and resources should be considered. Furthermore, Osimbake et al. (2007) worked on Cultural Perceptions of Diarrhea and Illness Management Choices among Yoruba Mothers in Oyo State, Nigeria. A group of 473 mothers and their pre-school age children in rural communities outside Ibadan metropolis in Nigeria were followed over a two-month period. Data were collected on actual diarrhea illness episodes: mothers' names for these illnesses were recorded, and reported treatment actions were noted. Six major ethno-medical diarrheal illnesses were identified and were grouped broadly into watery diarrhea and dysentery-like diarrhea. Although few (40%) women used home-made sugar-salt solution (SSS) in case management, those who labeled their child's illness as a watery diarrhea were more likely to use SSS. Modern and herbal medicines were commonly and equally applied to both groups of diarrheal illnesses. While very few mothers reported decreased fluid intake by their children, many said the child had reduced appetite, especially if the child had a watery diarrhea. The findings indicate that twelve years after the national Oral Rehydration Therapy (ORT) Program was launched, few mothers practice the recommended actions of giving SSS, increasing food intake and avoiding drugs. Lack of attention to studies that describe the cultural basis for mothers' decisions could be part of the reason why the ORT has not been more successful. Umar et al. (2011) worked on Comparative Studies of Knowledge and Perception of Parents on Home Managements of Diarrheal Diseases among under Five Children Between two Communities of Kano State, Nigeria. This study compared the practices of care givers regarding home management of diarrheal diseases among under-five children between two communities with different demographic characteristics in Kano State.

A descriptive cross sectional design was used. The study involved 360 participants from each community recruited by cluster, systematic and random sampling techniques. Pretested structured interviewer administered questionnaires were used for the study and data was analyzed using SPSS version 16 software. The results were Majority of the care givers had adequate knowledge of management of diarrheal diseases at home. The rate of Oral Rehydration Salt (ORS) use was 37.6% in Dorayi quarters and 33.1% in Nasarawa G. R. A. while Salt-Sugar Solution (SSS) was 24.0% in both communities. More than half of respondents in Dorayi quarters and Nasarawa G.R.A are knowledgeable on how to prepare SSS correctly. Continued breastfeeding during diarrhea was practiced by 23.6% and 23.8% of respondents in Dorayi quarters and Nasarawa G. R. A. respectively. From their findings, they concluded that majority of the surveyed respondents correctly manage diarrhea at home. Despite reasonable differences in the type of settlement, socio economic status and population between the study areas the care givers in the study areas demonstrated nearly equal knowledge and perception on the causes and management of diarrheal diseases at home.

Paing et al. (2015) carried a research on Household Waste Disposal: Knowledge, Perception, Practices, and Relationship with Diarrhea Frequency in Laputta Township in Myanmar. A

cross-sectional study was carried out in Yay Twin Seik village tract, Laputta Township in Myanmar in March, 2011. The main purposes of this study were to identify the diarrhea occurrence and to identify association of diarrhea risk with demographic and household characteristics, level of knowledge and perception about household waste disposal and practices on household waste disposal in Laputta Township. This study was conducted with 389 samples by using a structured interviewer-administered questionnaire. There were 339 out of 389 households who had no history of diarrhea within last one month from self report while the rests, 12.9% had at least one case of diarrhea within last one month. Among respondents, 78.1% had high level of knowledge while 21.1% had moderate level of knowledge. For perception towards household waste disposal, 50.4% of respondents had high-level perception and 48.1% had moderate level of perception. Practice on household waste disposal differed significantly with drinking water source ( $p<0.001$ ), number of trash bin ( $p=0.032$ ), trash bins with wide lids ( $p=0.01$ ), emptying of trash bins ( $p=0.008$ ), kitchen waste ( $p=0.017$ ) and perception towards household waste disposal ( $p<0.001$ ). Indoor latrine (OR=2.38; 95% CI: 1.02-5.49) and number of children under 5 (OR=2.09; 95% CI: 1.08-4.04) are risk for diarrhea while trash bins with narrow lids (OR=0.30, 95% CI: 0.16-0.59) is protective against diarrhea. Study findings can serve to guide further research in this area, and may be of value in making policy to reduce diarrhea risk.

## METHODOLOGY

A longitudinal survey design was employed. The population was divided into seven district areas (District Health Boards) based on the geographical coverage of the District Hospitals. Each division is a stratum and all the strata were selected. The strata are:

- (a) Enugu Ezike District Health Board. This includes Igbo-Eze North, and Igbo-Eze South Local Government Areas.
- (b) Nsukka District Health Board. Under this are Nsukka, Igbo-Etiti, and Uzouwani Local Government Areas.
- (c) Isi-Uzo District Health Board. This is made up of Isi-Uzo and Udenu Local Government Areas.
- (d) Udi District Health Board. This includes Eziagu and Udi Local Government Areas.
- (e) Enugu District Health Board. Under this board are Enugu East, Enugu North and Enugu South Local Government Areas.
- (f) Agbani District Health Board. This is made up of Nkanu East and Nkanu West.
- (g) Agwu District Health Board is made up of three local Government Areas which are Ananri, Awgu and Oji-river Local Governments.

To determine the sample size of mothers needed to provide information on their perception, Taro Yamane formula was used and a sample of 1110 mothers were taken out of a total of 2,083,246. Questionnaire was designed for collection of data on perception of mothers on the factors affecting diarrhea occurrence in Enugu State. The total copies of the questionnaire administered was one thousand one hundred and ten (1110), designed in two sections. There are eleven questions in all. Section "A" is made up of five (5) questions concerned with

demographic information about the mother and the child and section “B” is on perception of mothers on hygiene factors affecting diarrhea occurrence and is made up of six (6) questions. The reliability of the questionnaire was tested using Cronbach’s alpha and designed in a 5-point Li-Kert scale. Seven assistant researchers were trained to man the seven District Hospitals in each District Health Board where data were generated. Mothers whose child or children have suffered from diarrhea were identified during immunization sessions and questionnaire administered on them. Data on cases of diarrhea among 0-5years from 2007 to 2016 were sourced from the medical records kept in the seven District Hospitals covering seven District Health Boards in Enugu State. The data generated from the primary and secondary sources were presented in various forms such as statistical tables, bar charts and graphs. The data after presentation were analyzed using Analysis of Variance ANOVA and Multiple Comparison Test.

## FINDINGS AND DISCUSSION

Table 1: shows the trend of diarrhea occurrence among children 0-5years in Enugu state from 2007 to 2016. The hygiene variables evaluated in the mothers’ perceptions are shown in Table 2 of this article. The mean responses for the perception of mothers on hygiene factors affecting diarrhea occurrence is shown in Table 3. The findings indicate that Perception of mothers on hygiene factors affecting diarrhea occurrence differ significantly amongst the study locations in Enugu State ( $P = 0.00$ ), ANOVA Table 4. From the multiple comparison tests, Enugu District has highest perception of the hygienic factors studied in relation to diarrhea followed by Agbani and Udi while Nsukka, Awgu, Isi-Uzo, and Enugu-Ezike did not lead in any of the groups, consequently, they have very low perceptions of the hygienic factors affecting occurrence of diarrhea in children 0-5years, (Table 5). This implies that there may be high risks of contracting diarrhea among children of under- five in Nsukka, Awgu, Isi-Uzo and Enugu-Ezike District Health Boards with low perceptions when compared to others with high perceptions. The level of perceptions might have been one of the factors that contributed to large number of diarrhea cases recorded in Nsukka and Awgu District Health Boards from 2007 to 2016 as shown in Table 1. This is similar to the study conducted by Tapati et al. (2010) on the Relationship between Maternal Perceptions and Preventive Behaviors Regarding Acute Diarrhea of Children in Bangladesh. The study emphasized that overall maternal perceptions and maternal preventive behaviors were at high and moderate levels respectively and they have a key role in diarrhea prevention and control. Also a qualitative study was conducted by Ziyanda et al. (2015). They studied Knowledge and Perceptions of Parents and Caregivers on the Causes of Diarrhea among Children under Five Years. Their study fall into the age group of 0-5 years and the result was that the participants had inadequate knowledge and lacked understanding of diarrhea and its causes. Participants could not mention all the causes and risk factors associated with diarrhea. This goes to tally with the content of Figure 1 and Figure 2 of this study, where most of the mothers do not have knowledge that lack of exclusive breast-feeding and poor personal hygiene are factors affecting diarrhea occurrence. Figure 2 shows that majority in Awgu, Agbani, Enugu and Udi disagree that lack of exclusive breast-feeding has effect on diarrhea, while in Isi-Uzo, Nsukka, and Enugu-Ezike strongly disagree that exclusive breast-feeding has effect on diarrhea. This is also true of work done by Bilenko et al. (2016) on Maternal Knowledge and Environmental Factors Associated with Risk of Diarrhea in Israeli Bedouin Children. In a multivariate analysis, cessation of breast-feeding during diarrhea, child sleeping with siblings and lack of knowledge about risk factors, were the major



risk factors for illness with odds ratios (OR): 4.6,  $p = 0.02$ , 5.6,  $p = 0.03$  and 1.7,  $p = 0.06$ , respectively. Lack of knowledge of risk factors was also identified in the present study in Enugu State.

Estifanos (2014) carried a qualitative study of community perceptions about childhood diarrhea and its management in Assosa District, West Ethiopia. Majority of the caregivers perceived inadequate personal hygiene and poor environmental sanitation as the main causes of childhood diarrhea. In similar study, Umar et al. (2011) worked on Comparative Studies of Knowledge and Perception of Parents on Home Managements of Diarrheal Diseases Among Under Five Children Between two Communities of Kano State, Nigeria. Despite reasonable differences in the type of settlement, socio economic status and population between the study areas the caregivers in the study areas demonstrated nearly equal knowledge and perception on the causes and management of diarrheal diseases at home. This is contrary to the present study where there is a significant difference in the perception of mothers in the study areas in Enugu State ( $P = 0.00$ ). Caro (2014) studied Food and Personal Hygiene Perceptions and Practices among Caregivers whom Children have Diarrhea in Tangerang, Indonesia. The result was that Mothers perceived that the importance of personal hygiene was for maintaining health and cleanliness. The majority of mothers washed their hands without soap after performing housework and cooking. This is in line with the data collected on personal hygiene of mothers, Figure 1. Here majority of mothers perceived that personal hygiene affects diarrhea occurrence in Enugu and Nsukka District Health Boards, while other District Health Boards did not perceive at the same level.

## CONCLUSION AND RECOMMENDATION

Analysis of the perception of mothers on hygiene factors affecting diarrhea occurrence in Enugu State shows that there is a significant difference amongst the seven District Health Boards of Enugu State. The multiple comparison tests also indicated that Enugu has the highest perception followed by Agbani and Udi District Health Boards. The district Health boards that have very low perceptions are Nsukka, Awgu, Isi-Uzo and Enugu-Ezike. This low perception might have been one of the factors that contributed to cases of diarrhea recorded in these District Health Boards from 2007 to 2016. The study has identified critical areas (District Health Boards) in Enugu State where serious interventions through education of mothers on hygiene factors affecting diarrhea occurrence is needed. Therefore it is recommended that mothers in the State should be educated to maintain high level of personal hygiene of themselves and their children especially in areas with very low perceptions. A change in their perceptions is needed to reduce the occurrence of diarrhea and the associated infant mortality and morbidity in the State. Further study to examine the stools of these children in order to identify pathogens responsible for the diarrhea in the various District Health Boards of the State is required.

## Acknowledgements

Worthy to be given all honor and glory is our God Almighty who in his abundant mercy made this work a reality in a season like this. I give kudos to my supervisor, Prof. S. N Uchegbu for his guidance and patience with me throughout the period of this work. His humility and love towards me made it possible for me to continue until this stage. I am also thankful to my internal examiners, Prof. B. O. Uwadiogwu and Dr. S. U. Onwuka, for their immense contributions to

the success of this work. I also appreciate Prof. V. C. Nnodu, the present Dean, Faculty of Environmental Sciences and Dr. C. O. Okoye, the HOD, Environmental Management Department for their numerous imputes which gave this work a phase lift. Finally, I appreciate the financial support and prayers of my wife, Mrs Blessing Nwachukwu and my children, Emmanuel, Altar, Pentecost, Covenant, and Beloved. You shall live to harvest the fruit of your labors. Amen

## REFERENCES

- Bilenko, N. Fraser, D and Naggan, L, (2009), *Maternal Knowledge and Environmental Factors Associated with risk of Diarrhea in Isreali Bedouin Children*. European Journal of Epidemiology, 15 (10):907 – 912.
- Caro, I. (2017). *Food and Personal Hygiene Perceptions and Practices Among Care Givers Who's Children have Diarrhea: A Qualitative Study of Urban Mothers in Tangerang, Indonesia*. Journal for Nutrition Education Social Science Medicine 35 (2) 1043 -53.
- Estifanos (2014), *A Qualitative Study of Community Perceptions about Childhood Diarrhea and its Management in Assosa District, West Ethiopia*. Bio Med Central of Public Health 86: 1471 – 2458.
- Nwachukwu, M. C., Uchegbu, S. N and Onwuka, S. U (2018). *Assessment of Environmental Factors Affecting Diarrhea Occurrence in Enugu State, Nigeria*. Journal of Environmental Science, Toxicology and Food Technology, 12 (12) 01-07.
- Osibamke, O., Okunribido, W. R., Brieger, O.O and Omotade (2007). *Cultural Perception of Diarrhea and Illness Management Choices among Yoruba Mothers in Oyo State, Nigeria*. European Journal of Epidemiology, 15 (10) 907 – 912.
- Paing, K., Wattasit, S., Prathurng, H and Robort, S.C. (2015). *House Hold Waste Disposal: Knowledge, Perception, Practices and Relationship with Diarrhea*. Indian Journal of Health Research, 22 (2) 196 -201.
- Tapati, R.K., Ladawan, P and Kaitara, S (2010), *Relationship Between Maternal Perception and Preventive Behaviours Regarding Acute Diarrhea of Children in Bangladesh*. International Conference on Humanities and Social Science 3 (9) 110 -118.
- Umar, L., Bello, U., Yanusa, L.A and Muhammad, U.M (2011). *Childhood Diarrhea and Hygiene: Mother Perceptions and Practices in the Punjab, Pakistan*. International Journal of Pharmaceutical Science Invention. ISSN (Online): 2319 (4) 23 -31.
- United Nations International Children's Emergency Fund UNICEF (2012). *Leadership, March 11, 2013. Page 1-2*.
- World Health Organization WHO (2012). *Meeting the MDG Drinking Water and Sanitation*. Bulletin of World Health Organization, 88: 68-9.
- World Health Organization WHO. (1996). *Epidemiology of Diarrhea*. Bulletin of World Health Organization, 78: 1236,-1252

**APPENDIX**

Years	Number of children infected with Diarrhea (under 5 year)							
	Enugu Ezike District	Enugu District	Agbani District	Isi-Uzo District	Nsukka District	Udi District	Awgu District	Total
2007	108	62	137	169	213	102	423	1214
2008	90	62	145	136	341	167	399	1340
2009	161	56	151	157	380	172	375	1452
2010	113	55	155	147	662	154	390	1676
2011	89	62	208	146	490	181	346	1522
2012	108	53	149	171	295	150	358	1284
2013	90	59	196	154	386	182	341	1408
2014	161	61	160	166	331	176	299	1354
2015	112	58	213	127	292	165	262	1229
2016	90	56	166	119	947	169	164	1711
Total	1122	584	1680	1492	4537	1618	3357	

Table 1. Trend of Diarrhea Occurrence in Enugu State from 2007 to 2016.

(Source: District Hospitals, Enugu State, 2015)

Variables studied	DISTRICTS HEALTH BOARDS							
	ENUGU EZIKE	NSUK KA	ISI-UZO	UD I	ENU GU	AGB ANI	AWG U	TOT AL
<b>DRINKING DIRTY WATER</b>								
Strongly disagree	0	0	0	0	0	0	0	<b>0</b>
Disagree	10	6	0	0	0	10	30	<b>50</b>
Undecided	5	30	11	5	0	3	7	<b>61</b>
Agree	107	100	89	130	144	70	102	<b>742</b>
Strongly agree	15	80	10	2	100	20	20	<b>247</b>
<b>EATING CONTAMINATED FOOD</b>								
Strongly disagree	0	0	0	0	0	0	0	<b>0</b>
Disagree	5	6	10	0	0	2	5	<b>28</b>
Undecided	0	4	10	1	0	1	5	<b>21</b>
Agree	120	36	30	132	150	80	139	<b>687</b>
Strongly agree	12	170	60	4	94	20	10	<b>370</b>



<b>WASH HAND BEFORE BREAST-FEEDING</b>								
Strongly disagree	30	0	10	10	0	8	10	<b>118</b>
Disagree	30	40	40	100	50	15	39	<b>314</b>
Undecided	20	40	40	2	0	40	50	<b>192</b>
Agree	50	130	10	20	50	40	50	<b>350</b>
Strongly agree	7	6	10	5	146	0	10	<b>184</b>
<b>POOR PERSONAL HYGIENE OF MOTHER</b>								
Strongly disagree	1	0	13	50	0	20	2	<b>186</b>
Disagree	80	100	70	30	0	50	100	<b>430</b>
Undecided	5	0	12	17	0	0	7	<b>41</b>
Agree	1	106	5	20	100	30	30	<b>292</b>
Strongly agree	50	6	10	20	44	3	20	<b>153</b>
<b>CHILD PICKING DIRT INTO MOUTH</b>								
Strongly disagree	0	0	40	17	0	0	20	<b>77</b>
Disagree	2	6	40	10	4	30	30	<b>122</b>
Undecided	5	4	0	10	10	3	9	<b>41</b>
Agree	100	106	27	70	180	50	70	<b>603</b>
Strongly agree	30	100	3	30	50	20	30	<b>263</b>
<b>LACK OF EXCLUSIVE BREASTFEEDING</b>								
Strongly disagree	110	120	60	30	0	20	10	<b>350</b>
Disagree	10	10	30	70	140	70	130	<b>460</b>
Undecided	2	0	8	0	0	0	0	<b>10</b>
Agree	10	36	10	30	104	10	9	<b>209</b>
Strongly agree	5	50	2	7	0	3	10	<b>77</b>

Table 2. Perception of Mothers on Hygiene Variables Studied.

(Source: Field Work, 2017)

Districts	Questions					
	Q1	Q2	Q3	Q4	Q5	Q6
Enugu-Ezike	3.92	4.17	2.81	3.14	4.14	1.47
Nsukka	2.31	1.3	2.56	3.03	2.12	2.47
Isi-Uzor	2.01	1.65	2.73	2.35	2.21	1.76
Udi	3.87	4.02	2.34	2.49	3.63	2.37
Enugu	4.41	4.39	4.22	4.01	4.13	3.95
Agbani	3.97	4.15	3.09	2.48	3.64	2.09
Awgu	2.7	1.21	2.4	2.79	1.12	2.24

Table 3: The mean responses for the perception of mothers on hygiene factors affecting diarrhea occurrence in the study area.

(Source: computation from Table 2.)

#### Tests of Between-Subjects Effects

Dependent Variable: Observations

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	21.627 <sup>a</sup>	6	3.604	7.235	.000
Intercept	353.568	1	353.568	709.694	.000
Districts	21.627	6	3.604	7.235	.000
Error	17.437	35	.498		
Total	392.632	42			
Corrected Total	39.064	41			

Table 4. The analysis of variance of the perception of mothers on hygiene.

(Source: Authors SSPS, Analysis of Variance, 2017)

Compared districts	Mean difference	Leader	Rank
Enugu-Ezike vs Nsukka	0.9767	Enugu	6
„ vs Isi-Uzor	1.1567		
„ „ Enugu	-0.9100		
„ „ Awgu	1.1983		
Nsukka vs Enugu-Ezike	-0.9764	Agbani	4
„ vs Enugu	-1.8867		
„ vs Agbani	-0.9383		
Isi-Uzor vs Enugu-Ezike	-1.1567	Udi	2
„ vs Udi	-1.0017		
„ „ Enugu	-2.0667		
„ „ Agbani	-1.1183		
Udi vs Isi-Uzor	1.0017	Udi	2
„ vs Enugu	-1.0650		
„ vs Awgu	1.0433		

Enugu vs Enugu-Ezike	0.9100	Enugu	6
„ vs Nsukka	1.8867		
„ „ Isi-Uzor	2.0667		
„ „ Udi	1.0650		
„ „ Agbani	0.9483		
„ „ Awgu	2.1083		
Agbani vs Nsukka	0.9383	Agbani	4
„ vs Isi-Uzor	1.1183		
„ „ Enugu	-0.9483		
„ „ Awgu	1.1600		
Awgu vs Enugu-Ezike	-1.1983	Udi	1
„ vs Udi	-1.0433		
„ „ Enugu	-2.1083		
„ „ Agbani	-1.1600		
„ „ Awgu	-1.1600		

Table 5. Summary of multiple comparisons of mothers' perceptions.

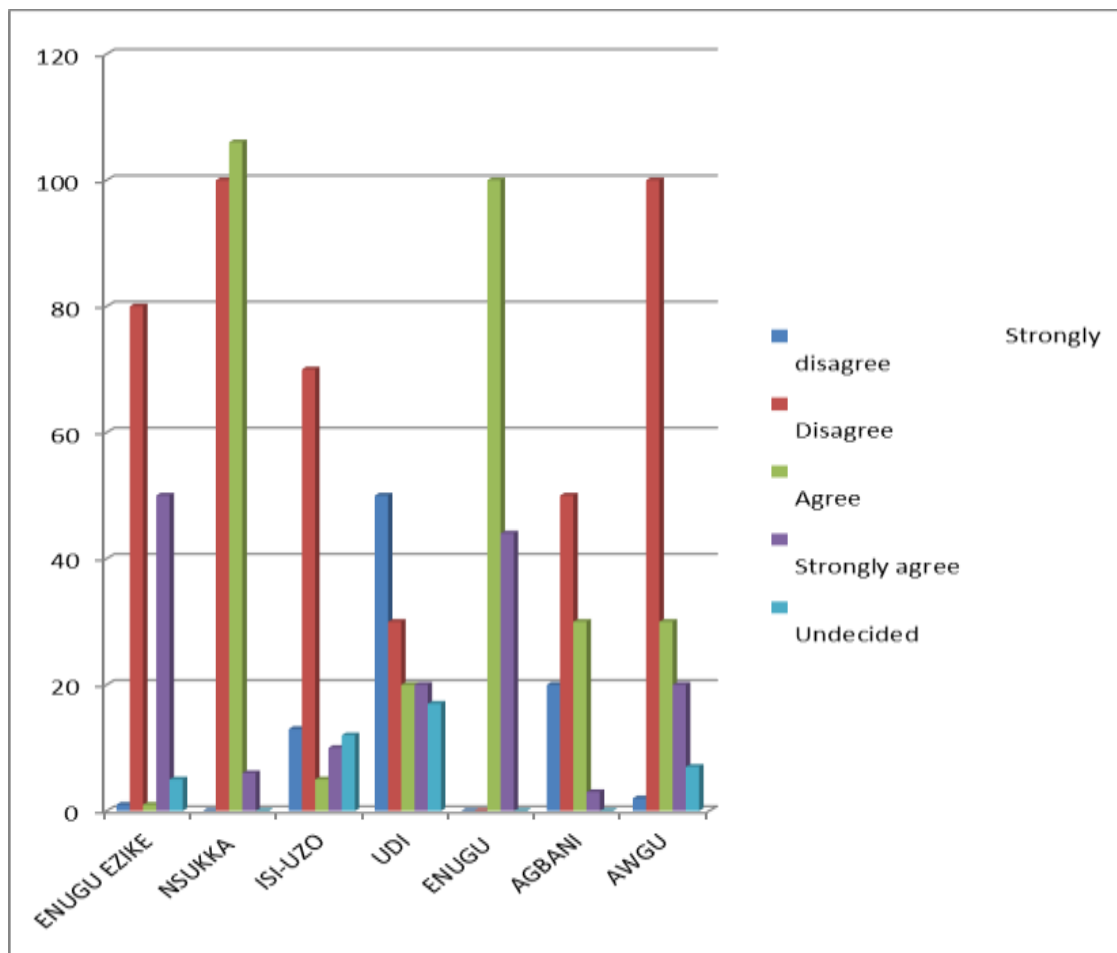


Figure 1. Poor Personal Hygiene of Mother

(Source: Table 2)

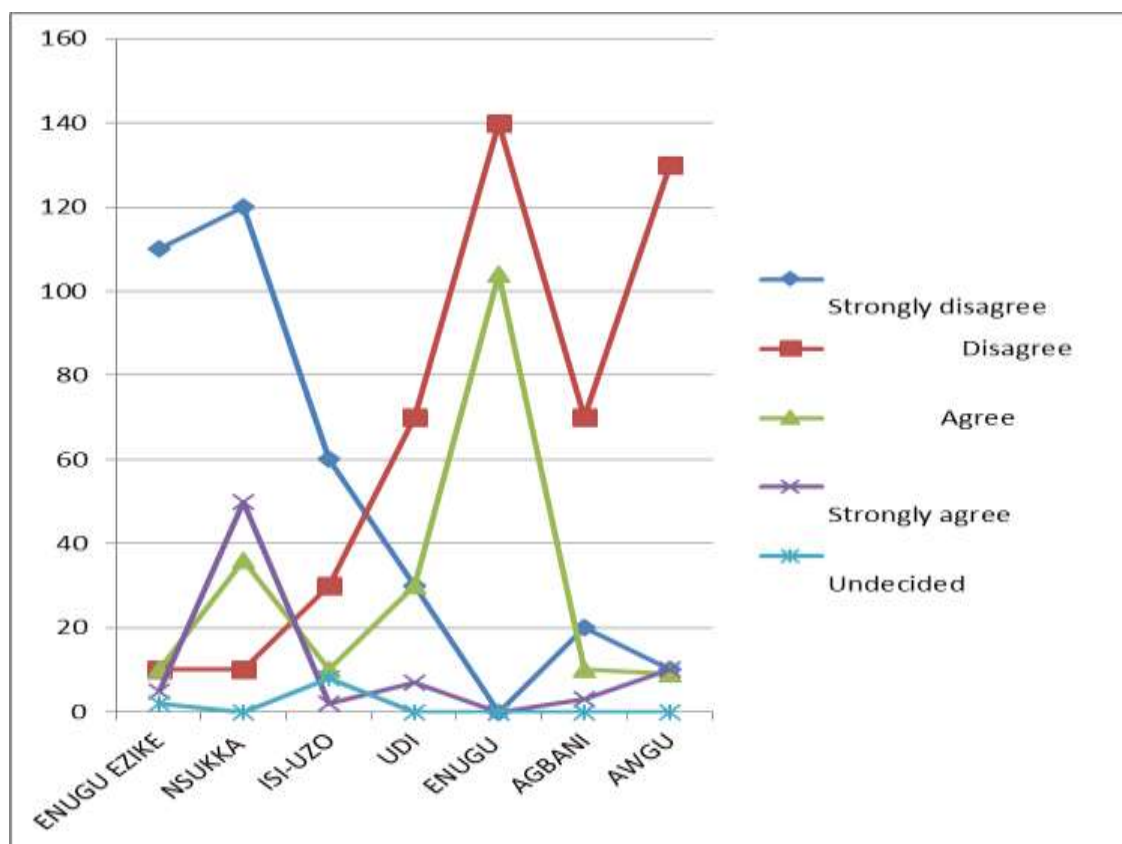


Figure 2: Lack of Exclusive Breast-Feeding

(Source: Table 2.)