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Perception and Barriers to Routine Immunisation Uptake: A Qualitative Study in Rural areas of Osun State, Nigeria

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Abstract

Background: Immunisation is a proven tool for reducing morbidity and mortality associated with vaccine preventable diseases. Routine Immunisation program in Nigeria has been hampered by certain sociocultural such false beliefs, misconceptions and other health system barriers. This study assessed the perception of mothers about childhood routine immunisation services and explored the factors that could affect routine immunisation uptake by mothers.

Methods: Focus group discussions (FGD) were held among mothers in rural areas of Atakumosa west District, Osun State, Southwestern Nigeria. Key informant interviews (KII) were also conducted among Community leaders and health workers located in these communities. The data collected for the FGD and KII were transcribed verbatim and analysed using detailed content analytic approach.

Results: Majority of the mothers have good awareness of vaccine preventable diseases such as Poliomyelitis, Tuberculosis and measles (75-100%), Misperception of benefits of vaccination such vaccination being a cure for diseases as well as being a prevention for all' diseases, misconceptions such as malaria resulting from vaccination; cultural and religious taboos as well as health system factors such as negative attitudes of routine immunisation providers, vaccine stock-out and access to health care services, were major factors affecting routine immunisation uptake.

Conclusion: Misconceptions about routine childhood immunisation are still common in most rural communities in Osun State, Nigeria. There is a need to raise awareness of benefits of routine immunisation in the communities, ensuring constant availability of vaccines in health facilities and training and retraining of immunisation staffs on clinical ethics will help to achieve the goal of full Immunisation coverage of 80 percent among children under two years of age.

Keywords: *Perceptions, Barriers, Childhood immunisation, Nigeria.*

Introduction

Immunisation is one of the greatest public health achievements of the 20th century and more importantly a proven tool for reducing the morbidity and mortality associated with vaccine preventable diseases. Immunisation is considered one of the most cost-effective health investments for improving infant and child survival (WHO, 2005). Globally, it is estimated that about 3 million deaths occurs yearly as a result of vaccine preventable diseases (VPD) with approximately 1.5 million deaths among children under-five and constituting 15% of under-five mortality (UNICEF, 2009, Center for Global Development 2005). The Expanded Programme on Immunisation (EPI) was introduced in 1978 with the aim of providing routine immunisation to children less than two years to protect against six killers' diseases: polio, measles, diphtheria, whooping cough, tuberculosis and yellow fever. In Nigeria, the Expanded Programme on Immunisation (EPI) provides routine Immunisation with the following vaccines: Bacillus Calmette-Guerin (BCG), hepatitis B vaccine, oral polio vaccine (OPV), pentavalent vaccine (Hepatitis, diphtheria, pertussis, tetanus and Hib vaccines), pneumococcal conjugate vaccine (PCV), inactivated polio vaccine (IPV), measles vaccine and yellow fever vaccine. These vaccines are provided within the first year of life according to the national Immunisation schedule as follows: at birth (BCG, OPV0, HEPB0), at six weeks of age (Penta1, OPV 1, PCV1), at 10

weeks of age (Penta2, OPV2, PCV2), at 14 weeks of age (Penta3, OPV3, PCV3, IPV), and at nine months of age (measles and yellow fever). However, a significant number of children in the country are still unimmunized and full childhood Immunisation coverage is suboptimal [NDHS 2008]. Immunisation coverage, is far less in rural areas than in urban areas as these rural areas are highly marginalized in terms of access to basic health care services. In Osun State southwestern Nigeria, only 57.8% of children aged 12-23 months in Osun state were fully immunized far below the WHO target of 80%, this is worse in the rural areas as children in these rural areas were twice less likely to receive full vaccination than those in urban areas (NDHS, 2008), thus contributing to the high morbidity and mortality due to vaccine preventable diseases among children in these areas. Explorative studies are required to get information on the reasons why children are not vaccinated and more importantly to understand cultural perspectives as well as the misconceptions and negative perceptions about routine immunisation, this will be a helpful strategy in immunisation programmes for targeting special efforts to improve vaccination coverage most especially in rural areas where socio-cultural beliefs poise a challenge to uptake of immunisation services. Several quantitative research have demonstrated misperception about routine immunisation, [Babalola S & Adewuyi A 2005,], however only a few study have conducted explorative qualitative research to explore cultural and behavioral factors affecting routine immunisation uptake [Adebayo, B., Oladokun, R. & Akinbami, F., 2012].This study is an explorative study which aims to assess perception of mothers about childhood vaccination uptake, examine the perception of health workers and stakeholders in routine Immunisation services and to highlight the main factors hindering the access to routine Immunisation uptake.

Materials and Methods

Study design and study location: A qualitative cross-sectional survey was conducted in Atakumosa-west district (ATWD) in Osun State, Southwest Nigeria. Atakumosa-west district is a predominantly rural district largely comprising of farmers and traders. Atakumosa west district has eleven administrative wards consisting of over 170 settlements.

Sampling: Four rural communities were purposively selected in Atakumosa-west district.

Focus group discussions (FGD) were conducted with mothers of children 12-23 months in these randomly selected rural settlements. A focus group guide containing 10 thematic questions was used (Table1). Each FGD session was moderated by the researcher, with a note taker and recording of the proceeding was done. A total of four FGDs were conducted with 10-12 mothers in each FGD: Ibodi: 10 mothers; Osu: 12 mothers; Oke Ibode: 10 mothers; Kajola: 12 mothers giving a total of 44 mothers. The FGD participants were purposively selected from each community. Each participant provided informed consent to participate in FGD and for recording to be done and each session lasted between 45 and 60 minutes.

Six Key informant interview (KII) were conducted with two health workers, two Immunisation officers and two community leaders using a KII guide to obtain information on RI service delivery, major health problems, challenges encountered when carrying out routine Immunisation and factors hindering the uptake of routine Immunisation services etc.

Data Analysis: Data from the FGD and KII were transcribed verbatim and summarized using themes, codes and narratives and analysed using detailed qualitative content analysis. These were presented using the ZY index table which summarizes findings based on proportions responding to questions as depicted by positive and negative signs.((Aransiola, 2013).

Ethical approval: Ethical approval for the study was obtained from the Osun State ethical review committee, participation of respondents was voluntary, and their responses were dealt with high level of confidentiality and anonymity. The participants were also briefed about the objectives of the study and informed consent obtained from the participants before the discussion sessions.

Results

A total of 44 mothers participated in FGD from four rural communities in ATWD; Oke-Ibode (10 participants), Kajola (12 participants), Ibodi (10 participants), Osu (12 participants). The age of the mothers' ranges from 25-45 years and majority were traders and farmers.

Perception of childhood illnesses preventable by immunisation

In response to questions on perceived common childhood illnesses preventable by immunisation, majority of the mothers mentioned malaria, respiratory tract infection and diarrhoea diseases. Only a few mentioned measles and neonatal tetanus, none of the participant mentioned poliomyelitis, tuberculosis, diphtheria and pertussis as common childhood illness preventable by immunisation. *A 42-year-old trader said measles is very common in this environment, it is called "Aisan gbajumo", and all children develop measles irrespective of whether they are immunized or not…… FGD Kajola.*

Beliefs and opinions on RI

When asked "what do you understand by the term Immunisation, majority of the participant believes that routine Immunisations are injections given to children in other to protect them from being sick, few believed that routine Immunisation protects against all childhood illnesses. A 32year old trader in Oke Ibode said *Immunisation is very good for children; it makes children to be strong and healthy and even prevents fever and all kinds of childhood illnesses...FGD Oke Ibode.*

Another participant believes that vaccination can cure illnesses before it surfaces. A participant from Kajola, 41year old mother said *A child that is not immunized is likely to have severe illnesses, when you take your child for Immunisation it does not only prevent the child from having illnesses but when the child has illnesses it limits the severity compared to when you don't take him for Immunisation….FGD Osu.*

Findings on participants' opinions on RI vaccinations (Table 2); About 50-75% of the participants agreed that the vaccines are safe, while only a few <25% disagreed across the selected settlements, however in Osu, all the 12 mothers (100%) who participated in the FGD alluded that vaccines can cause harm to the children. Some of the participants also believe that vaccines prevent all kinds of childhood diseases, while some believe vaccines are meant for only certain killer diseases. On safety of RI vaccines, majority of the respondent said RI vaccines are not entirely safe. According to a 34-year-old mother, *I have seen a child in my neighbourhood that was vaccinated, and the child's leg got swollen, some also develop ulcers on the thigh' so the vaccines are not entirely safe…FGD Ibodi. Some children develop convulsion, some fever and some can become paralyzed if given on the nerves" ……. A 40year old petty trader…FGD Osu.* A participant also said "*some children develop very high fever such that can lead to malaria illness" …. FGD Kajola.*

Knowledge on VPDs and Vaccines

FGD findings on mothers' knowledge on VPD and RI in selected rural communities of Osun State is shown in Table 3. Almost all of the participants 75-100% of the participants were able to name poliomyelitis and the vaccine used for polio prevention, Likewise knowledge was high for tuberculosis and measles as well (75-100%) while only a few mentioned tetanus and pertussis when asked about vaccine preventable diseases, however, none of the participants mentioned diphtheria.

Few mothers believed that malaria, diarrheal diseases and kwashiorkor and typhoid fever are vaccine preventable diseases. A "*37year old respondent from said Malaria illnesses can also be prevented through Immunisation" …. FGD Ibodi*. When the participants were asked to name some of the vaccines usually given to the children majority of them mentioned BCG (*Abeere Ojo); OPV (Atola), DPT and measles vaccines (Abeere eyi*).

Majority of the mothers knew the timing of birth antigens and antigens given at nine months (50-75%). However, only a few are aware of the vaccines given at 6th, 10th and 14th week.

Problems encountered in accessing RI vaccination

In response to the question on 'Are there problems in getting these vaccinations for your children'? Majority of the mothers said there are problems in assessing RI vaccinations; some of these include health workers attitude, distance, timing of the vaccination, and lack of vaccines in the health centres. *A 38year old trader said; "I took my child to the health facility for the second dose of DPT, the health worker said to me why are you just coming now it is already 12 'o' clock, you can't get the vaccines again till next week, it is not convenient for me because I have to trek a long distance"….FGD Oke-Ibodi.*

Sometimes vaccines are not always available especially measles vaccine. *According to a 28year old tailor, "My child is one year old now and yet I have still not been able to get the measles vaccines for him I have been to the health facility on five occasions and was told measles vaccine is not yet available" .... FGD Kajola.*

How RI coverage can be improved in the rural communities

In response to the question on: "what are some of the interventions that could be put in place to ensure that all children under 2 years of age complete required doses of Immunisation'? The suggestions include "*Government should ensure that our maternities and health posts are fully equipped with necessary equipment like refrigerator and constant power supply*".

"The villagers are at a disadvantage, people in the cities enjoy these facilities but for us in the village it is very different. Sometimes the health worker puts the vaccines in the refrigerator in some villagers' homes which isn't usually proper" .... FGD Kajola.

According to a 35year old farmer, "*Government and health workers should ensure the constant availability of these vaccines in the health facilities, some people don't bother to come because they have gone on several occasions and the vaccines are either not available or the health workers are absent"……...FGD Ibodi.*

Key informant interview

The key informant interviews were carried out among two Immunisation officers, two health workers and two community leaders in five different communities. The findings are responses to the thematic areas considered.

Major vaccine preventable disease in the communities

In response to the questions which vaccine preventable diseases constitute major health problems in the community, majority of the stakeholders interviewed agreed that measles is the only VPD that still constitute a problem in the communities. *One of the community leaders said measles is still prevalent in this environment; it occurs usually in the dry season or at the onset of rains even among adults, so I think there is a need to immunize the adults as well against measles…. Community leader Oke Ibode.*

Perceptions about routine immunisation services in the community

The stakeholders believed that RI services within the rural communities is good, although the target of >80% of fully immunized children is yet to be achieved. This is supported by this quote , "*RI services are good and patronage is high but efforts needs to be put in place to ensure all children are immunized fully; the people who refuse to bring their children for immunisation are those who belief their religion is against it"....Health worker in Kajola.*

"Routine Immunisation services are usually delivered through two major channels in these rural areas, first is the health facility where by the mothers come regularly to immunize their children and the second is through outreaches in very remote areas whereby health workers carry the Immunisation to the mothers in the community usually every Tuesday and Thursdays".....Local Government Immunisation Officer (LIO).

Factors that hinder uptake of RI services

A major factor identified by most of the KIIs is distance to the health facility; *there is just one health post in this community which is far from some of the villagers, many mothers will have to trek to this health post to get their child immunized……. Community leader Kajola.*

The timings of the Immunisation also constitute a problem, *many of the mothers are traders they go out very early to trade and come back late on the market days, so when the time for Immunisation coincides with the market days, they won't come for Immunisation… .... Health worker Itagunmodi.* Another factor identified is the inability to remember the exact days for subsequent Immunisations. An informant advocated for home visits to remind the mothers.

Challenges encountered when carrying out RI services

Transportation to rural hard to reach areas was a key challenge. Many of the rural health workers delivering RI services do not stay in these rural communities they stay in the cities and only come on certain days. *According to an informant "The health worker comes with the vaccines to the village with motorbikes only on Tuesdays due*

to the terrains which is not motorable" …. Community leader in Ibodi.

According to a health worker, *Migrants and non-indigenes also constitute a problem, example is Gaa Fulani, when we take the vaccines to these people, we will have to wait for them to complete their duties before they attend to us, which at times may be time consuming and some may even refuse outrightly". …. Health worker in Osu.*

Lack of infrastructure such as electricity, deep freezers, and cold boxes needed for cold chain management of vaccines are other common problems encountered in delivering these RI services.

What can be done to improve coverage in rural communities?

Giving incentives to the voluntary mobilization worker to carry out their duties and provision of motorbikes for transportations and megaphones to raise awareness about routine immunisation in the communities were some of the suggested interventions to help improve routine Immunisation coverage within the communities.

Discussion

This study assessed the perception of mothers about childhood routine immunisation services in terms of the diseases preventable by vaccines as well as specific vaccines required to prevent these diseases. We also explored the behavioural and health system factors that could affect routine immunisation uptake by mothers. Most of the mothers were unaware of specific types of vaccines children are required to take. Knowledge of vaccines was particularly good for vaccines such as Oral polio vaccines, Measles and BCG, however, there was poor knowledge of mothers on vaccine preventable diseases such as diphtheria and yellow fever. Th high knowledge of Poliomyelitis and measles could be explained by the frequent supplementary immunisation activities held to raise the herd immunity for these diseases.

As regards the safety of vaccine over 50% of the mothers viewed routine immunisation antigens as generally safe, however a few had concerns about the side-effects of the vaccines, this finding is similar to reports from other studies that has demonstrated a high proportion of mothers having concerns about the side effect of vaccines. Some other studies have demonstrated that mother's perception of side effects of vaccine plays a significant role in patronage for immunisation services [Wilson K et. Al 2004, Jegede AS. 1995, Jegede AS and Owumi BE (2013)]. Several rural mothers still believe that vaccinations can result into or aggravate other diseases such malaria, convulsion, ulcer, paralysis and even death in their children; these may explain to some extent why some mothers feel reluctant to take their children for vaccinations. A few of the mothers had misperceptions about the benefits of immunisation, as some explained that immunisation can cure all diseases, however some others believe that other diseases such malaria, diarrheal diseases can be prevented by the routine immunisation antigens. This is similar to findings by Babalola S. in a quantitative study in rural Enugu where diarrhoea, vomiting, fever, convulsion and malaria were believed to be vaccine-preventable. The misconception that immunisation can prevent all childhood illnesses tends to reduce trust in the efficiency of the vaccines' when it fails to protect against all the diseases as claimed'(Babalola S., 2004; Babalola S. & Adewuyi A. 2005). A few of the mothers are indifferent and also believe that children can still come down with these vaccine preventable diseases whether they are immunized or not, this finding is significant because it explains to some extent why some mothers do not bother to take their children for Immunisation at all. However, regardless of these, a higher proportion would advise other women to take children for Immunisation as the benefits far outweighs the harm. These findings are in tandem with previous study in south western Nigeria (Adebayo et al., 2012), and therefore suggest the need for positive reinforcement of information on immunisation in the health facilities as well as through the media. Immunisation Stakeholders including community leaders and health care workers believed that routine Immunisation services within these rural communities are good, even though the target of 80% of fully immunized children is yet to be achieved. A major factor identified by most of the stakeholders and respondents is distance to the health facility. Other health system and maternal factors identified from key informants were inadequacy of health facilities in the rural areas, non-availability of the vaccines at the health facilities, fear of harmful effects and cultural/ religious taboos, timing of

Immunisation, lack of electricity supply, lack of cold chain materials and attitude of health workers. These study corroborates the findings in some parts of Nigeria (Ophori et al., 2014). Religious and cultural inclination also deter other mothers from presenting for these vaccinations, this is common among the migrants and non-indigenes in this locality This is similar to findings by Ophori et al in parts of Nigeria (Ophori et al., 2014), that religious and cultural beliefs constitute a great challenge to acceptance of immunisation.

Conclusion

Routine Immunisation is a strategic intervention needed to drastically reduce childhood morbidity and mortality and thus promote longevity and economically productive individuals. Correcting the misconceptions and addressing the problems in accessing vaccines will go a long way to improve immunisation coverage in these settings. This study recommends therefore to the government to help in debunking misconceptions among mothers about the benefits of routine immunisation, provide more health facilities in rural areas with cold chain equipment', provision of alternative power supply such as use of solar energy in these area, training and retraining of health workers on positive attitude towards clients, and promote girl-child education particularly in rural areas. Stakeholders in Routine Immunisation are encouraged to accept and fully participate in routine Immunisation activities in their communities.

Table 1. Question guide for focus group discussions

No	Focus group questions
1	What do you understand by the term" Routine immunisation"?
2	Is there any difference between routine immunisation and Immunisation campaigns? Please mention.
3	What are the major health problems in children which can be prevented by vaccination?
4	Name the various vaccines/antigen that you know under routine Immunisation and which diseases do they protect against?
5	How many times are you expected to take your child to the health facility for routine immunisation?
6	Are there any problems in getting these vaccinations for your children? Mention some reasons why some people don't take their child to the health facility to receive routine Immunisation.
7	What changes would you like to see made in the RI vaccination program? How would these changes make it easier for us to reach the goal of full Immunisation for 80 to 100 percent of children under two years of age in this community?
8	In your opinion do you believe routine immunisation is beneficial?
9	Does vaccination cause any harm to children? mention some of these harms/ side effects of vaccinations that you know
10	Are any of the diseases for which there are vaccinations a problem among your children?

Table 2. ZY index table showing findings on participants' beliefs and opinions on RI Vaccinations

Themes	Beliefs and Opinions on RI vaccinations				
	Response	Kajola (12)	Ibodi (10)	Osu (12)	Oke Ibode (10)
Vaccines are safe	Agreed Undecided Disagreed	++ + +	+++ + -	++ + +	++ + +
Vaccines prevents all childhood diseases	Agreed Undecided Disagreed	++ + -	+ + ++	+ + ++	+ ++ +
Vaccines may cause harm to children	Agreed Undecided Disagreed	+ + ++	+++ + -	++++ - -	+++ - +

Key: -- = None; + =Few (<25%); ++ = Some (50%); +++ =Majority (>75%); ++++ All (100%)

Table 3. ZY Index table showing participants knowledge on vaccine preventable diseases (VPD) and RI

Themes	Knowledge on VPDs and RI				
	Responses	**Kajola (12)**	**Ibodi (10)**	**Osu (12)**	**Oke Ibode (10)**
Knowledge on VPD	Tuberculosis	+++	++	+++	+++
	Poliomyelitis	++++	+++	++++	++++
	Diptheria	-	-	-	-
	Pertussis	-	-	+	-
	Tetanus	++	+	++	+
	Measles	+++	+++	++	+++
	Hepatitis B	+	-	+	++
	infection	-	-	-	-
	Yellow fever	-	+	-	+
Symptoms of VPD	Cough	++	+	+++	++
	Paralysis	+++	++	++++	+++
	Skin rashes	++	+++	+++	++
	Diarrhoea	+	++	+	+
	Fever	++++	+++	+++	+++
	Jaundice	+	-	+	-
	Difficult breathing	+	+	+	+
Knowledge of vaccines	BCG	+++	++	+++	++
	OPV	++++	+++	++++	+++
	DPT	++	+	++	+++
	Measles vaccines	+++	++	+++	++
	Yellow fever Vaccines	-	+	-	+
	Hepatitis B Vaccines	-	-	+	-
Age of administration of vaccines	Birth	+++	++	+++	+++
	6weeks	++	++	+++	++
	10week	+	++	++	+
	14 weeks	+	+	+	+
	9months	+++	++	++	+++

Key: -- = None; + =Few (<25%); ++ = Some (50%); +++ =Majority (>75%); ++++ All (100%)

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