

Full Length Research

Understanding the Caregivers' Perceptions about Immunizing their Children

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To describe caregivers' perception of routine immunization of their children ages 24 to 36 months, qualitative interviews with 5 caregivers of fully immunized and 5 of partially and not immunized children in AwbaOfemili, Eastern Nigeria were conducted. Thematic analysis was used to analyze the data. The caregivers were classified according to their vaccination status as fully immunized and partial/no immunization. Findings around five themes and five subthemes are presented: (1) perceived access barrier-lack of vaccine ID (2) perceived benefit-availability of vaccine (3) religious perceptions - Christian beliefs (4) mother's responsibility-lack of support from spouses (5) lack of knowledge. The study concluded that in order to have the children fully vaccinated in the rural areas, the government, traditional leaders, and community leaders should collaborate. Sufficient awareness about immunization be provided to the males and females of the community encouraging them to seek immunization at the appropriate age of the child. Further, promotion of vaccination day should be increased by additional method through churches, market days, and town hall meetings.

Keywords: Caregivers, Childhood vaccination, Immunization, Qualitative Study, Nigeria.

INTRODUCTION

Children with inadequate routine immunization for vaccine-preventable diseases are at greater risk of morbidity and mortality than the general population (Clark and Sanderson, 2009). Immunization coverage in Nigeria has improved over the past 10 years: the percentage of children ages 12 to 23 months who received all basic vaccines nearly doubled from 13% in 2003 to 25% in 2013 (NPC, 2004, 2009, 2014). Despite this improvement, Nigeria remained one of the ten countries in the

world in which 50% of the children were unvaccinated (WHO, 2011). In Nigeria, polio, measles, pertussis, and tetanus continue to affect Nigerian children (Wonodi et al., 2012). Caregivers had numerous reasons for failing to take their children to health centers or clinics for health care services. Some reasons were complex and not completely understood. Vaccines were responsible for the control of many infectious diseases; therefore caregivers should take advantage of the vaccines

and take steps to have children vaccinated. In the present qualitative phenomenological study, the life experiences of caregivers related to immunization of their children aged 24 to 36 months in AwbaOfemili, Nigeria were explored. Perceived lack of information is associated with negative attitude about immunization (Gust et al., 2005). The caregivers with fully vaccinated children had enough information to immunize their children, on the other hand the caregivers with partial or no vaccination acknowledged not having enough information to have their children vaccinated. Providing information had been shown to be the factor that positively influences immunization among parents, Oku et al., (2016) and Chinawa (2014). A parent's decision to vaccinate his or her child is based on past experiences and information from the nurses and input from friends and family members (Gust et al., 2005). The use of town crier to inform the caregivers of vaccination day was not adequate, the caregivers with partial or no vaccination reported they forgot the vaccination day and sometimes their spouses and neighbours reminded them. Lack of consistent communication between family caregivers and health workers would jeopardize caregivers bringing their children to hospitals, clinics, and healthcare centers for immunization (Barlow et al., 2006). Results were significant improvements in parental knowledge and involvement. Health workers were the major source of information about immunization for family caregivers. The caregivers in this study prefer the nurses to visit their homes and vaccinate their children. Inadequate health facilities, long distance, access to health facilities, and transportation were identified as barriers to childhood immunization (Abdulraheem et al., 2011; Oluwadare, 2009) in Nigeria. Immunization saves millions of lives however, the reasons caregivers do not take advantage of vaccines for preventable diseases have received little attention in the literature. Most researchers have been carried out in urban areas than rural areas whereas the reasons are complex in rural areas (Antai, 2011; National Population Commission [NPC], 2004; 2006; 2009; 2014; Onyiriuka, 2005). In addition, the availability of adequate health facilities is lacking in rural areas, which negatively impact the rate of immunization of children (Adeiga et al., 2005; Itimi et al., 2012). This study examined the caregivers' perception and the factors influencing the uptake of routine immunization among their children aged 24 to 36 months.

MATERIALS AND METHODS

The present study was carried out in AwbaOfemili, Nigeria from April 29th to May 11th 2015, consisting of eight villages with only one primary health center and one health post without any hospital. The villages included Akpana, Enugu, Enuguage, Ezike, Muanyafulu, Umuezeafor, Umuosite, and Umuchibu. It is located in the northern part of Awka with a population of 35,000 (NPC, 2006), mostly agrarian people of peasants and subsistence farmers. The AwbaOfemili community has a homogenous culture, and people speak predominately Igbo. AwbaOfemili is mostly swampy, making the area inaccessible during the rainy season from the months of May through October.

Ten participants for the study were recruited by word of mouth, town crier announced the study in the community, the study was announced in church services, and the health center consisting of two groups of five female caregivers between 20 and 35 years of age. One group had children aged 24 to 36 months fully vaccinated, and the other group had children aged 24 to 36 months with few or no vaccinations.

The caregivers were purposefully recruited because of their unique and wide range of perspectives. To recruit caregivers, fliers were displayed with contact number at the health center, churches, and health post asking for caregivers who would be interested in volunteering for the study. Services of the town crier and traditional leaders were used during recruitment of participants because they were familiar with the community and were better able to explain participants the importance of the study. When potential participants contacted it was checked if they had children of ages 24 to 36 months. Caregivers between the ages of 20 and 35 years participated in the study. If the caregivers met the criteria, they were given a time and place to meet them for the interview.

Data Collection

An in-depth interview with each of the participants was conducted using open-ended questions. The discussion guide consisted of questions used for each caregiver to ensure consistency in each session. A panel of experts to review the questions to be used in the study was made, consisting of three lecturers in the field of nursing and public health at a university. Comments provided by the

expert reviewers were considered when preparing the final interview guide. The interviews were held in each caregiver's house at a time convenient for them. Interviews were conducted with five caregivers who had children fully immunized and five caregivers whose children received few or no immunizations. Caregivers felt free to converse and told rich stories about their experiences regarding vaccination of their children. Full attention was paid to the caregivers to obtain meaningful data.

In-depth open ended questions were used to understand the perceptions and influences some caregivers encountered before and during deciding to bring their children to a health center for vaccination. The interview lasted between 45 and 60 minutes and each caregiver was asked and approved the researcher to contact her again to clarify any statements. As a follow up care givers were contacted for clarification of findings a week after the first interview for 1 hour or less. Some caregivers brought vaccination cards to the interview. All interviews were tape recorded with the permission of each of the caregiver. All caregivers were interviewed in their native language and transcribed the native language into English. The researcher speaks Igbo fluently and is familiar with the community and its culture. It was ensured that all topics were covered by asking probing questions when appropriate. Issues covered included the caregivers' experience while having their children immunized knowledge of when to go for the immunization and accessibility of the health center. Participants were provided the opportunity to discuss issues that were important and identified challenges caregivers face to get their children vaccinated. After each session, the information was transcribed from digital recording.

Data Analysis

Data collection was conducted until all the caregivers were interviewed. All interviews were then read and transcribed following the words of caregivers' line by line, to make sense of caregivers' perceptions about vaccination for preventable diseases. In this study, the principles of phenomenology and the seven steps for data analysis as described by Colaizzi (1978) guided the present study. Each transcript was carefully read to ensure significant statements directly related to caregivers' phenomenon of interest under investigation were extracted (Colaizzi, 1978). To

analyze data collected efficiently software NVivo 10 was used. The interview data were organized into Microsoft Word files and then imported into NVivo.

Ethics approval

Permission was requested and received for all discussions to be audiotaped. Caregivers were told that they could choose to withdraw from participation at any time. Walden University Institutional Review Board Approval to conduct the study is #04-17-15-0092803. Permission was also obtained from the Anambra State Ministry of Health of Nigeria.

RESULTS

All the 10 caregivers were married females and were divided in two groups of five each. One group (Caregivers 1 through 5) had children aged 24 to 36 months who were fully vaccinated, and the other group (Caregivers 6 through 10) had children ages 24 to 36 months with few or no vaccinations. The age of the caregivers ranged from 20 to 35 years, caregivers in the fully vaccinated group were found to be more educated (three of the five caregivers had at least a middle school education) than the caregivers of children with few/no vaccinations (one of the five caregivers had a middle school education).

The study findings are reported according to research question and themes. Although the themes are reported individually, responses could be attributed to more than one theme. The first research question addressed the caregivers' perceptions regarding attitudes toward immunization. Thematic analysis revealed a perceived barrier (access barrier) and a perceived availability of vaccines associated with this research question. The second research question addressed caregivers' perceptions regarding cultural beliefs toward immunization of their children. The only theme that emerged from the analysis was religious perceptions. The third question addressed caregivers' perceptions regarding knowledge toward immunization of their children. Thematic analysis revealed themes related to gender roles in the culture. The caregivers lacked knowledge about vaccinations and perceived that it was the mother's responsibility to know about the vaccine and take their children to the health center. Table 1 presents

Table 1. Themes and Corresponding Subthemes by Research Questionnaire.

Research questions	Themes	Subthemes
RQ1: What are the caregivers' perceptions regarding attitudes toward immunization of their children in rural Nigeria?	Perceived access barriers Perceived benefits	Lack of vaccine ID card Availability of vaccines
RQ2: What are the caregivers' perceptions regarding cultural beliefs toward immunization of their children in rural Nigeria?	Religious perceptions	Christian beliefs
RQ3: What are the caregivers' perceptions regarding knowledge toward immunization of their children in rural Nigeria?	Mother's responsibility Lack of knowledge	Lack of support from husband

the themes and subthemes according to each research question.

Theme 1: Perceived Access Barrier

All 10 caregivers noted that the distance to the vaccination center made it difficult to travel on foot. Often a caregiver would arrive at the vaccination center after closing because it was too far to travel on foot to arrive before closing, or because the caregiver did not have access to other transportation earlier in the day. Caregivers with fully vaccinated children and caregivers of children with partial or no vaccinations agreed that the distance to the vaccination center was a hindrance to children receiving timely and complete vaccinations.

C001 noted that it is always a struggle to get to the health center because of the distance. Child had to be carried on the back with an umbrella because it was raining or the sun. The center is far away and having no choice have to walk on foot because she wanted her child to be vaccinated.

C002 also stated that the distance to the vaccination center was far: how ever she liked to walk because she does not have the means of transportation and no money to pay for motor cycle so she must walk to the center she is used to it.

Caregiver C010 said, she had to get up early in the morning and get child ready for long trip to the center. Instead, she would like the nurses to come door-to-door giving children the shot."

Theme 2: Perceived Benefits

All the 10 caregivers understood that vaccinations were important to prevent childhood disease in their

children and community. The majority of the responses relating to the theme of perceived benefits were given by caregivers of children with complete vaccination records. However, one of the caregivers of a child with an incomplete vaccination record, Caregiver C006, stated, that her first son was sick for whooping cough at night and as her husband was around they brought the child to the hospital and the child was given a shot, and was ok." Other responses regarding the preventative care aspects of vaccination were given by caregivers of children with full vaccination records. Caregiver C004 mentioned how vaccination helped protect her daughter and the community from measles: her first daughter had measles and would have been dead if she did not take her to the hospital to get immunized. If she did not let her child have shots the disease in the air would affect her child and she would become sick and spread the disease to other children. Caregiver C003 mirrored the opinions of the other caregivers regarding the importance of vaccination in preventative care: Vaccination for children is good and would like to have her child to be vaccinated. It helps to prevent chicken pox and measles. She feared if her child was not vaccinated she would be sick and may even die. That is the reason she would like to have her child to have shots.

Caregiver C001 also understood the value of vaccination for her children: Vaccination of children is important because it helps to protect child from childhood diseases. She was the first daughter of her parents, and since she was weak her mother had to get her to the center and to get her vaccinated. She had developed such practice to continue to have her children vaccinated until she stops having kids. She teaches young mothers in

the neighborhood to take their children to the center to get vaccines against preventable diseases.

Theme 3: Religious Perceptions

The majority of caregivers (N=9) preferred Western medicine (vaccines) over traditional methods (necklaces and keys). However one caregiver, C009, preferred traditional medicine stating: She was used to going to traditional healers as they are quite good. Whenever her child was sick she would take the child to see the traditional healers for treatment to treat as she believed in cultural beliefs by having her child with a necklace and key. The key is to lock up the disease afflicting the child. Two caregivers of children with complete immunization records made mention that some in the community did not believe Western medicine was the best option for protecting the community from diseases. Caregiver C003 said, some people tell her not to go that the vaccine will hurt her child. However, she continued, Vaccination is essential as such she does not go to traditional healers and she believes believe in Western medicine."

Caregiver C004 also mentioned that some mothers in the community did not vaccinate their children, "In this community some mothers don't like going to the center with their children for shots, and rather they go to the native doctor and gives the child necklace with key to protect the child from whooping cough."

However, nine of the ten caregivers (all caregivers except caregiver C009) did feel Western medicine was better than traditional medicine. Caregiver C001 stated: she was not following cultural beliefs; her mother did not teach her that. She taught her to seek western medicine for treatment. The nurses also tell mothers not to practice or follow cultural beliefs; as these are harmful to the child if the child is not vaccinated. Further, the nurses at the center tell the mothers not to listen to mothers who do that. Still, some of her neighbors who don't believe having their children vaccinated as they are afraid of western medicine. However, if her child is sick she visits the health center or hospital.

Theme 4: Mother's Responsibility

All the caregivers (N=10) were given sole responsibility for obtaining their children's immunizations. Only that the fathers would often remind the mothers of upcoming vaccination events

and also sometimes help whenever they were available. However, the males often were away at work and took the family's only mode of transportation, leaving the mothers to go to the clinic with her children on foot.

According to caregiver C005: her husband does not support her when she tells him that she had to take the child to the center for vaccination he simply says that is her responsibility. Even, sometimes when coming late from business pretends to be tired. In that case, she had no choice but to take the child to the center. Still, whenever the child becomes sick at night he would not care simply saying nothing would happen to the child and would go to sleep.

Caregivers C006 and C007, both mothers of children without complete vaccination records, mentioned that the fathers took the family's transportation which made it difficult to travel to the vaccination center.

Caregiver C006 said: as the center is far away, she had to walk on foot. Sometimes, luck favours and husband is around she goes there on motor cycle otherwise most of the time she had to walk to the center with the child. It is really a tough journey.

Theme 5: Lack of Awareness

Five of the caregivers stated that they did not know whether their children receive or needed vaccines. Although some caregivers said that the nurses provided general information on vaccines, most caregivers did not know the specifics of the vaccination schedules for their children.

Caregiver C001 stated: the nurses taught them the importance of vaccination on vaccination day at the center. She knew about polio, small pox, and malaria but did not know the type of vaccine her child would receive; since the nurses do not tell her that she usually goes with her vaccination card. The nurse would look at her card and check if her child required the particular shots and accordingly the shots are given. Sometimes, the nurse tells her the child had already been given the shot and would get another shot the next visit. She would not feel good about it because the trip was wasted for nothing. Caregiver C001 also noted the process of the town crier notification to the community; likewise others in the community also reminded her of the vaccination event. The town crier would go around and announce the day for vaccination by beating the slit drum (ekwe). She had not missed taking her child to

the center for vaccination, the town crier would announce the day and she would get ready. Neighbours and the church also remind her about immunization day. Caregiver C007 also stated that, although the town crier announced the vaccination day, she didn't always get the vaccination information in a timely manner: as the town crier would go around announcing about vaccination day by beating on the slit drum (ekwe) if she missed nobody would inform her about it.

DISCUSSION

The first research question of the study was: what are caregivers' perceptions regarding attitudes toward immunization of their children in rural Nigeria? Two themes were revealed through analysis: *perceived access barriers* and *perceived benefits*. Perceived access barriers referred to the long distance caregivers had to travel to the vaccination center as caregivers had to travel by foot while carrying their children. Perceived benefits referred to the understanding that vaccinations were important to prevent childhood diseases. All 10 caregivers identified the same barriers and benefits. Most of the caregivers with fully vaccinated children were more likely to identify benefits from vaccination compared to those with children who were not fully vaccinated. Caregivers also mentioned lack of time to bring their children to the health center, they forgot the vaccination day, and lack of support from their spouses.

Caregivers whose children received partial immunization had not planned to refuse to bring their children to the health center; rather, multiple problems confronted the caregivers, including difficulty walking to the center while carrying their children. Findings by Abdulraheem et al., (2011) also indicated several factors related to partial immunizations. They conducted a cross-sectional survey of vaccination among 685 caregivers of infants in 85 villages in North Nigeria and found that the most common reasons for incomplete vaccination included parental objection, disagreement or concern about immunization safety (38.8%), long distance walking (17.5%) and long waiting time at the health facility (15.2%).

Unlike the findings by Abdulraheem et al., (2011) where only 17.5% of caregivers with incomplete vaccination reported long distance walking as a barrier, in the present study caregivers cited long

distance to the center as a major problem as well as fear for their safety while walking to the center. Caregivers also mentioned lack of time to bring their children to the health center. One caregiver discussed how her attitude changed after the personal experience of having her child immunized; she now believed in immunizing children. However, the caregiver's child had received only partial immunization. The decision to vaccinate for mothers living in isolated places far from the health center includes a higher burden in terms of walking time, managing multiple children, fatigue, and less time for house chores. These mothers could benefit from the spouses if they would provide money for transportation.

The second research question was: what are caregivers' perceptions regarding cultural belief toward immunization of their children in rural Nigeria? Only one theme was revealed through analysis in relation to culture, which is religious perception. Almost all of the caregivers indicated religion played a key role in motivating them to take their children to the health center for vaccination. Caregivers with fully vaccinated children perceived Christian beliefs as a strong motivator compared to one caregiver with a child not fully vaccinated who believed in traditional healers. Almost all caregivers reported Christian beliefs were the motivating factor to take their children to the health center for vaccination. The caregivers believed Christian beliefs were associated with western medicine and better to be used for treatments.

Several studies support this finding. In a Ugandan study, Bbaale et al., (2013) showed differences owing to religious affiliations. The Muslim families reduced receiving the 3 doses of diphtheria, pertussis, and tetanus by 3% compared to the counterparts from Catholic families. Children belonging to other religions increased vaccination against polio by 7 to 9% compared to counterparts belonging to Catholic religion. Out of 3,484 children in the study, 56 % of Catholics were fully vaccinated, 51% percent of Protestants were fully vaccinated, and 52% of Muslims were fully vaccinated. Ojikutu (2012) reported similar findings in Lagos, Nigeria in which religion significantly influenced parents to vaccinate their children. He found that 85.45% of Christians vaccinated their children while 71.53% of children from Muslim vaccinated were vaccinated. In the present study, all the caregivers reported they were motivated to vaccinate their children due to Christian beliefs

except one caregiver who preferred traditional healer. The third research question was: what are caregivers' perceptions regarding knowledge toward immunization of their children in rural Nigeria? Analysis revealed two themes, namely mothers' responsibility for immunizations of children and lack of knowledge about vaccinations. The participants were given sole responsibility to obtain their children's vaccination because they were the mothers. However, most caregivers with fully vaccinated children received support from husbands and neighbors compared to those with children who were not fully vaccinated. All of the caregivers indicated lack of knowledge identifying types of vaccines and routine vaccination schedules for their children. The caregivers with fully vaccinated children were informed of vaccination days by various means including the town crier, spouse, and neighbors compared to caregivers without fully vaccinated children who acknowledged forgetting vaccination days and not receiving reminders. Although most caregivers acknowledged the importance of vaccinations for their children, the source of their information was inadequate and interfered with scheduling vaccinations. The community used only one source of information—the town crier—to announce vaccination day. Multiple ways to communicate to mothers about vaccination day would be appropriate to reach the vast number of mothers to get their children to the center.

This finding is consistent with a study by Oku et al., (2016) who found that the promotion of routine vaccination in rural settings in the Cross River State of Nigeria was accomplished through posters, flyers, town announcements, announcements sent to churches and mosques, traditional leaders, schools, and jingles. Chinawa (2014) argued that parents need more information to enable them to take advantage of childhood vaccination. Chinawa's findings indicated the dropout rates of vaccination of children were minimal in the health center. The parents were reminded to take their children to the center through various communications including use of jingles, town criers, and village square meetings. Family members, peers, and neighbors influenced caregivers about whether to vaccinate their children. Some caregivers did not discuss vaccination with anyone; this was consistent with the findings by Tickner et al., (2007). Brown et al., (2012) found that parental decisions whether to vaccinate would be

judged by people around them.

Perceptions by Vaccination

The constructs of perceived severity, perceived susceptibility, and perceived benefits were clearly distinguished between the two vaccination status groups. Those with fully vaccinated children perceived the diseases as serious and needing to be prevented, felt the children were susceptible, and felt that the vaccines were safe and effective. On the other hand, caregivers with partial or not vaccinated children, delayed vaccination for other reasons (not severity), and perceived that the diseases could be prevented by other means or treatment. Similarities and differences between caregivers by vaccination status (fully vaccinated vs. partial/no vaccination) and components of the health belief model are presented in Table 2.

Possible barriers to Vaccination

In the present study, participants identified barriers that led to children receiving partial or no immunization. Knowledge was not sufficient for caregivers to bring their children to the health center for vaccination. When caregivers were poorly informed about the need for immunization, other factors such as time constraints and dates of vaccination prevented caregivers from taking their children to the center for vaccination. Most caregivers had other needs to meet in the family such as farming to earn income, and the date of vaccination may not have been appropriate. Home-based immunization records are pertinent to successful routine immunization programs (Brown, 2012). Health care workers issue vaccination cards to each child containing an accurate record of the vaccines administered; health care workers teach caregivers to maintain these records. However, these records are not well maintained; it is uncommon to witness caregivers bringing their children to health centers for vaccination with vaccination cards, and health care workers do not have records. Ndiaye et al., (2003) found the widespread use of loose papers was common, thereby increasing the risk of loss; records were handwritten and most of them were illegible. According to a survey conducted in Nigeria (NPC, 2014) between 2010 and 2013, only 29% of children had immunization cards.

All caregivers in this study stated the long distance

Table 2. Classification of Statements by Health Belief Model—Constructs and vaccination Status of fully vaccinated vs. partial/no vaccination.

	Perceived severity	Perceived susceptibility	Perceived benefits	Perceived barriers	Cues to action	Self-efficacy
Fully vaccinated	Serious, better to be prevented	Likely to get diseases	Vaccines are safe and better, protects my child	Distance to the center, transportation, lack of information	Nurse information, spouse information, town crier, neighbor	Mother getting ready, have vaccination cards
Partial/No Vaccination	Delay vaccination for other reasons	Disease can be prevented by other means		Long walk to center, cost, impassable during rainy season, forgetting, lack of information, confusion about vaccine, no schedule	Nurse information, minimal assistance from neighbor, spouse	Mother not ready, lost vaccination cards

to the center was a barrier; five of 10 caregivers had their children receive few or no immunizations. This information could be used to learn more about the barriers these caregivers face in rural areas. This finding aligned with a previous study (Adeiga et al., 2005) in which many children in Nigeria were not vaccinated due to inadequate access to health facilities. In rural areas, a poor transportation system and lack of infrastructure increase the degree of isolation, particularly for those who are poor. Abdulraheem et al., (2011) and Oluwadare (2009) had similar findings supporting the idea that long distances to health centers leads to partial immunization, missed opportunities, and low immunization among children. In multiple studies, researchers found that distance from homes, transportation costs, and an inadequate transportation system affected the use of health care services (NPC, 2014; Okonkwo and Ngege, 2004).

All caregivers acknowledged that vaccines were beneficial for their children. Caregivers understood that vaccinations were important in preventing childhood diseases in their children and community. However, even some family caregivers who possessed basic vaccine knowledge failed to get their children vaccinated (Tadesse et al., 2009). Poor immunization rates might be due to mothers not knowing the benefits of vaccine-preventable diseases and being illiterate (Sharma and Bhasin, 2008). Sharma and Bhasin (2008) and Tadesse et al., (2009) found mothers' lack of knowledge about vaccine-preventable diseases aligned strongly with no or delayed immunization. In the present study all caregivers reported that immunization of their

children was important; however, five caregivers did not take their children to the health center regularly for vaccination. The information gathered could assist policymakers and community leaders in improving access to vaccination center.

Most caregivers in this study indicated that their decision to bring their children to centers for vaccination was based on religious perceptions. In a previous study, Jegede (2007) reported that suspicion and mistrust of Western medicine (vaccine) led to Muslim Nigerian leaders in three northern states of Nigeria to call for a boycott of the 2003 national polio-vaccine campaign. Christian and Muslim beliefs could be examined to fully understand the impact of religious perceptions on immunization.

Knowledge could be extended by further study on lack of knowledge, such that most caregivers could not identify specific vaccines or vaccine schedules. It was important that family caregivers were empowered with adequate education of the benefits and risks of vaccines in controlling diseases, as knowledge would enable family caregivers to plan and define the barriers that disrupted their immunization status (Montasser et al., 2014). Montasser et al., (2014) found that when family caregivers were educated on immunization, immunization rates increased. In a similar study, Amin et al., (2013) found that knowledge gaps underlie low compliance with vaccination schedules. Only two caregivers were able to name a few vaccine-preventable diseases.

This research increased knowledge about mothers being solely responsible for the immunization of children. Caregivers (all mothers) were given sole

responsibility for obtaining their children's immunizations. Findings from this study are consistent with Babirye et al., (2011) who found that the male partner's role was important in mothers' decisions and provided financial support such as money for transportation to enable caregivers to take their children for immunization. Knowledge could be extended to include spouses in the role of vaccinating their children.

Themes in this study supported the use of the health belief model regarding caregivers' vaccination of their children. Caregivers considered perceived susceptibility of their children to vaccine-preventable diseases including BCG, diphtheria, tetanus, pertussis, measles, polio, and hepatitis B. Most caregivers believed perceived susceptibility caused them to seek vaccination of their children; consistent with results from Harmsen et al., (2013). The majority of caregivers agreed that vaccination was important.

All caregivers interviewed agreed that vaccination could prevent their children from getting vaccine-preventable diseases. This was in agreement with Frank et al. (2004). One caregiver reported vaccines saved the child from getting whooping cough. Most caregivers cited transportation and location of the health center as reasons for not bringing their children to the center for vaccinations. This is consistent with Murele et al., (2014).

CONCLUSION

In this study, the perceptions of caregivers about immunization of their children were examined. The study provided insight into the factors influencing caregivers who had fully vaccinated children and caregivers with partial or no vaccination of their children in AwbaOfemili. These results are of great importance to policy makers who can target and improve the immunizations services of populations in rural areas. Outreach programs are necessary in AwbaOfemili to enable people to gain easy access to health services. To encourage compliance with vaccination programs, multiple strategies should be used in the future involving nurses, caregivers (mothers and fathers), and family members. Immunization of children continues to be a unique problem in Nigeria, especially in rural areas where poor infrastructures exists. AwbaOfemili requires improvement in transportation for healthcare workers or nurses to make consistent visits to rural

areas to educate the population on routine immunization. Community leaders, including religious and traditional leaders, should advocate for immunization to persuade governments, donors, and other agencies to support vaccination programs. This paper enumerated the myriad challenges facing caregivers in rural areas when seeking to immunize their children. Conducting this qualitative study contributes to the solution, yielding themes shared by participants.

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