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SENSITIZATION OF DIARRHEA VACCINE IN RURAL COMMUNITIES: A CASE STUDY OF ATTA COMMUNITY, IKEDURU LGA, IMO STATE, NIGERIA

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Abstract

This study examines the sensitization of diarrhea vaccine in rural communities focusing on Atta, Ikeduru Local Government Area, Imo State, Nigeria. Utilizing a descriptive survey design, 400 antenatal and post-natal mothers from the two health centers; Ntu Atta Primary health care and Atta health care Center, Ogada were surveyed. Health belief theory was adopted to explain the behavioural pattern while four research questions and objectives guided the study. Data was analysed using percentages and 4 likert scale mean value system. Findings revealed that 100% of the population is aware of the diarrhea vaccine; respondents became more aware of the diarrhea vaccine through the health centers 29%, church 26%, more than broadcast media channels, 51% have their children vaccinated, 31% have not vaccinated theirs while 18% were undecided. The study showed high level of awareness but poor understanding of the need for diarrhea vaccination or any preventive measures for it. It showed little knowledge about the adverse effects of diarrhea such as poor academic performance and delayed physical growth. 49% do not have private toilets in their homes and therefore resort to open defecation with about 49% uninformed about the need for hand washing after using the toilet and 39% do not wash hands before making baby food. The result of the study reiterated the need for concerted effort from government to focus more on public awareness in rural areas with inadequate information concerning the diarrhea disease, mode of transmission, preventive measures, vaccination and cure.

Keywords: Mass Sensitization, Diarrhea vaccine, Atta Community.

Introduction

The World Health Organization defined diarrhea as the passage of three or more loose or liquid stools per day or more frequent passage than is normal for the individual. This infection is caused by poor hygiene, contaminated food, or drinking water (WHO,2012). In the preponderance of cases, it is caused by a digestive system infection caused by bacteria, viruses, and parasitic organisms, among other germs. If left untreated, this could cause the host to be weak, unconscious and even lead to death. The American Academy of Pediatrics in 2016 confirmed that diarrhea is characterized by a watery stool, with other symptoms present. These symptoms consist of stomach pain, fever, bloating, weight loss, body aches, chills, and abdominal cramps. Any child that had more than five bouts of diarrhea or vomited more than twice within 24 hours together with these symptoms should be taken to the doctor with immediacy. The Centre for Disease Control and Prevention (CDC 2013), however, stated that diarrhea can be prevented by drinking only water that is pure and safe and using sewage and wastewater systems that are well maintained. Also, it can be done by observing good hygiene habits, such as consistently washing one's hands with soap, especially before making food and after using the restroom. Public health bodies can as well promote hand-washing to reduce diarrhea rates by about one-third, especially, in developing countries due to dirty water and poor sanitation. A report from UNICEF (2016) shows that in Nigeria diarrhea is twice more prevalent compared to other countries in West Africa. The rotavirus is one of the deadliest diarrhea-causing agents and is responsible for 40% of cases in Nigeria. Fortunately, there is a rotavirus vaccine that protects against diarrhea diseases, yet diarrhea is still a menace. The reason is that the rotavirus vaccine was not included in some country's national routine immunization programs in Nigeria. Again, it was made available in private hospitals at a price many parents in high-risk communities could not afford. This is the case in some other countries. However, the World Health Organization in 2017 urged all countries, especially those with a big caseload of diarrhea mortality rates in children, such as Nigeria, to introduce rotavirus vaccines into their immunization programs.

Sequel to this, the Nigerian government through the National Primary Healthcare Development Agency (NPHCDA) in August 2022 made accessible the vaccine to all by introducing the rotavirus vaccine into the national routine immunization schedule for infants and children aged 6,10 and 14 weeks for free. Regrettably, some private hospitals across the country charge parents about 20,000 Naira per inoculation, one of the three required doses of the vaccine which evidently they cannot afford. Mapping by the ROTA Council shows that Nigeria is among the 79% of African countries (including Senegal, Mali, Burkina Faso, Kenya, and Ethiopia) and 115 countries worldwide that have introduced the rotavirus vaccines into their national routine immunization schedule.

This vaccine for diarrhea is capable of preventing about 50,000 deaths of Nigerian children yearly, according to a report by the WHO African office. Researchers as well have reported about a 59% reduction in hospitalization due to rotavirus and a 36% reduction in diarrhea deaths in children below 5 years among over 100 countries that have introduced the rotavirus vaccine.

The Problem

Diarrhea commonly known in Igbo language as "afopiripiri" has been acknowledged as a child killer disease which parents do not pay close attention to considering that it comes from contaminated water, unwashed hands and other unsanitary factors. In rural communities, markets and trade zones are not equipped with toilets and water supply. Nursing mothers often compromise hygiene practices when it comes to their children in a bid to tend to customers. With efforts to adopt and maintain good sanitary behaviors, there is still an alarming significant increase in cases of diarrhea in Nigeria and this is because of poor or misdirected sensitization broadcast campaigns to grassrootcommunities. The study aimed to investigate and assess the awareness and sensitization levels of campaign strategies in Imo State in curbing diarrhea with a focus on Atta Community, Ikeduru Local Government Area, Imo State.

Objectives of the study

1. To estimate the level of awareness for the diarrhea vaccine (rotavirus vaccine) by the residents of Atta community.
2. To study the spread of diarrhea and its control among children in Atta Community.
3. To sensitize the residents of Atta Community on the need to take diarrhea vaccination.
4. To stimulate hygienic practices among the populace for handling their children.

Research Questions

1. What is the level of awareness of diarrhea vaccine among the residents of Atta community?
2. How can the spread of diarrhea among children in Atta Community be controlled?
3. Do the residents of Atta Community know the benefits of taking the vaccine?
4. In what ways can the residents of Atta Community protect their children from diarrhea?

Scope of the study

The scope of this research work will estimate the level of awareness of the diarrhea vaccine by residents of Atta Community. It will also sensitize the residents of Atta on the need to take up the diarrhea vaccination and stimulate aseptic practices among the populace on handling their children.

Significance of the study

The residents of Atta will have more awareness of the causes, symptoms, and preventive measures for diarrhea and understand the need to be vaccinated. The community leaders with government will know the best channels to use in creating awareness campaigns on health matters.

Literature Review

Diarrhea

Diarrhea is an infection of the intestines due to a virus, bacterium, or parasite a condition also known as gastroenteritis which leads to having at least three loose, liquid, or watery bowel movements each day. It often lasts for a few days and can result in dehydration due to fluid loss. This can progress to decreased urination, loss of skin color, a fast heart rate, and a

decrease in responsiveness as it becomes more severe. Loose but non-watery stools in babies who are exclusively breastfed, however, are normal (WHO, 2017).

The Centre for Disease and Control in 2013 reported that about 1.7 to 5 billion cases of diarrhea occur per year. It is most common in developing countries, where young children get diarrhea on average three times a year. Total deaths from diarrhea are estimated at 1.53 million in 2019—down from 2.9 million in 1990. In 2012, it was the second most common cause of death in children younger than five. Frequent episodes of diarrhea are also a common cause of malnutrition and the most common cause in those younger than five years of age. Other long-term problems that can result include stunted growth and poor intellectual development.

Dysentery

If there is blood visible in the stools, it is also known as dysentery. The blood is a trace of an invasion of bowel tissue. Dysentery is a symptom of, among others, Shigella, Entamoebahistolytica, and Salmonella (Moon et al., 2015)

Causes of Diarrhea

Viral gastroenteritis with rotavirus accounts for 40% of acute diarrhea cases in children under five. Norovirus is the most common cause of viral diarrhea in adults, but rotavirus is the most common cause in children under five years old (Patel et al., 2009).

Chronic diarrhea can be caused due to the presence of several chronic medical conditions affecting the intestine. Common causes include ulcerative colitis, Crohn's disease, microscopic colitis, celiac disease, irritable bowel syndrome, and bile acid malabsorption. (Navaneethan et al., 2008).

In the latter stages of human digestion, ingested materials are inundated with water and digestive fluids such as gastric acid, bile, and digestive enzymes to break them down into their nutrient components, which are then absorbed into the bloodstream via the intestinal tract in the small intestine. Before defecation, the large intestine reabsorbs the water and other digestive solvents in the waste product to maintain proper hydration and overall equilibrium. Diarrhea occurs when the large intestine is prevented, for any number of reasons, from sufficiently absorbing the water or other digestive fluids from fecal matter, resulting in a liquid, or "loose", bowel movement (Wilson, 2005).

Sanitation

According to (WHO, 2014), open defecation is a leading cause of infectious diarrhea leading to death. Poverty is a good indicator of the rate of infectious diarrhea in a population. This association does not stem from poverty itself, but rather from the conditions under which impoverished people live. The absence of certain resources compromises the ability of the poor to defend themselves against infectious diarrhea. "Poverty is associated with poor housing, crowding, dirt floors, lack of access to clean water or sanitary disposal of fecal waste (sanitation), cohabitation with domestic animals that may carry human pathogens, and a lack of refrigerated storage for food, all of which increase the frequency of diarrhea. Poverty also restricts the ability to provide age-appropriate, nutritionally balanced diets or to modify diets when diarrhea develops to mitigate and repair nutrient losses. The impact is exacerbated by the lack of adequate, available, and affordable medical care." (Jamison, 2006)

Effects of Diarrhea

Diarrhea disease may hurt both physical fitness and mental development. "Early childhood malnutrition resulting from any cause reduces physical fitness and work productivity in adults," and diarrhea is a primary cause of childhood malnutrition (Guerrant, 1992). Further, evidence suggests that diarrheal disease has significant impacts on mental development and health; it has been shown that, even when controlling for helminth infection and early breastfeeding, children who had experienced severe diarrhea had significantly lower scores on a series of tests of intelligence (Grantham-McGregor, 2000).

Prevention of diarrhea

Hand washing: Hand washing in developing countries, however, is compromised by poverty as acknowledged by the CDC: "Hand washing is integral to disease prevention in all parts of the world; however, access to soap and water is limited in several less developed countries. This lack of access is one of many challenges to proper hygiene in less developed countries." Solutions to this barrier require the implementation of educational programs that encourage sanitary behaviors (CDC, 2013).

Water: Given that water contamination is a major means of transmitting diarrhea disease, efforts to provide a clean water supply and improved sanitation have the potential to dramatically cut the rate of disease incidence. It has been proposed that we might expect an 88% reduction in child mortality resulting from diarrhea disease as a result of improved water sanitation and hygiene (Black et al., 2003). Similarly, a meta-analysis of numerous studies on improving water supply and sanitation shows a 22–27% reduction in disease incidence and a 21–30% reduction in mortality rate associated with diarrhea disease.

Chlorine treatment of water, for example, has been shown to reduce both the risk of diarrhea disease and contamination of stored water with diarrhea pathogens (Arnold et al., 2007).

Vaccination: Immunization against the pathogens that cause diarrheal disease is a viable prevention strategy; however, it does require targeting certain pathogens for vaccination. In the case of Rotavirus, which was responsible for around 6% of diarrheal episodes and 20% of diarrheal disease deaths in the children of developing countries, the use of a Rotavirus vaccine in trials in 1985 yielded a slight (2–3%) decrease in total diarrheal disease incidence, while reducing overall mortality by 6–10%. Similarly, a Cholera vaccine showed a strong reduction in morbidity and mortality, though the overall impact of vaccination was minimal as Cholera is not one of the major causative pathogens of diarrheal disease. Since this time, more effective vaccines have been developed that have the potential to save many thousands of lives in developing nations, while reducing the overall cost of treatment, and the costs to society (Rheinganset at., 2009).

Rotavirus vaccines decrease the rates of diarrhea in a population (Soares-Weiser et al., 2004). New vaccines against rotavirus, Shigella, Enterotoxigenic Escherichia coli (ETEC), and cholera are under development, as well as other causes of infectious diarrhea.

ATTA, IKEDURU LGA

Ikeduru local government was created out of the former Mbaitolu/Ikeduru local government areas in 1989 and is one of the 27 local government areas in Imo state, Nigeria. Its headquarters is located at Iho along Iho-Uboakiri road Mbaitoli. It shares boundaries with

IsialaMbano on the North, Owerri North Local Government Area on the south, AbohMbaise and Ahiazu Local Government Areas on the West, Ikeduru has a population of about 178,481(mindat.org). It has two health centers, Ntu Atta Primary Healthcare and Atta Health Care Centre Ogada in the local government. The people are known for their agricultural produce such as cassava, palm wine, palm oil, maize, cocoyam etc. Atta is one of the gatewayto the capital city Owerri.

Empirical Studies

Patel et al., 2009 assessed the effectiveness and public health impact of rotavirus vaccines after their introduction in immunization programs. In this article, they reviewed data for the protective efficacy of the 2 new rotavirus vaccines, with emphasis on issues particularly important for consideration as these vaccines are introduced in routine infant immunization programs.

Parishes, 2009 worked on the Global mortality associated with rotavirus disease among children in 2004. They discovered that rotavirus accounted for 527,000 deaths) annually or 29% of all deaths due to diarrhea among children under 5 years of age. These baseline figures will allow future assessment of vaccine impact on rotavirus-associated mortality.

Eleanor et al., 2020, studied the Global impact of rotavirus vaccination on diarrhea hospitalizations and deaths among children less than five years old. They reviewed published data on relative reductions of rotavirus hospitalizations, acute gastroenteritis (AGE) hospitalizations, and AGE deaths among children under 5 years old. They discovered that reductions were larger in countries with low child mortality, among younger age groups than in countries with higher coverage.

Lauren et al., 2019 studied the impact of rotavirus vaccine introduction on children less than 2 years of age presenting for medical care with diarrhea in rural Matlab, Bangladesh. They estimated the impact of HRV introduction. They used diarrheal surveillance collected between 2000 and 2014 within the 2 service delivery areas.

THEORETICALFRAMEWORK

Health Belief Model (HBM)

The health belief model (HBM) according to Okunna (2020) is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly concerning the uptake of health services. The HBM was developed in the 1950s by social scientists Irwin M. Rosenstock, Godfrey M. Hochbaum, S. Stephen Kegeles, and Howard Leventhal at the U.S. Public Health Service to understand the inability of people to adopt disease prevention strategies or the screening tests for early detection of diseases. The theory assumes that mass media and communication can positively influence people to take necessary steps to prevent a health condition that will be detrimental to people's health, cognitive behavior as well as economy. The theory has six constructs; Perceived susceptibility, Perceived severity, Perceived benefits, Perceived barriers, Cues to action, and Self-efficacy.

The HBM is one of the first theories of health behavior and remains one of the best-known and most widely used theories in health behavior research. The HBM was originally developed to explain engagement in one-time health-related behaviors such as being screened for cancer or receiving an immunization.

Health educators, medical experts, and psychologists all across the world have embraced HBM as a paradigm for behavior modification.

Research Methodology

Research design

For quantitative and descriptive research of this nature, the descriptive survey design will be adopted. Ndiyo, (2005), described descriptive survey design as a process of extracting information from a target population through the use of observations, questionnaire and/or interviews, subjecting the data that are obtained to statistical analysis for the purpose of drawing conclusions.

Population of the study

The population of the study comprises four hundred (400) accessible registered antenatal/postnatal care mothers from Ntu Atta Primary Health Centre and Atta Health Care Centre Ogadain 2024 who without incentives or coercionobliged to participate in the study.

Ethical Clearance

The Researcher got ethical clearance to carry out the Study from Alex Ekwueme Federal University Ndufu Alike Ikwo Research Ethics Committee. (Appendix 1)

3.3 Sample Size and Technique

Since the number of registered patients is 400, a census approach was adopted for the study. This is because the researcher needed detailed information, general overview and opinion of the study sample.

Instrument of data collection

The well-structured questionnaire was one of the main tools the researcher used to gather data. The questionnaire provided a list of options for the respondents to choose from in the questionnaire's response.

Validity/Reliability of instrument of data collection

The instrument used for this study was subjected to a validation exercise. Copies of the instrument together with the research topic, objective of the research and the research questions were sent to scholars in Mass Communication Department, Alex Ekwueme Federal University Ndufu Alike Ikwo (AE-FUNAI) for validation and reliability test with 50 copies sent to their Nursing final year students for a test-retest.

Method of data presentation and analysis

The research questions would be answered using percentage (%) and tables. It was chosen because it is best used to show if there is a relationship between two categorical variables.

DATA PRESENTATION AND ANALYSIS

Return rate of questionnaire

Table1: Return rate of the questionnaire.

Respondents	Distributed questionnaire	Returned questionnaire	Wrongly filled questionnaire	Properly filled questionnaire	Percentage Valid Questionnaire (%)	Questionnaire not returned	Percentage (%)
Postnatal mothers	400	394	6	388	98	6	2
Total	400	394	6	388	98	6	2

Source: Field Survey (2024)

Table1 above shows 400 questionnaires representing 100% were distributed to the postnatal mothers at the health facility at Ntu in Atta community, Ikeduru LGA, Imo State. 6 were not returned. During the data collection, it was discovered that out of the 394 questionnaires returned, six (6) which represents 2% were wrongly filled and discarded, while 388 which represents 98% were properly filled and found usable for the data analysis.

Demographic characteristics of the respondents

Table2 Demographic characteristics of the postnatal mothers at the health center at Ntu in Atta community, Ikeduru LGA, Imo State

Variables	Frequency (Persons)	Percentage (%)
Age		
18-20	47	12
21-26	97	25
27-32	130	33
33-38	96	25
39 and above	18	5
Total	388	100

Marital status		
Single	7	2
Married	381	98
Divorced	0	0
Total	388	100
Educational Qualification		
No formal education	8	2
FSLC	98	25
SSCE/GCE	201	52
OND/NCE	37	10
HND/Bsc	44	11
Msc/PhD	0	0
Total	388	100
Occupation of respondents		
Trader	237	61
Student	9	2
Civil Servant	30	8
Farmer	90	23
Others	22	6
Total	388	100
Has your child or any of your children experienced diarrhea?		
Yes	298	77
No	90	23
Total	388	100

Source: Field Survey (2024)

Table 2 above shows that the majority of the respondents are mothers between the age of 27-32 who constitute 33%, followed by those between the age of 21-26 and 33 to 38 with 25% respectively. Those within the age bracket of 18-20 constitute 12% of the responses and lastly, 39 and above with 5%.

Also, as shown in the marital status in the same table above, 98% of the respondents are married while 2% are single mothers with no divorcees.

Their educational qualifications show that a large number of the respondents which were calculated at 209 representing 52% are SSCE/GCE holders, while 98 representing 25% are FSLC holders, followed by 37 representing 10% of the respondents who are OND holders and HND/B.Sc holders with 44 representing 11% and lastly no formal education with no formal education 8 representing 2%.

As regards the occupation of the respondents, 237 representing 61% are traders, 90 representing 23% are farmers, 30 representing 8% are Civil Servants, 22 representing 6% as others while 9 representing 2% are students.
Lastly, 298 representing 77% of the respondents stated that their children had experienced diarrhea before while 90 representing 23% said no.

Table 3: Are you aware of the diarrhea (Afopiripiri) vaccine?

Responses	Frequency (persons)	Percentage (%)
Yes	199	51
No	189	49
Undecided	0	0
Total	388	100

Source: Field Survey (2024)

As shown in table 3 above, 199 respondents representing 51% are aware of the diarrhea vaccine while 198 representing 49% are not aware of the vaccine.

Table 4: How did you get to know about the vaccine?

Responses	Frequency (persons)	Percentage (%)
Television	76	20
Radio	98	25
Church	102	26
Health center	112	29
Total	388	100

Source: Field Survey (2024)

The vast majority of the respondents which comprises 62% knew about the vaccine from the health center, 26% from their churches, 25% through radio, and 20% through television.

Table5: Has your child been vaccinated?

Responses	Frequency (persons)	Percentage (%)
Yes	197	51
No	120	31
Undecided	71	18
Total	388	100

Source: Field Survey (2024)

This table shows that 51% of the respondents have vaccinated their children, 120 representing 31% are yet to vaccinate their children while 71(18%) are undecided about their decision.

Table 6: Did you find the campaign messages informative enough to encourage you to vaccinate your child?

Responses	Frequency (persons)	Percentage (%)
Yes	200	52
No	157	40
Undecided	31	8
Total	388	100

Source: Field Survey (2024)

The table above shows that 200(52%) of the respondents found the campaign message informative, 157 (40%) did not find it informative while 31(8%) were undecided about the campaign message.

Table 7: Do you know that diarrhea is caused by poor personal hygiene, dirty environment, and water?

Responses	Frequency (persons)	Percentage (%)
Yes	388	100
No	0	0
Undecided	0	0
Total	388	100

Source: Field Survey (2024)

As shown in the table, 100% of the respondents agreed to the fact that diarrhea is caused by poor personal hygiene, dirty environment, and water.

Table 8: Are you aware that children under the age of five are mostly affected by diarrhea?

Responses	Frequency (persons)	Percentage (%)
Yes	201	52
No	173	44
Undecided	14	4
Total	388	100

Source: Field Survey (2024)

The table shows that 201(54%) of the respondents are aware that children under the age of five are mostly affected by diarrhea, 173(33%) said no while the remaining 14(4%) were undecided.

Table 9: Do you know that diarrhea in children can result to stunted growth, low academic performance and weak immune system?

Responses	Frequency (persons)	Percentage (%)
Yes	112	29
No	270	70
Undecided	6	1
Total	388	100

Source: Field Survey (2024)

From the table above, 112(29%) of the respondents know that diarrhea can lead to stunted growth, low academic performance in school and weak immune system, 270(7%) were not aware while 6(3%) of the respondents are undecided.

Table 10: Do you wash your hands before preparing your child's meals?

Responses	Frequency	Percentage
Yes	201	52
No	146	38
Undecided	41	10
Total	388	100

Source: Field Survey (2024)

From the table above, 201(52%) acknowledged washing their hands while 146(38%) declined washing hands and 41(10%) were undecided.

Table 11: What is the source of your drinking water?

Responses	Frequency (persons)	Percentage (%)
Stream	198	51
Borehole	77	20
Pure water	17	4
Well	113	29
Total	87	100

Source: Field Survey (2024)The table shows that198(51%) of the respondents get their drinking water from the stream, 77(20%) from the borehole, 17(4%) take pure water and113(29%) get their drinking water from the well.

Table 12: Do you have a private toilet in your house?

Responses	Frequency (persons)	Percentage (%)
Yes	199	51
No	189	49
Undecided	0	0
Total	388	100

Source: Field Survey (2024)
The results from the table indicate that 199(51%) of the respondents have private toilets in their various houses while 189(40%) do not have private toilets in their houses.

Table 13: Do you wash your hands after using the toilet?

Responses	Frequency (persons)	Percentage (%)
Yes	198	51
No	190	49
Undecided	0	0
Total	388	100

Source: Field Survey (2024)

Table 13 shows that 51% of the respondents wash their hands after using the toilet while 49% do not wash their hands after using the toilet.

Table 14: Do you know that keeping your toilets clean and disinfected prevents diarrhea?

Responses	Frequency (persons)	Percentage (%)
Yes	66	76
No	21	24
Undecided	0	0
Total	87	100

Source: Field Survey (2024)

The table shows that 76% of the respondents agreed that keeping their toilets clean and disinfected prevents diarrhea while 24% do not know about that.

Table 15: The campaign messages you heard, did it talk about washing hands, clean environment, water source, medical attention and vaccination as solutions to curbing diarrhea?

Responses	Frequency (persons)	Percentage (%)
Yes	201	52
No	149	38
Undecided	38	10
Total	388	100

Source: Field Survey (2024)

From the table above, 201 (52%) acknowledged the apt nature of the advertisements, 149(38%) did not agree while 38(10%) were undecided.

4.2 DISCUSSION OF FINDINGS

The demographic findings indicated that women in Atta Community of bearing age are between 21- 26 (25%) and 27-32 (33%) indicating that they are young, boisterous and physically certified to raise children. There is high regard for culture and tradition as 98% of the women are married. There is mass literacy in Atta Community as 52% are educated to the level of SSCE/GCE. Research question one sought to find out the level of awareness of the diarrhea vaccine among the residents of Atta community, Ikeduru LGA. Tables 3, 4 and 5 shows that there is a great level of awareness of the diarrhea vaccine among the residents.

However, the findings suggest that respondents get information mostly from the healthcare facility and their local churches than through the media. There is an urgent need for

government to adopt a communication mix when disseminating development messages as many of the residents hardly pay attention to radio and television messages but adhere to information from their churches and health centers. This conforms to Nwabueze (2005), mass media should be able to keep people informed about development projects, programs, or issues that are either ongoing or need attention in their communities. As it concerns HBM theory, it explains why respondent with access to information will respond faster and better to vaccination, unlike people without information. For instance, in 2019, studying Australians and their self-reporting of receiving the influenza vaccine. Researchers found that those with high perceived severity were more likely to receive the influenza vaccine than those with moderate severity.

The second research question inquired how to stop the spread of diarrhea. Table 5, 6 and 7 supplied answers and 51% acknowledged vaccinating their children would help, 52% encouraged more informative awareness campaigns to convince mothers to go for vaccination and 100% compliance with hygiene. This adds weight to CDC (2013) that hand washing is integral to disease prevention in all parts of the world and most developing countries should be educated on the need to adopt sanitary behaviors. Associating it with HBM theory, Self-efficacy and perceived barriers are significant predictors of physical activity and should be included in interventions. Mo et al. (2016), in a study that was interested in examining the factors associated with physical activity among people with mental illness (PMI) in Hong Kong, used the HBM model, and concluded that PMI and physical activity is a good approach to attention arresting and passing of valid message through acts of demonstration.

Research question three sought to find out whether the residents of Atta community know the benefits of taking the vaccine. Table8, 9 and 15 point to the fact that the revention of diarrhea increases a child's mental health for education, encourages physical growth and boosts the immune system. The finding aligns with Parashar, (2009) position, that the high mortality associated with rotavirus disease emphasizes the need for targeted interventions, such as vaccines.

Research question four sought to find out how the community can improve hygiene and clean environment. The findings show that the residents of the community get water from streams and wells. Also, it was discovered that most respondents do not have private toilets and this is a major factor why communicable diseases spread. HBM has been used to develop effective interventions to change health-related behaviors by targeting various aspects of the model's key constructs. These interventions may aim to increase perceived susceptibility to and perceived seriousness of a health condition, alter the cost-benefit analysis of engaging in a health-promoting behavior, provide clues to action, and boost self-efficacy. They can be aimed at the individual or societal level. Jamison (2006), stated that the absence of certain resources like lack of clean drinking water and proper fecal disposal systemtogether with poor sanitation, poor housing, dirty environment and cohabitation with domestic animals that may carry human pathogens in the rural communities compromises the ability of the poor to defend themselves against infectious diarrhea.

Conclusion and Recommendations

The study revealed 100% awareness of diarrhea vaccine; a significant majority do not see the urgency or need to get their children vaccinated as the awareness messages on broadcast

media are not effective. There is poor personal hygiene and economic challenges as most homes share common toilets. Water is sourced from streams and wells which could be easily contaminated. Consequently, there is need for concerted government public health awareness using a mixed method approach to arrest the attention of grassroots communities on the awareness and benefits of vaccination.

Recommendations

1. Government should take advantage of the communication platforms that are cost-effective and closest to the mothers such as; health center 29%, and churches 26% to pass the information about the causes of diarrhea disease, its consequences, preventive measures and cure.
2. Government should enforce monthly environmental sanitation in the rural communities. Increase the presence of health sanitation workers in rural communities. During the process, they should sanction people who have no toilet and those whose compound are dirty.
3. Government should make provision for good drinking water for the community.
4. Since most of the residents find it challenging to go to the health center, the government can encourage market and church vaccinations as a means to deescalate the rate of diarrhea.

Appendix 1

ALEX EKWUEME FEDERAL UNIVERSITY, NDUFU-ALIKE, IKWO

P.M.B. 1010, ABAKALIKI, EBONYI STATE, NIGERIA

REF: FUNAI/SEN/EBC/17/VOL.1/34 28th September, 2024

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Alex Ekwueme Federal University Ndufu Alike, Ikwo.

ACADEMIC RESEARCH ETHICS ACCEPTANCE LETTER

The University Ethics Committee at its 34th Regular Meeting on 28th September, 2024 approved your application and request for **HUMAN INVESTIGATION** with the research topic **"Mass sensitization of Diarrhea vaccine in rural communities: A case study of Atta Community, Ikeduru LGA, Imo State, Nigeria."** The duration for this approval is three months from the approval date 28th September to 28th December, 2024. At this juncture, a review of the work by the Committee will either extend or revoke the approval. This is subject to the findings of the committee following a review of the research.

By this, you are expected to abide by the terms and conditions within the ethical application forms signed by you and also the **investigators declaration page**. Failure to comply with these conditions will automatically lead to the withdrawal of the acceptance.

Congratulations on your acceptance and best wishes on your research.
Yours Sincerely,

Dr. Chukwuemeka O. Nwankiti
Secretary

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