



## Vaccine perception among acceptors and non-acceptors in Sokoto State, Nigeria



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### ABSTRACT

Vaccine perceptions among acceptors and non-acceptors of childhood vaccination were explored. Seventy-two care givers, among them, acceptors and non-acceptors were interviewed in-depth with an interview guide that assessed vaccine acceptance, social and personality factors, and health belief model (HBM) categories in relation to oral polio vaccine (perceived susceptibility, severity, cost barriers, general barriers, benefits, knowledge, and engagement in preventative health behaviours). Community leaders were purposively selected while parents were selected on the basis of availability while ensuring the different attitude to vaccines was covered. Results showed that the HBM framework was found to be appropriate for identifying and distinguishing vaccine acceptors and non-acceptors. In addition, the HBM categories of benefits and susceptibility were found to influence oral polio vaccine acceptance. Second, the opinion of family members about the oral polio vaccine moderated the relationship between number of social ties and vaccine acceptance. Further, oral polio vaccine acceptance was related to outbreaks of paralysis of any sort, but not aggregate scores of other preventative health behaviours. Implications of this study include the investigation of vaccine acceptance in a high risk population. Research was done to investigate vaccine acceptance.

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### 1. Introduction

Immunization against vaccine preventable diseases has been acknowledged as one of the most successful public health programme globally and indeed in the African region, where it has engendered significant improvement in health status. It has contributed to the successful smallpox eradication and reduction in the incidence of most other vaccine-preventable diseases and has potentials for reducing morbidity and mortality due to vaccine preventable diseases [1–10]. The most recent and perhaps most dramatic demonstration of the effectiveness of immunization in the region is the reduction of measles deaths by about 89% between 2000 and 2009. Between 2000 and 2012, the number of African countries endemic with the wild poliovirus (WPV) decreased from 12 to one and new WPV cases reported in 2012 decreased significantly by 63%, with 128 cases in only 3 countries (Nigeria, Chad and

Niger) compared to 350 cases in 12 countries in 2011 [11]. There has been some progress in the introduction of new and under-utilized vaccines in Africa. Pneumococcal conjugate vaccine (PCV) and rotavirus vaccines have been introduced in 20 and 7 Member States, respectively as of the end of 2012. The Meningitis Vaccine Project (MVP) is a modern vaccine success story that saw the development of a new vaccine against meningococcal group A (the predominant cause of epidemic meningitis in the “meningitis belt”) being developed within 10 years. Plans are in advanced stage to introduce injectable polio vaccine (IPV) in the region.

Despite these achievements, immunization uptake has been sub-optimal in Africa. For instance Polio remains endemic in Nigeria, due largely to low herd-immunity and existence of high risk clusters in Northern Nigeria. Immunization in Northern Nigeria has been a topic of debate and sometimes controversial due to abundance of misinformation and strong emotional components tied to many of the debates. These debates have also led to distinct divide on the acceptance of immunization. For some, immunization, including oral polio vaccine, is acceptable. For this category, the main obstacle has been the lack of available vaccines. For others, they are willing take their children for vaccination at local

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clinics and hospitals when diseases such as measles or meningitis threaten. At such times, their fear of disease overshadows the perceived risks of vaccination.

However, for some, immunization has been seen as unnecessary or even possibly dangerous undertaking for infants and children who are not experiencing health problems, regardless of impending epidemics. For these parents, prayer is not only sufficient, but is the only real protection against disease, which ultimately comes from God. Terms such as *kariya Allah*, translated as natural immunity, have a distinctive meaning in this context. In this case, natural immunity refers to the special protection (*kariya*) given by Allah, rather than to the responses of the immune system exposed to a particular virus (as opposed to immunity derived from vaccines).

In light of these vaccine debates and subsequent low immunization uptake, the persistence of polio endemicity in northern Nigeria has thus remained a major source of public health concern. The continued transmission of polio virus in the zone as well as the threat of importation into neighbouring countries make it important for people to get vaccinated against the virus. In addition, it is important for researchers to better understand the psychological and behavioural barriers preventing immunization adherence and acceptance.

Studies have operationalized vaccine acceptance as having either received a vaccine or intending to receive a vaccine within a specified time period [12–14]. Thus, it is surmised that enhanced vaccine acceptance could be realized through the implementation of adherence interventions [15,16]. However, the results of multiple vaccine campaigns show that it is important to base these interventions on knowledge of the people's perception about vaccine effectiveness.

The effectiveness of health interventions relies not only on their clinical efficacy, but also on a range of factors, such as the attitudes and behaviours of target groups, and of the wider community (including those implementing interventions) [17]. Attitudes and behaviours towards interventions are often shaped by socio-cultural and perceptual factors and such factors are particularly relevant to the demand for immunization [18]. The HBM of behaviour change identifies perceptions as very strong predictor of accepting vaccines [19]. Studies conducted using HBM also confirm the strong correlation between perceptions and compliance to different health interventions. A study was conducted to explore and document the perceptions of vaccine among care givers in Sokoto State, who accept or refuse the immunization of their children against polio virus.

## 2. Methodology

### 2.1. Study setting and population

The study was located in two local government areas (Wurno and Wammako) in Sokoto State. The State is found in the North-west geopolitical zone of Nigeria. Sokoto State is situated between Latitude 13°05' N and Longitude 05° 16' E and occupies 25,973 km<sup>2</sup>. It has an estimated population of 3.7 million people, predominantly Muslims and Fulanis. Sokoto State shares its borders with Niger Republic to the North, Zamfara State to the East, Kebbi State to the South-East and Benin Republic to the West. It also shares common health indices with the rest of Northern Nigeria with strong resistance against vaccination of children against polio virus.

Unfortunately, the polio virus remains endemic in Northern Nigeria, in spite of the combined efforts of the Ministries of health at the Federal and State levels, WHO and other partners. Several strategies have been employed to break the transmission of polio virus in Northern Nigeria. These strategies include supplementary

immunization activities (SIAs) for vaccination against poliomyelitis, which entails door-to-door campaign, synchronized with the border countries like Chad and Niger, the cross-border activities; but the circulation of the virus persists due to non-acceptors and persistently low coverage in 27 LGAs. All the same, some blocks of acceptors have been identified in the midst of the pervasive or normative non-acceptors.

Wurno and Wammako local government areas are two LGAs in Sokoto State where some consistent acceptors have been found in the midst of persistent refusal and dominant non-acceptors. These two LGAs thus constituted that study sites to explore the reasons for refusal or acceptance and to see how the HBM explains the vaccine behaviour of the people.

### 2.2. Study design

The study was exploratory and adopted qualitative method to learn about people's perceptions and attitude towards polio vaccine and by so doing attempted an explanation of the ethno-cultural reasons for acceptance of polio vaccine in a predominant refusing population. The main data source for this research was in-depth interview with opinion and religious leaders; parents identified to have persistently refused or accepted vaccination as well as leaders of community based organizations. A total of 72 in-depth interviews were conducted in this study, which reflected urban/rural and male/female groups. Community leaders were purposively enlisted in the study while parents were enlisted on the basis of their willingness to participate in the study. However, care was taken to ensure the participation of both categories of parents, namely acceptors and non-acceptors of vaccines. A total of 90 parents were visited in their households and requested to join in the study after the vaccination status of their children has been ascertained. A small number of the mothers approached declined participation in the study while a few others could not complete the interview due to domestic demands. They were asked if their children have been immunized against polio. Those who responded in the affirmative were asked the when the child was last immunized. Those who have consistently immunized their children were categorized as acceptors while those whose children have systematically missed immunization were classified as non-acceptors. A third category is those whose children have unsystematically missed immunization. This last category was not included in the study because the study focuses on consistent acceptors or non-acceptors.

### 2.3. Instrument and method of data collection

The instrument for data collection was unstructured in-depth interview guide, which ensured data on the people's perception of polio, its causes, prevention and management as well as uptake of vaccination services against polio, among others. The discussions were tape recorded, informal and respondents in the in-depth interviews were free to ask questions or raise issues to be discussed. Each interview session lasted between 45 and 60 min.

### 2.4. Method of data analysis

After reviews and corrections, all interviews transcripts were typed with MS Word processing package and converted into American Standard Code for Information Interchange Rich Text Format (RTF) files. They were coded and sorted using Atlas.ti version 6.

The analysis process began by reviewing the interview and discussion experiences with the field assistants who facilitated the interviews and discussions to obtain their views on the factors that inhibited or animated interaction and discussions. A more detailed analysis began with the researchers reading through the notes. During the first reading notes were made of the major concepts arising

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