

# COMMUNITY RESPONSE AND POLIO ERADICATION PROGRAMME IN SELECTED LOCAL GOVERNMENT AREAS OF KANO STATE, NIGERIA 2003-2020

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**Abstract:** *The study Community Response and polio eradication programme in selected Local Government Areas of Kano State, Nigeria, was chosen as a topic to unravel a sustainable approach toward meeting a target on any global healthcare programme or policy in our communities. Through the establishment of this model, the issue of massive vaccines rejection which led to high level of infant mortality among children below the age of 5 years in Kano State in 2003 will be a history. Moreover, polio eradication programme suffered a massive public rejection in Kano state in 2003 which contributed to the unnecessary delay in the success of eradicating the polio virus in the country for more than 32 years. Consequently, this study was premised on structural functionalist theory as opined by Gabriel Almond, which was found to be more suitable for the study because of its proposition that says; every political system must have its various parts working together harmoniously with each other in order to achieve stability, security and equity in the society and this has been the major trust of this study. Also, the study adopted a survey method with a population of 1,295,465 drawn from the Six Local Government Areas; Gaya, Takai, Tarauni, Dala, Kobo and Tofa, randomly selected from the 44 Local Government Areas Kano state, using a sample size of 384 through the adoption of Krejcie & Morgan approach (1970) with application of stratified, purposive and proportionate sampling techniques. The research instrument used was a questionnaire and all the data collected was analyzed using parameters such as; measures of central tendencies, measure of dispersion and the application of inferential data analysis technique in form of regression and correlation analysis. Hence, the findings of the study indicated the existence of a positive and strong correlation between community response as independent variable and polio eradication programme as a dependent variable based on the multiple regressions of 95% confidential interval. Also, the findings had indicated that economic status, socio cultural belief, parent awareness on polio virus, Government commitments and the role of traditional rulers all having a positive and strong effect on polio eradication programme in the Area of the study. Based on all the findings above, it was recommended that policy makers should always take cognizance of different factors existing in each community in terms of their culture, attitude, behavior, religious belief, parent awareness, economic status etc before embarking on any integrated global healthcare programme or policy in order to achieve desired objectives within the target period.*

**Keywords:** *Community, Community Response, Polio, Polio Eradication*

## **INTRODUCTION**

The basic aim of polio eradication programme introduced in 1988 by the World Health Organization was to provide a global platform for effective healthcare delivery among nations through global alliance with view to rapidly checkmate all infant killer diseases across the World. Several reasons such as cultural belief, religious belief, attitude, behaviors etc were regarded by many scholars as major factors that determine the way and manner people respond to various healthcare programmes and policies in our societies in the past. However, recent studies conducted under this study have indicated that lack of community ownership and support on global healthcare programmes or policies were more responsible than cultural or attitudinal factors. This situation contributed to massive vaccines rejection and the entire polio eradication programme by the public in my study area, Kano state, which led to high mortality rate among children below the age of 5 years in 2003. State Government and various communities played a major part in this unfortunate situation by criticizing the polio immunization exercise, which resulted in a serious backlash of the polio virus into country that was nearly eradicated in the year 2000.

Nigeria with total population of about 140 million people based on 2006 National population census had several cases of polio virus among its children under the age of 5 years, especially in the northern region in 2003 due to sudden interruption of polio immunization activities by Kano state Government. Therefore, as result of this unfortunate incident the country introduced number of strategies to with view to reach every child during the period of immunization exercise for quick interruption of polio virus that was raging like wild fire in the state and the country in general at that time, (CDC Report, 2006; WHO report, 2005) Similarly, as result of this ugly trends in Kano state in 2003 which resulted in the increased of polio virus cases across the country and to over 20 other polio-free neighboring countries (MMWR, 2008; Margaret, 2008). According to American Global center for disease control report (2009), between the year 2000 to 2009, Nigeria was the major source of wild polio virus type one (WPV1) that causes paralysis and transmitted same to over 11 other non-polio nations across the World, while large number of wild polio virus type three (WPV3) were also spread to another four new polio free nations.

However, a new National Programme Immunization (NPI) was introduced in Nigeria as supplementary immunization activities (SIA) in 2005, with view to quickly checkmate the wide spread polio virus through the combination of oral polio vaccines for children on house to house delivery basis to achieve overall polio vaccine coverage in the country and was basically centered on those communities that earlier rejected exercise. Polio eradication programme in Nigeria took different dimension in 2003, when several states in the Northern part of the country boycotted the exercise on account of a wrong notion that the vaccines were contaminated with HIV/AIDS and anti-pregnancy steroids.

### **The study provided answers to the following research questions**

- i. What is the effect of economic status of parents on their participation in the polio eradication programme in Kano State?
- ii. What is the role of socio-cultural belief of parents on their participation in the polio eradication programme in Kano State?

## THEORETICAL FRAMEWORK OF THE STUDY:

### Structural Functional Approach theory

For the purpose of this study, structural functional approach theory was adopted, which was an approach introduced by Gabriel Almond as a tool of political analysis than can be applied in various social science researches. According to Gabriel Almond, political system is a complex form of interaction that involves many of its working together in a given society, through which public policies are made and implemented, ( Swiader, Lin, Szewranski, Kazak, Iha, Van Hoof & Altiok, 2003). He noted that every political system has some structures and these structures perform various functions assign to them with aim of achieving common objective. According to Gonda (2019), political system in always move by the political life, which makes it necessary to react in the environment, believing that a political system can be open or adaptive. However, Almond maintained his analysis on exchange and interaction between parts in a political system for equity, stability and sustainability. In his major work; the politics of the developing nations, he drew the attention of researchers to an interesting political point , where he stresses the differences existing between developed and developing nations intern of physical and psychological life, but as far as the function of the structures they perform almost the same role and that simply means constitution.

Gabriel Almond opined that every political system consist an environment, institutions such as; political parties, legislature, executive, judiciary etc., which directly or indirectly relate with one another, with view to achieve stability, security and sustainability in a political system or environment ( picciotto, 2020). However, David Easton was another scholar who developed another model of political analysis similar to Almond approach. But, his concern basically was to study on how political system changes to a modern system and he developed his analysis on inputs-output approach and his inputs basically includes; demands and supports, while output includes; policies, decisions, political socialization, interest articulation and political aggregation (Oduro, 2020).

Also, the inputs of Almond and Powel are performed basically outside the environment of a giving society by other sub-systems and they are the sole responsibilities of the government. According to their analysis, political system is open, adaptive and permanently received inputs from the sub-system in the environment, which were converted directly to outputs. The outputs from the inputs according them include; policies, decisions,, rule application and rule adjudication, which may be extractive, regulatory or responsive (Ma, Podkopaev, Campbell-Cousins & Nicholas, 2020).

However, considering the nature of the topic; Community Response and Polio eradication in selected Local Government Areas of Kano, Nigeria, structural functionalist theory as opined by Gabriel Almond was found to be more suitable for the study, considering the major elements of the study which are; Government officials, private sectors and stakeholders that play a major role in the overall success of Polio Eradication Programme. Merton (1968), noted that Structural Functionalism is a theory that attempted to explain how society functions, by focusing more on the relationships between various social institutions that make up that society e.g Government, law, education, religion and others. Hence, this study primarily focused on six different factors affect polio eradication as programme or policy among the Six Local Government Areas of Kano State, Nigeria.

However, Woodger (1948), noted that structural functionalist theory has direct link with Aristotle's theory of ultimate causes of nature or actions in relation to their ends or utility. The theory was developed in 17th century in France under Montesquieu's doctrine of separation of powers on a notion that two or more function in a system are best undertaken separately from one other, as a means of ensuring stability and security among various parts of a system, (Fisher, 2010).

## **LITERATURE REVIEW**

### **COMMUNITY AS A CONCEPT**

The term “community,” as used in this research means a social systems within which people live in harmony, affection, intimacy and share common social, economic and cultural values as well as political culture. Community as a concept has been defined in different terms by different scholars through different perspectives. Some defined it from the geographical point of view, while others defined it based on culture, tradition, religion etc, depending on their area of specialization. Hornby (2004), in aspect defined community as a group of persons having the samilar religion, race, occupation, common interest etc. Onyenemezu (2008), defines community as a territorially bounded social system within which people live in harmony love, intimacy and share common social, economic and cultural values. Community and neighborhood are used interchangeably to refer to geographical area, its people and resources within a community. However, community often refers to a relationship existing among places, social relationship, economic and political forces. Dryfoos (2019), summarized his research findings on youth in a community as follows: how young people meet their basic needs and apply competence, depends largely on their strength and direction of influences in their lives and research had indicated family, peers, school, community group, religion organization, place of employment, plus larger social forces such as; neighborhood resources and Jobs are quite very important factors for youth development, (Ginwright & James, 2017).

### **COMMUNITY RESPONS**

The concept community response with regard to healthcare system was first discovered over three decades ago as part of movement for social change. It was envisaged that basic healthcare needs could be achieve more effectively and efficiently through greater involvement of people. Community empowerment was considered central to public participation in any given project, by giving people chance to have a greater say and have more control over their affairs. In fact, community participation can rightly be reducing to healthcare inequalities and general healthcare provision among members of a given community, especially the marginalized ones, (Bamberger, 2008).

World Health Organization summarizes the benefits of community participation as the best approach toward reaching all the healthcare needs of people in a giving society, which can be done through the introduction of various initiatives that can massively engage such community, (O'Mara-Eves, Brunton, Oliver, Kavanagh, Jamal & Thomas, 2015). The term community participation is a process whereby intended beneficiaries of given project are directly involve in planning, designing, implementing and monitoring. Sarkissia Walsh & cook (2017), opined that community participation means an active role of a community, leading to the significant control

of certain decision, while consultation is taking place on how best to execute the project or policy for the benefit of the people in a giving community.

Community participation is guided and facilitated by various legal provisions and in many countries constitution provides the basic framework or principles for the empowerment of both rural and urban communities. Engaging community is possible, though not easy especially in the service delivery programs, which desire positive change in communities at home and abroad. Students must make few important adjustments in their way of service-learning projects, first and foremost, by critically reviewing the main concept of “community”, if objectives are to be met in a given project or policy within a specified period and time.

## **POLIO**

According to Aylward & Tangermann (2013), polio is a highly infectious disease, that causes paralysis and, in some cases, death. There are three types of polio virus: type-1, type-2, and type-3. Polio virus is a disease that enters the body through the mouth, multiplies in the oropharynx, intestine or in the feces of an infected child, which then spread rapidly among children in a community, especially in areas with poor hygiene or sanitation. The virus usually invades the lymph tissues of a child less than five years of age through the gastrointestinal tract, enters the bloodstream and spread to the central nervous system of an infected child. The virus may also spread to the central nervous system through the peripheral nerves and over 90% of children infected with poliovirus either does not or show just a mild symptoms, which can easily go unnoticed.

The initial symptoms of polio virus are as follows; severe fever, fatigue, headache, vomiting, and stiffness on the neck, pain in the limbs and 1 in every 200 infections leads to the irreversible paralysis usually on the legs. Among those paralyzed, 5% to 10% died when they stop breathing and their muscles become immobilized. Polio mainly affects children under the age of five years and there is no single known cure of the disease, but can be prevented through multiple vaccinations on children under the age five years (WHO, 2014).

Polio is a virus known to infect children at their tender age and it is capable of causing different kinds of paralysis. Polio is a short word for poliomyelitis or infantile paralysis and it is an infectious disease caused by poliovirus. In about 0.5 percent of cases, it comes with muscle weakness resulting in an inability to move the entire body. This can occur within a few hours or days of infection. Gammino, Nuhu, Gerber, Gasasira, Sugerman, Manneh and Abanida (2014), observed that Polio (poliomyelitis) is a viral disease transmitted through contaminated food, water or toilet in its severest form; it attacks the nervous system of an infected child leading to paralysis.

## **POLIO ERADICATION PROGRAMMAE**

Polio eradication programme was introduced in 1988 by World Health Organization (WHO), as a global healthcare initiative to fight against polio virus declared as pandemic in over 125 countries and affecting about 350, 000 children every year. In Nigeria the programme was domesticated under National programme of Immunization, which was an Agency under the federal ministry of health with mandate to ensure total prevention of all child killer diseases in the country, including disability and death and vaccines preventable diseases among children. The agency also design programmes or policies that reach all target groups as enshrined in the 2018 National Polio

Eradication Emergency Plan. From this plan and states also develop their own policy plan, depending on the risk status of each state (Bashar, 2018).

However, global polio eradication initiative faced number of challenges since its inception 1988 with view to eradicate polio virus by the year 2000. Polio eradication programme involves halting the incidence of both transmission and total eradication of the virus globally. The Polio Eradication Programme is a global initiative aimed at eliminating polio, a highly infectious viral disease caused by the poliovirus. The program was launched in 1988 by the World Health Organization (WHO), Rotary International, the United Nations Children's Fund (UNICEF), and the United States Centers for Disease Control and Prevention (CDC), with the goal of eradicating polio worldwide. Polio was once a widespread and devastating disease, primarily affecting young children and causing paralysis or even death. The development of polio vaccines by Dr. Jonas Salk and Dr. Albert Sabin in the mid-20th century marked significant progress in controlling the disease.

This incident of polio vaccine boycott and other questions regarding the safety of the vaccines forced government to test the potency of the vaccines used in the Nigeria in 2005 at the presence of religious leaders, community leaders and other international donor agencies to the programme and the result indicated that the vaccines was totally safe, (Gobo & Sena 2022). But, the ugly incident had already crippled the distribution process of the vaccines and the wider immunisation coverage in some of the States in the northern parts of the country. However, this vaccine efficacy test conducted further led to the eventual success in the eradication of poliomyelitis in major part of the country and recorded improved vaccine coverage generally in the country, (Chukwuocha, Emerole, Iwuoha, Dozie, Njoku, Akanaz & Hemingway, 2022).

However, eradication required a coordinated global effort due to the virus's persistence in certain regions.

**The main objectives of the Polio Eradication Programme are as follows**

1. Interrupt Wild Poliovirus Transmission: The program aims to stop the circulation of wild poliovirus, the primary cause of polio cases.
2. Strengthen Routine Immunization: Improving routine immunization coverage helps protect populations against not only polio but also other preventable diseases.
3. Surveillance and Outbreak Response: A robust surveillance system is essential for early detection and rapid response to any polio cases to prevent outbreaks.
4. Containment of Poliovirus: The program aims to prevent any accidental release of poliovirus from laboratories or vaccine production facilities.

**To achieve these objectives, the Polio Eradication Programme applied number strategies as follows:**

1. Vaccination Campaigns: Mass vaccination campaigns are conducted using two types of vaccines: the oral polio vaccine (OPV) and the inactivated polio vaccine (IPV). OPV is primarily used for its ease of administration and ability to induce intestinal immunity.

2. Surveillance and Monitoring: A strong surveillance system tracks cases of acute flaccid paralysis (AFP), which is a key indicator of potential polio outbreaks. This system allows for quick responses to any detected cases.

3. National Immunization Days (NIDs) and Subnational Immunization Days (SNIDs): These are special vaccination campaigns where millions of children are immunized against polio over a short period, often through door-to-door visits.

4. Social Mobilization and Advocacy: Engaging communities, religious leaders, and local organizations is vital for raising awareness, addressing vaccine hesitancy, and ensuring high vaccine acceptance

5. Cross-Border Cooperation: Given the global nature of polio, coordination among countries is crucial to prevent the spread of the virus across borders.

Since the inception of the Polio Eradication Programme, significant progress has been made in reducing polio cases globally. According to the WHO (2020), the number of polio cases dropped from an estimated 350,000 cases in 1988 to nearly just 33 cases in 2020 and by 2021, wild poliovirus transmission had also been interrupted in all the countries of the World, with exception of only two countries, Afghanistan and Pakistan. Despite these successes, the program has faced challenges:

- Inaccessibility: In conflict-affected or remote areas, reaching vulnerable populations with vaccination campaigns has been challenging.
- Vaccine-Derived Polio Outbreaks: In rare cases, the live attenuated virus used in OPV can revert to a form that can cause outbreaks of vaccine derived polio.
- Vaccine Hesitancy: Misinformation and vaccine hesitancy in some communities have hindered vaccination efforts.

Polio Eradication Programme requires sustained funding to maintain operations and implement vaccination campaigns. The Polio Eradication Programme has significantly reduced the global burden of polio and prevented millions of children from contracting the disease. Eradicating polio would not only save lives but also yield substantial economic benefits by eliminating the costs associated with treating and managing polio cases. Therefore, to ensure total eradication within the African region, the World Health Organization (WHO) introduced number of strategies following the resolutions of its regional committee for Africa in 1995 and the organization for African Unity (OAU) meeting of 1996. As result of all these remarkable efforts to reduce the high rate of mortality among children under the age of 5 years from child killer diseases like polio, a global health initiative was introduced in 1988 by World Health Organization called Global Polio Eradication Initiative, (Donbraye, Adewumi, Odaibo, Bakarey, & Opaley, 2011).

According to WHO, 2014 as at 2014 only 3 countries in the world had polio virus and out of these 3 remaining countries each had strains of wild polio virus type 1, and type 2 that was totally eradicated in 1999 and type 3 that was also successfully eliminated from their countries in 2012. However, in 1994 the American region was certified polio-free zone, followed by western pacific region in 2000 and European region in 2002, while in 2014, the South-East Asian region was certified polio-free. This indicated that the transmission of wild polio virus has been interrupted through integrated approach among all the blocks in the world, except within African countries.

This wonderful achievement marks a significant milestone in the global fight against polio virus, with 80% of the world population living in fully certified polio-free regions. Consequently, as a result of this global initiative more than 10 million people earlier endangered by the scourge of the virus were saved and leaving healthy life in polio-free nations. Another estimated number of more than 1.5 million children under the age of five years who would have been dead due polio virus, were also successfully saved through the application of Vitamin A dosages used during each round of polio immunization activities (WHO, 2015 report).

## **GLOBAL POLIO ERADICATION PROGRAMME AS A CONCEPT**

Since the inception of Global Polio Eradication Initiative in 1988, tremendous achievements have been made toward meeting the target of total eradication of the virus globally. The number of polio virus cases had gradually reduced by more than 99.99%, and the number of pandemic countries also have been reduced from 125 to nearly 3 by the year 2000 namely; Nigeria, Pakistan, and Afghanistan. Similarly, the wild poliovirus type 2 (WPV2) that causes paralysis was successfully eradicated globally and for more than 5 years from the period of the declaration the virus as pandemic in 1988, it has not resurface anywhere in the world, (Pallansch, 2018). The global polio eradication programme heavily relied on oral polio vaccines for all the successes recorded and only trivalent OPV vaccines (tOPV) were used for that purpose through supplementary immunization exercise (SIAs) and 2004 when additional options known as monovalent OPVs vaccines (mOPV1, mOPV2, mOPV3) and bivalent OPV vaccines (bOPV 1 + 3) were introduced.

Hence, the bivalent and monovalent formulations were increasingly used in the supplementary immunization exercise across globe using routine immunization due to their higher efficacy, till April 2016 when it was replaced by bOPV as a synchronized immunization method, (Bahl, Verma, Bhatnagar, Haldar, Satapathy, Kumar, Horton, Estivariz, Anand, & Sutter, 2016). Prior to the GPEI, polio was endemic in more than 125 countries with hundreds of thousands children being paralyzed every year. However, the development of effective vaccines against polio by Dr. Jonas Salk and Dr. Albert Sabin in the 20th century marked significant progress in combating the disease.

## **POLIO ERADICATION PROGRAMME IN NIGERIA**

Immunization was started in Nigeria around 1956 when smallpox was severely spreading nationwide and a national immunization strategy tagged Expanded programme on immunization was introduced in 1978 to effectively combat all the deadly childhood killer diseases, which were regarded as major causes of high infant mortality and morbidity in country at that time. However, polio eradication programme in Nigeria was coordinated by the National Primary Healthcare Development Agency (NPHCDA), which was an upshot of National programme on Immunization created in 1988, as an Agency under federal ministry of health with mandate to ensure total prevention of all diseases in the country, including disability and death from vaccine preventable diseases among children. The agency also provided policy direction, design programmes or policies that reach all target groups as enshrined, (National Polio Eradication Emergency Plan, 2018). From this plan, States also develop their own policy plan, depending on the risk status of each state, (Bashar, 2018). Before the inception of the polio eradication programme in 1988, over 350,000 children were infected annually in more than 125 endemic countries globally, but after the introduction of the global polio eradication initiative, the annual global polio transmission



index was largely reduced by 99%, in the year 2000, which was the year set aside by WHO to eliminate the virus completely across the World, (WHO, 2015).

Nigeria as a member of the world health Assembly (WHA) pledged its commitment in achieving the Millennium Development Goals (MDGs) among which was to greatly reduce the child mortality rate by at least two-third from the year 2015 and totally eliminate polio virus as global health challenge. However, northern Nigeria been part of the country continued to remained a major reservoir of polio virus type 1 (WPV1) and type 3 (WPV3) as indicated in the immunization records from the primary healthcare units of the 6 LGAs selected for this study., which was attributed to rejection of the polio vaccines, (CDC, 2018).

However, (Chukwuocha, Emerole, Iwuoha, Dozie, Njoku, Akanaz & Hemingway, 2022), had refused to consider the possibility of having a case of vaccine derived poliovirus (VDPV), which was widely agreed among experts to be circulating in the country at that time and contributed immensely to the reasons why the polio virus could not be eradicated on target. Also, government had failed to convince people that the vaccine is safe; while at the same time it's insisted that the virus was epidemic. However, with the introduction of supplementary immunisation exercise the programme succeeded greatly in Nigeria, because its brought a strategy known as house to house service delivery, which assisted in the introduction of new healthcare strategies such as; emergence of a right framework at the centre, states and Local level, effective training of healthcare workers at all levels of governance on all aspects of immunisation exercise, reduction of geographical inaccessibility for immunisation workers and re-establishment of new healthcare centres for vaccine distributions (Alonge, Neel, Kalbarczyk, Peters, Mahendradhata, Sarker & Gupta, 2020).

However, the revision of national policies on immunisation including policy on safety of injection, improved personnel motivation through official recognition by merit awards, training, and other self-actualisation opportunities, are some of the critical approaches adopted by government in improving the healthcare performance of all workers. The new eradication campaign strategy also greatly assisted in reducing the gender and wealth based inequalities among people, because some of the interventions were basically free among people (Vilhelmsson & Östergren 2018).

However, these interventions had failed to reduce the tribal and religiously based inequities in the country, which are some of the reasons why the virus has not been eradicated on target in the country. But, the Financial Resource Requirements Committee (FRRC) had always provided an overview of the external funding gap for the programme under the global polio eradication initiative (GPEI) within a given period of time, in order to eradicate the remaining global polio cases, both wild and vaccine-related in keeping with the terms of the new "Polio Eradication and End-game Strategic Plan 2013-2018". Similarly, the global polio eradication initiative budget estimates within a year consist of amount to be spent on supplementary immunization exercise such as; emergency response and certification, which clearly indicated a funding gap of about US\$ 217 million in 2013 budget, (Losey, Ogden, Bisrat, Solomon, Newberry, Coates & Perry 2019).

However, in an effort to close this gap, the initiative in 2014 set out a strategy to source over US\$ 217 million through donations from various companies and individuals. The interruption of wild polio virus and vaccine-derived polio virus requires an integrated policy plan that would boost the population's immunity in three remaining polio endemic countries; Afghanistan, Pakistan and Nigeria. But, this effort could also be achieve through intensified supplementary immunization

activities (SIAs), supply of qualitative vaccines, as well as the up-scaling of technical assistance and effective surveillance, (Pathak, Pal & Mohapatra 2020).

But, the budget needed to facilitate these activities is supposed to be jointly prepared by the World Health Organization (WHO), United Nations Children Education Fund (UNICEF) and the National governments of participating countries. Unfortunately majority of the external funding for these activities primarily come from World Health Organization and United nations children education funds, (Losey, Ogden, Bisrat, Solomon, Newberry, Coates & Perry 2019). The financial resource requirement committee provides the details of the budget for the current year and an overview of the subsequent years with an updated plan for three or four year period activities. However, three independent studies conducted strongly casted doubt on this theory. (Nalipay, King & Cai, 2020), noted that despite all the rumours and distrust in the vaccines, some prominent Islamic leaders and Emirs fully supported the vaccine. Similarly, an emissary sent by the Emir of Gwandu, Alhaji Mailatu Bunu Gwandu who attested the safety of the vaccines, plus the support of Emir of Kazaure and that of supreme council for Islamic Affairs further promoted the acceptance of the vaccines among the public, (Eyang Ebebe & Ebim, 2021).

But, another important factor that helped in the acceptance of the vaccines was the subsequent media campaign at home and abroad embarked upon by a prominent Kano-based medical doctor and president of supreme council of Islamic affairs in Nigeria, Dr. Datti Ahmed a renowned pediatrician, who was an arrow-head in the anti-vaccination movement before. Earlier Ahmed noted that the vaccine was a United States led conspiracy to depopulate the developing world (Nalipay, King & Cai, 2020) and he told The Guardian newspapers that his opposition was based on several e-mails he received confirming the contamination of the vaccines with anti-fertility agents, HIV/AIDS and cancer substances, (Abuh, The Guardian, 10/01/2004).

## **COMMUNITY RESPONSE ON POLIO ERADICATION PROGRAMME**

The concept of community participation in a healthcare system was first discovered over three decades as part of movement for social change. It was envisaged that basic healthcare needs more effectively and efficiently through greater involvement of people. According to World Health Organization, the benefits of community participation as the best approach to reach all the potential healthcare needs of the people in a giving society can be done through the introduction of various initiatives or programmes that can fully engage such communities, (O'Mara-Eves, Brunton, Oliver, Kavanagh, Jamal & Thomas, 2015). The term community participation is a process whereby intended beneficiaries of any given project are directly involve in planning, designing, implementing and monitoring of such project or programme.

However, in the context of development, community participation refers to an active process in which the beneficiaries directly or indirectly influence the execution of a given project, rather than appearing as ordinary partners in sharing the profits of not executing that projects (Bamberger, 2018). However, Ndekha, Hansen, Molgaard, Woelk and Furu (2013), have identified the overall objectives of community participation as a mechanism that empowers and facilitate the development of a society. Sarkissia Walsh & cook (2017), opined that community participation indicates an active role of the community that may lead them take significant control of a giving project, while consultation is taking place on how best to share the benefits of that project or policy among the people in a giving community. Community participation is guided and facilitated by

various legal provisions and in many countries constitution provides the basic framework for the empowerment of both rural and urban communities. The Community Response on Polio Eradication Programme plays a crucial role in achieving the goal of eradicating polio worldwide. Community engagement is vital for the success of vaccination campaigns, surveillance efforts, and overall acceptance of polio eradication initiatives. Local communities are the frontline in the fight against polio, as they are best positioned to address cultural, social, and logistical challenges in immunization and surveillance activities.

**This led to the following Hypothesis:**

HO1: The economic status of parents does not have effect in their participation on polio eradication Programme in Kano State.

HO2: Socio-cultural belief of parents does not influence their participation in the polio eradication programme in Kano State.

**METHODOLOGY**

This study adopted a quantitative research design using a survey approach and the survey method was used in order to elicit responses from the respondents. The research population used in this study involved people living in the Six Local Government Areas of Kano State under the study; Tarauni LGA, Dala LGA, Tofa LGA, Kabo LGA, Gaya LGA, and Takai LGA with total population of 1, 295, 465 and over 513 communities or wards (Census, 2006). The sample size used was obtained using Krejcie and Morgan approach (1970), that determined the sample size of the population. Therefore, for the purpose of this study, a sample size of three hundred and eighty four (384) was applied.

The sampling procedure used in this study was stratified, purposive and proportionate sampling techniques, in which they focused on groups, using common characteristics and these groups are called strata or stratum, which is a subset of the population that shares at least one common characteristic e.g one Local Government Area. However, for the purpose of clarity the most relevant strata of the study was identified and in this case; Kano Central as strata 1 was identified, Kano north was considered as strata 2,, while Kano South was considered as strata 3 and through this technique the sample size of this study was originated from each of the six selected Local Government Areas (LGA) that were purposively selected for the study. However, descriptive statistics and Spearman's rank correlation was used for data analysis and the test of the hypotheses was done with the aid of SPSS Package, 23 versions.

## DATA PRESENTATION AND ANALYSIS OF THE FINDINGS

**Table 1: Statistics on the parent's economic status**

	N	Minimum	Maximum	Mean	Std. Deviation
The Level of economic status among parents plays an important role in their participation on polio eradication programme in Kano state.	359	1	5	4.52	.664
Higher economic status plays a significant role on the way parents ensure full compliance on polio immunization exercise.	359	1	5	4.32	.805
Low economic status has influence on the level of vaccines rejection among parents in our community.	359	1	5	3.88	1.143
Higher economic status contributes towards full immunization coverage among children in our community which ultimately boast their level of immunity against child killer diseases.	359	1	5	4.23	.842
Higher economic status provided an opportunity for parent to acquire all information regarding polio eradication programme in our community.	359	1	5	4.13	.996
Valid N (list wise)	359				

*Source: Field Survey, 2021*

The data in Table 1, illustrates the response rates and frequency of parent's economic status on polio eradication programme measured on 5-items instrument and on 5-point Likert scale measurement. From the data above, the first question items shows a mean score of 4.52, which was on the agreed range of the scale. The 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> question items with 4.32, 3.88, 4.23 and 4.13 mean score (x) respectively, also implied that the respondents were more inclined to the agreed high range of the scale used in the measurement. In all, the response distribution indicated that largely the role of economic status among parent on polio eradication was an observed phenomenon among the study sample.

**Table 2: Statistic of Socio-cultural Belief of the Respondents on Polio Eradication**

	N	Minimum	Maximum	Mean	Std. Deviation
Paralytic poliomyelitis child was considered as victim of polio virus in our community.	359	1	5	4.30	.782
Immunization was considered as a preventive measure to the polio virus in our community.	359	1	5	4.21	.786
The opinion among parent that witches or evils attack were the major causes of paralysis among children in their community not polio virus.	359	1	5	3.97	.968
The opinion that polio vaccines cause HIV/AIDS and infertility was a major reason for polio vaccines rejection in our community.	359	1	5	3.79	1.059
High public enlightenment on polio immunization among parent contributed toward more vaccines distribution among children in our community	359	1	5	3.90	1.103
Valid N (list wise)	359				

*Source: Field Survey, 2021*

The data on Table 5.8, illustrates the response rates and frequency on socio cultural status measured on a 5-items instrument and on a 5-point Likert scale measurement and from the data above, the first question item shows a mean score of 4.30, which was on the agreed high range of the scale. The 2nd, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> question items with 4.21, 3.97, 3.79 and 3.90 mean scores (x) respectively, were more inclined to the agreed high range also of the scale used in measurement. In all, the response distributions indicated that cultural factors were an observed phenomenon among the study sample.

## DATA PRESENTATION AND ANALYSIS

For the purpose of factuality and accuracy in this study, we adopted 5point Likert scale method in our questionnaire design, having responses categorized in the order of SA =5, A=4, UD=3, DA=2 and SD=1. Going by this 5 point Likert Scale method and the interpretation of our mean value was used according to Asawo's position (2009), where he stated that categorization strategy of responses with mean value should be as follows; 1-2 means low, 2.5-3.5 being moderate, 3.5 – 4.5 being high, while 4.5 and above, was considered very high rate. The data from the response rates

on parent's economic status with regard to polio eradication programme was measured based on 5-items instrument and the 5-point Likert scale measurement shows a mean score of 4.52, which was on the agreed scale of very high range and in all the response distribution columns, it had indicated that largely the role of economic status among parent on polio eradication was an observed phenomenon among the study sample. Also, based on the response rates and frequency rate on socio cultural status measured on a 5-items instrument and on a 5-point Likert scale measurement and from the data obtained the item shows a mean score of 4.30, which was on the agreed high range of the scale, which indicated that the respondents were more inclined to the agreed high range of the scale and based on that response distributions, it indicated that socio-cultural factors were an observed phenomenon among the study sample.

**HO1:** Economic status does not have effect on polio eradication programme in Kano State.

Base on the model Summary for this hypothesis, it clearly shows R value of .494; R square .244, which was approximated to be  $R^2=.24$ . However, based on the analysis of variable (Anova), with test using Alpha 0.5, it indicated that  $F=115.092$ ,  $P = 0.000$ , that is,  $< 0.05$ , with mean square of 20.256 Coefficient Table (Predictor Test at Alpha 0.05); t value of 10.728 and std. error of .043. The result from this model indicated R value of .494 as coefficient of determination, which simply means that about 50% of the changes in polio eradication programme were as a result of economic status.

**HO2:** Socio-cultural belief of parents does not influence their participation in the polio eradication programme in Kano State. According to the model R had value of .672; R square .452, which was approximated at  $R^2 = .45$  and according to analysis of variable (Anova), with a test using Alpha 0.5, it shows  $F=294.497$ ,  $P = 0.000$ , that was  $< 0.05$ , with mean square of 37.558, while Coefficient table with Predictor Test at Alpha 0.05; t value was 10.037 with std. error of .036. From the result of the model summary, it indicated R value of .672, which was the coefficient of determination and this simply indicated that about 67% of the changes that occurs on polio eradication programme had linked with social cultural belief of parent.

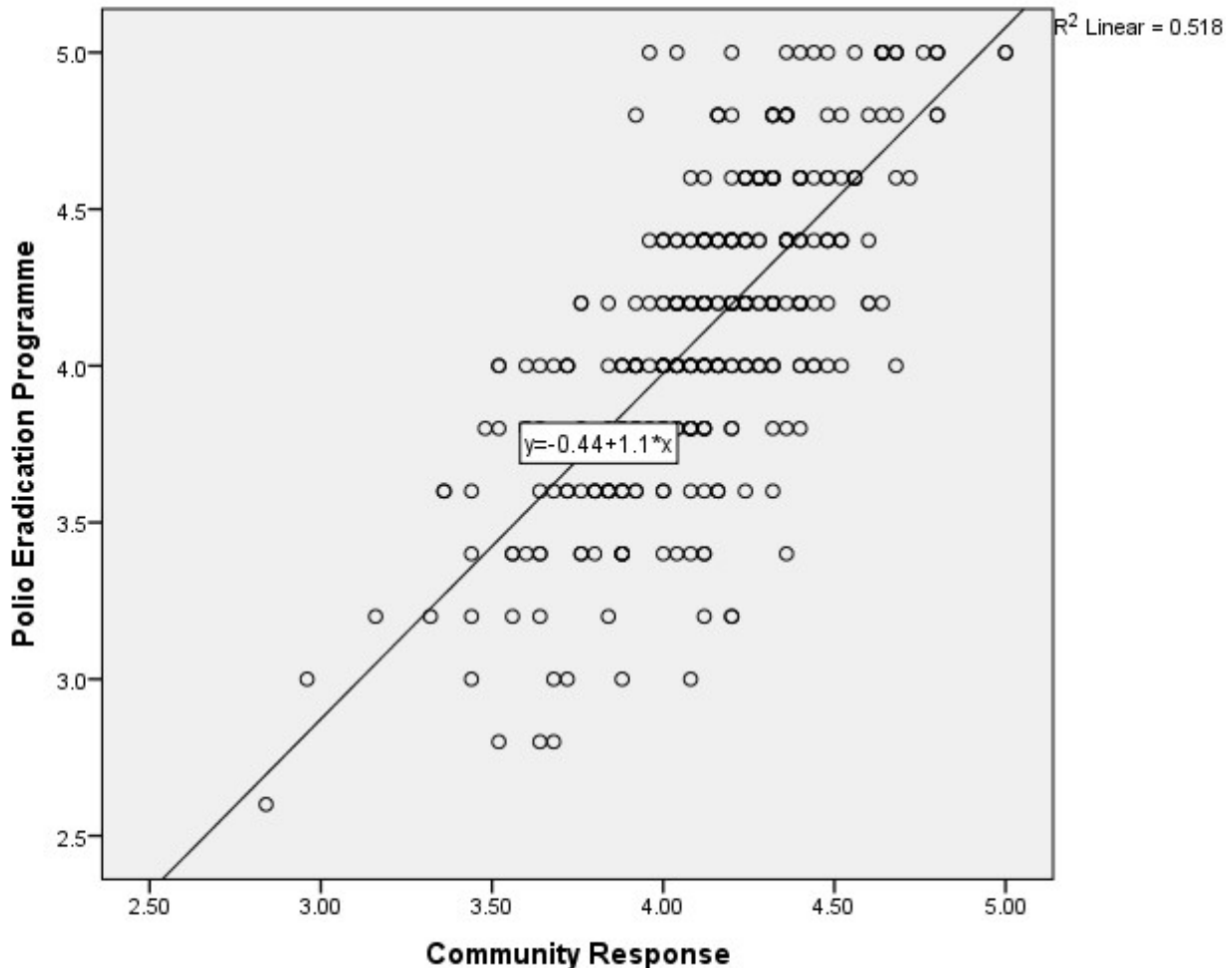
### **Bivariate Analysis:**

The test of hypothesis covered hypotheses Ho1 and Ho2, which were bivariate and all were stated in the null form. We relied on the Spearman Rank (rho) statistic to undertake all the data analysis of the study. The 0.05 significance level was adopted as criterion for the probability of either accepting the null hypotheses at ( $p>0.05$ ) or rejecting the null hypotheses at ( $p<0.05$ ) criterion. The Particulars of questionnaire for the Frequency Percentage involves number of questionnaire administered and a total of 384 was considered to be the sample size of the study, which represent 100%, as the number of questionnaire returned from the respondents was 376, representing 97.91% while the number of questionnaire not returned stand at 8 2.08% and the number of questionnaire wrongly filled has a total number 17 4.42 and the total number of questionnaire used stand in the study stands at 359, which represent 95.48% and the source of data was from field Survey, 2021. Therefore, from the data presented, it can be observed that 384 questionnaires were distributed to all the respondents and 8 questionnaires representing 2.08 percent were not returned. A total of 376 questionnaires, representing 97.91 percent were returned. However, out of this number about 359 questionnaires representing 95.48 percent were appropriately used and returned, thus making

survey quite suitable for data analysis, while a total of 17 questionnaires representing 4.42% percent were wrongly filled, which was too insignificant to disqualify the validity of all the data collected for the analysis.

### **Scatter Plot of the Relationship between Community Response and Polio Eradication Program**

In our bid to determine the existence and trend of relationship among the variables, a scatter plot diagram was presented below, with the community response as a predictor or variable plotted on X axis, while polio eradication programme as a criterion variable plotted on Y axis.



*The Figure above shows scatter plot of a relationship between community response and polio eradication programme.*

From the figure above, it shows a strong relationship between community response (independent variable) and polio eradication programme (dependent variable). The scatter plot graph shows  $R^2$  linear value of 0.518, depicting an average positive relationship between the two variables. The implication is that an increase in community response, automatically bring about more positive result in polio eradication programme.

## **FINDINGS OF THE STUDY**

The study applied inferential statistical method to examine the role of community response and polio eradication programme in selected LGAs of Kano State. Therefore, the findings of this study had indicated the existence of a positive relationship between community response and polio eradication programme in Kano state, using the multiple regressions of 95% confidential interval. Similarly, the findings confirmed that economic status, socio-cultural belief, parent's awareness, Government's commitment and the role of traditional leaders had a strong effect on polio eradication programme in Kano State and this had further reinforces the fact earlier revealed by the previous research conducted by Hsu, Harvey, Mohammed, Elfakki, Ehrhardt and Farag (2019), where they noted that the main objectives of Global Polio Eradication Initiative was to guarantee individual healthcare needs of various nations through integrated global healthcare approach or policy. According them, a lot of developing countries had the believe that global integrated healthcare initiative had big financial obligations attached, but with huge benefits that would greatly assist individual countries meet the healthcare needs of their people, especially the eradication of major child killer diseases posing serious dangers to the millions of under 5 years children in their respective countries. The researchers discovered that Somalia as a country during intensive periods of intensive polio eradication campaign around 1988 to 2000, by various local and international organizations recorded a huge success of immunizing over 2.5 million children within a short period of time and this ultimately raised the healthcare standard of the country, which further reinforces the need for a continuous global integrated healthcare approach or policy on individual countries.

Also, Lewis, LeBan, Solomon, Bisrat, Usman, and Arale (2020), assessed CORE Group Polio Project (CGPP) of over 20-years implementation among 5 countries in the world on how polio eradication programme was runs across the globe and they discovered that it was functional only in those countries working within the general principles of framework on community health workers (CHWs), because they supervise the programme regularly and effectively. But, they noted that international healthcare programmes often have limited impact on broader community healthcare systems, after they carefully studied the implementation of polio eradication initiative as a global intervention policy among those 5 countries within a period of 20 years. The researchers further indicated that despite the fact that polio eradication programme met all the necessary requirements required to function effectively among these 5 countries under their study, there was the need for a full implementation of peer-review mechanism obtained from these 5 countries, as an important components in achieving the objectives set out in the programme.

According to them, the use of surveillance data, community engagements strategies and effective blockage of financial linkages in the healthcare system are quite critical steps toward achieving the desired objectives of an integrated global healthcare system. However, the general lesson learnt also can be applied to other community mobilization and epidemic control initiatives, especially as the world faces the challenges of the Corona virus or COVID-19 pandemic. Similarly, Deressa, Kayembe, Neel, Mafuta, Seme and Alonge (2020), indicated that since the inception of Global Polio Eradication Initiative (GPEI) in 1988, the virus had spread to over 200 countries and over 2.5 billion children have been immunized against polio virus. They noted through this integrated approach many countries have adopted modern healthcare prevention strategies, which had tremendously assisted in the evolution of more effective healthcare programmes, especially through mapping out barriers and identifying gaps across the target areas. Similarly, they noted



that this approach, strategies of addressing such global healthcare barriers were also designed for quick implementation as follows; adoption of modern healthcare service delivery, investing more in healthcare services, improving capacity building, establishing mechanisms for proper accountability and social mobilization.

These approaches greatly assisted in improving the general healthcare delivery among nations, because more attention was focused not only on polio eradication programme, but rather on strengthening the entire routine immunization exercise, that witnessed a lot rejection among people due to mistrust and apprehension among many countries in the World. Akinyemi, Adebayo, Bassey, Nwaiwu, Kalbarczyk, Fatiregun, Alonge, Owoaje (2021), also listed out some of the factors that hindered the effective implementation of community engagement among communities during polio eradication programme in Nigeria as a case study in their research. The research work took place in at least one State from each of the six geo-political Zones of Nigeria; Nasarawa, Borno, Kano, Sokoto, Anambra, Bayelsa, Lagos, Ondo and Oyo States as well as the Federal Capital Territory, Abuja and the respondents includes; programme managers, policy-makers, field workers of Global Polio Eradication Initiative, partner organizations, three tiers of Government, healthcare facilities officers and academic/research institutions. From the findings of this study, economic factors (35.7%) were the most frequently reported issue among the respondents with the regards to the challenges of community engagement across the country. Also, they noted that factors related to environmental issues and the social-cultural belief were some of the other challenges toward achieving effective community engagement. Hence, to achieve the desired objectives set out in any integrated healthcare policy or programme, community engagers must focus on these key areas by channel more resources and energy in future.

## **CONCLUSION OF THE STUDY**

A scientific study of this nature always requires factual data for objective, balanced, fair conclusion and recommendations. Consequently, in this study community response and polio eradication in selected Local Government Areas of Kano state, various concepts were discussed and different approaches were applied in examining the phenomenon. The study concluded that economic status of an individual or community has strong influence on his or her behavior or attitude toward accepting or rejecting polio vaccines and, by extension play key role in the success or otherwise of polio eradication programme in Kano state and Nigeria in general.

Similarly, the study concluded that parents who possessed enough knowledge on the polio virus were more likely to accept polio vaccines, than those who are totally ignorant about it, because they have already developed apathy and fear in the entire policy or programme. Also, the study concluded that public education and public sensitization is paramount toward achieving meaningful result on polio eradication programme and this assertion was further pointed out through comparative study conducted between south and northern part of Nigeria on polio eradication, where it was discovered that polio immunization exercise recorded more success in the South than among people in the northern part of the country, (Awosika, 2006). This disparity existed because of the difference in literacy level between two parts of the country. In conclusion, the study discovered that socio-cultural factors contributed greatly on the way and manner people accepted or rejected polio vaccines in my area of study, Kano state in general.

Also, the study concluded that large number of communities in the study area still believed in the existence of evils, devils or unnatural powers as major causes of paralysis to their children than polio virus and also made allegation that the vaccines contains substance that can cause infertility among their women all these fears and allegations contributed largely to the massive rejection of the vaccines or polio eradication programme in Kano State in 2003. Similarly, from the findings of this study, traditional rulers are very important elements toward achieving success in any integrated global healthcare initiative like polio eradication programme, considering the high frequency rate among the respondents observed during the study on these factors. This issue was further stressed by the way traditional rulers are sometimes involved in the polio immunization campaign in Kano state and other northern states during the period polio immunization witnessed a massive public rejection in 2003. Certainly, the support and contribution of these traditional rulers through symbolic presentation of their children or that of their family members during the period of polio immunization campaigns had greatly assisted in reducing the apathy among many parent who earlier refused to even bring out their children for the immunization and also helped in encouraging both the parents and other health workers, permanent and voluntary officials to give their best during the immunization exercise.

## **RECOMMENDATIONS**

From the findings of this study, it was clear understood that community response is quite significant toward achieving a target on polio eradication programme in my study area and the nation in general, which led to the following recommendations:

- Policy makers and Non-Governmental Organizations should always try to understand the character and characteristics of every community, before embarking on any integrated global healthcare policy or programme, such as polio eradication programme in order to achieve effective community support and ownership. This study would serve as a good template in designing an acceptable method of achieving a target on any integrated global healthcare initiative in the future by avoiding the mistakes of the past that led to the massive rejection of the polio vaccines, which created serious backlash of the virus not only within the area of my study and Nigeria, but to other neighboring countries who had no record of polio virus before.
- Considering how the ugly incident of massive vaccines rejection contributed to the unnecessary delay in the success of the polio eradication campaign for close to over 32 years, instead of 2 year plan by the World Health Organization in 1988, major stakeholders such as traditional leaders must not only be involve in the campaign as observers, but also be involve directly in the policy design, implementation and evaluation considering their strategic importance to their subjects.
- In future Government agencies and non-government organizations should try to marry this kind of policies on global integrated healthcare with a short, medium and long term social welfare plan, like provision of certain incentives to entice and motivate parent who are the major beneficiaries accept the programme and bring out their children for the immunization.
- Also, through this approach of providing incentives to the parents and children during polio immunization exercises on house to house delivery system, it will greatly assist in avoiding the repeat of the past mistakes, where people take advantage of others by diverting incentives for their personal use.

- Furthermore, considering the significance of socio-cultural belief among people in Africa, policy makers should always introduce Western oriented policies and programmes that can be married with cultural events for effective public campaigns and sensitization.
- Similarly, in future global integrated policies and programs must consist of strategies to use different means of communication both traditional and modern such as; social media handles like; twitter, Facebook, whatsapp, press conferences, newspapers, town hall meetings, seminars, billboards and posters as observed during anti corona virus campaign, in which many people were massively sensitized on the dangers of the virus, even before the vaccines were introduced into the public, which greatly assisted in allaying the fears and mistrust among the people on the veracity of the vaccines or the truth about the virus itself.

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