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Understanding Caregivers' Perceptions of Childhood Immunization

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Walden University
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Abstract

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by

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MA, University of Central Oklahoma 1993

BA, University of Central Oklahoma, 1986

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

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Abstract

Low immunization in Nigeria is associated with high prevalence of childhood diseases. The purpose of this qualitative phenomenological study was to describe caregivers' perceptions of routine immunization of their children ages 24 to 36 months. Caregivers' attitudes, cultural beliefs, and knowledge regarding immunization were examined. The health belief model was used to guide study. Interviews were conducted with 5 caregivers of fully immunized and 5 caregivers of partially and nonimmunized children. Digital recordings were analyzed using NVivo 10 to identify themes and subthemes. Attitudes of caregivers with fully immunized children included both perceived barriers (distance to health center, lack of information) and perceived benefits (vaccine safety and effectiveness), whereas caregivers with incomplete vaccinations reported multiple transportation-related barriers. Cultural beliefs were limited to religious beliefs and emerged as a theme among both caregiver groups, where full vaccination associated with Christian beliefs and lack of vaccination with belief in traditional healers. Caregivers' knowledge associated with full vaccination included cues to action (information from nurses and reminders by others) and self-efficacy (kept vaccination cards ready and prepared for vaccination day), and incomplete vaccination associated with lack of reminders and preparation. Perceived severity, susceptibility, and benefits were associated with full vaccination status, while lack of perceived severity, susceptibility, cues to action, and self-efficacy constituted barriers to vaccination. Social change implications include education on disease severity, susceptibility, and vaccination safety, and expanding transportation, access to vaccination centers, and religious outreach programs to increase immunization of Nigerian children.

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Dedication

I dedicate this work to my family, especially my wife, Stella, for her great understanding, and emotional and financial support to pursue the doctoral program. Also, for her taking care of my children Andre, Colleen, Oscar, Collins, and Fidel. Special thanks go to my brother, Hillary, who insisted on accomplishing the goal.

Finally, I thank the people of Awba Ofemili for their unflinching support to conduct this study. I hope that improvement will occur in health services in Nigeria.

Acknowledgments

I thank God for the strength and wisdom to carry on this great program and get it completed. My gratitude goes to my dissertation chair, Dr. MaryLou Gutierrez, and my methods advisor, Dr. Patrick Tschida, for their unflinching support to enable me to complete the program. Their perseverance and patience was unlimited. Thanks to Dr. Jacqueline Fraser for serving as my University Research Reviewer.

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Chapter 1: Introduction to the Study

Introduction

Children with inadequate routine immunization for vaccine-preventable diseases are at greater risk of morbidity and mortality than the general population (Clark & Sanderson, 2009). In this qualitative phenomenological study, I sought to explore the lived experiences of caregivers related to immunization of their children ages 24 to 36 months in Awba Ofemili, Nigeria. Inadequate health facilities, long distance, access to health facilities, and transportation were identified as barriers to childhood immunization (Abdulraheem, Onajole, Jimoh, & Oladipo, 2011; Babalola & Adewuyi, 2005). 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. More research has been carried out in urban areas than rural areas, and the reasons are complex in rural areas (Antai, 2011; National Population Commission [NPC], 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., 2007; Itimi, Dienye, & Ordinioha, 2012).

Background of the Study

Lack of adequate routine immunization was implicated as the major cause of preventable diseases among children in Nigeria (Functional Bio-Analysis Health Systems Analysts, 2005). Vaccine-preventable diseases such as pneumonia, diarrhea, and measles account for about 40% of all deaths among children less than 5 years of age in Nigeria (Federal Republic of Nigeria, 2010). Other countries have a higher vaccination rate and far fewer deaths from diseases such as tuberculosis (TB), polio, measles, tetanus,

pertussis, and diphtheria.Immunization effectiveness was cited frequently as significantly reducing childhood mortality rates in many countries (Bharti et al., 2010; Ferrari et al., 2008; Ngowu, Larson, & Kim, 2008; World Health Organization [WHO], 2009a).

The health of rural residents is impacted by living in an unhealthy environment with inadequate sanitation, poor infrastructure, insufficient public health services, transportation difficulties, and high poverty rates (NPC, 2009, 2014). Researchers found rural residents have lower immunization rates than those in urban areas (Adeiga et al., 2007; NPC, 2009, 2014). The NPC conducted a Nigeria demographic and health survey with 34,000 households including 33,385 women and 15,486 men. Four out of 10 (40%) children 12 to 23 months of age were fully vaccinated in urban settings compared to one out of six (16%) in rural areas (NPC, 2009).

Oluwadare (2009) conducted a qualitative study in six rural areas in contiguous Local Government Area, Awe. Awe is a geographic area in Nigeria that includes Efon, Moba, Ikole, Ekiti SouthWest, Gbonyin, and Ekiti East (Oluwadare, 2009). Oluwadare used several methods to collect data, including focus group interviews with mothers and government health workers, key informant interviews with community leaders, and semi structured interviews with elderly people (Oluwadare, 2009). Oluwadare found that participants valued knowledge of routine immunization; however, they had a poor rate of immunization due to misinformation regarding polio as general vaccination for all other childhood diseases and because the immunization service was poor. When rural areas were compared to urban settings, Oluwadare found that most rural areas had unskilled and unqualified nurses.

Adeiga et al. (2007) conducted an infant immunization program including 210 children ages 12 to 23 months in a difficult to reach coastal suburb of Lagos. The aim was to assess immunization coverage for bacillus Calmette–Guérin (BCG) vaccine against TB; diphtheria, pertussis, and tetanus vaccine (DPT); oral polio vaccine (OPV); and measles vaccine (Adeiga et al, 2007). The results indicated 82% of the 210 children were not vaccinated and reasons cited were lack of knowledge (40.7%) and lack of motivation (11.6%). Inadequate knowledge or little education among family caregivers and professional health workers about childhood vaccination has negatively influenced efforts to increase immunization rates (Babalola & Adewuyi, 2005; Makoutode et al., 2009; Oluwadare, 2009; Rogalska, Augustynowicz, Gzyl, & Stefanoff, 2010). Poverty among rural residents contributed to lack of access to health facilities, if any were available. Most poor residents in Nigeria lack money for transportation to seek treatment at community health centers (Kawuwa, Mairiga & Usman, 2007; Sanou et al. 2009; Sia, Fournier, Kobiane, & Sondo, 2009).

Measles has remained a major cause of mortality and morbidity among children in Nigeria. Data from the WHO (2009b) indicated that, in 2007, an estimated 2,613 measles cases occurred in Nigeria. Progress was made and the number of children vaccinated against measles increased to 62% in 2006 (WHO, 2008a) from 35% in 2000 (Adeoye, Dairo, Adekunle, Adedokun, & Makanjuola, 2010; WHO, 2010a). Newborn immunizations against TB were low in Nigeria, at 53% in 2007, compared to Ghana, a neighboring country, at 99% in the same year (Wammanda, Gambo, & Abdulkadir, 2004; WHO, 2011). Neonatal tetanus is a vaccine-preventable disease that causes mortality and morbidity among children in Nigeria (Blencowe, Lawn, Vandelaer, Roper, & Cousens,

2010; Oruamabo, 2007). Polio is a dangerous disease that affects mostly children and is preventable by vaccine; however, polio remains difficult to control in Nigeria (Agbeyegbe, 2007; Jenkins et al., 2008; Renne, 2006). Effective routine immunization has been hampered by inadequate supply of vaccines at health facilities and poor services offered by the health workers. Lack of available vaccines and basic health equipment such as microscopes, sterile gloves, and cold chain (storage and transportation equipment that is vital for vaccines to maintain certain temperatures from the point of manufacture to the point of use, (Oluwadare, 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, Nigerian vaccination fell short of 90% needed to achieve the target by 2015 (Federal Republic of Nigeria, 2010).

Children are considered fully vaccinated if they receive all of the following vaccines: a dose of bacilli Calmette-Guern (BCG); three doses of oral polio vaccine (OPV); three doses of diphtheria, pertussis, tetanus (DPT); three doses of hepatitis B; and one dose of measles vaccine (NPC, 2009, 2014). Data from the NPC (2009) indicated that only 23% of Nigerian children were fully immunized in 2008; however, that number increased to 25% in 2013. Table 1 shows the immunization percentages among children in Nigeria. Figure 1 presents immunization coverage from 1998 to 2009.

Table 1

Percentage of Children Ages 12–23 Months who Received Vaccines

Antigen	2003	2008	2013
BCG	48.3	49.7	51.2
DTP1	42.6	52.0	50.6
DTP2	31.7	44.7	35.4
DTP3	21.4	35.4	38.2
Polio 0	27.8	36.7	46.8
Polio 1	67.2	67.8	76.5
Polio 2	52.3	57.2	69.9
Polio 3	29.4	38.7	53.7
Measles	35.9	41.4	42.1
*All basic vaccines	12.9	22.7	25.4

Note. *All basic vaccines are BCG, measles, 3 doses of DPT, and polio vaccine (excluding polio given at birth); Source: *Nigeria Demographic and Health Survey,* by National Population Commission, 2014, Abuja, Nigeria.

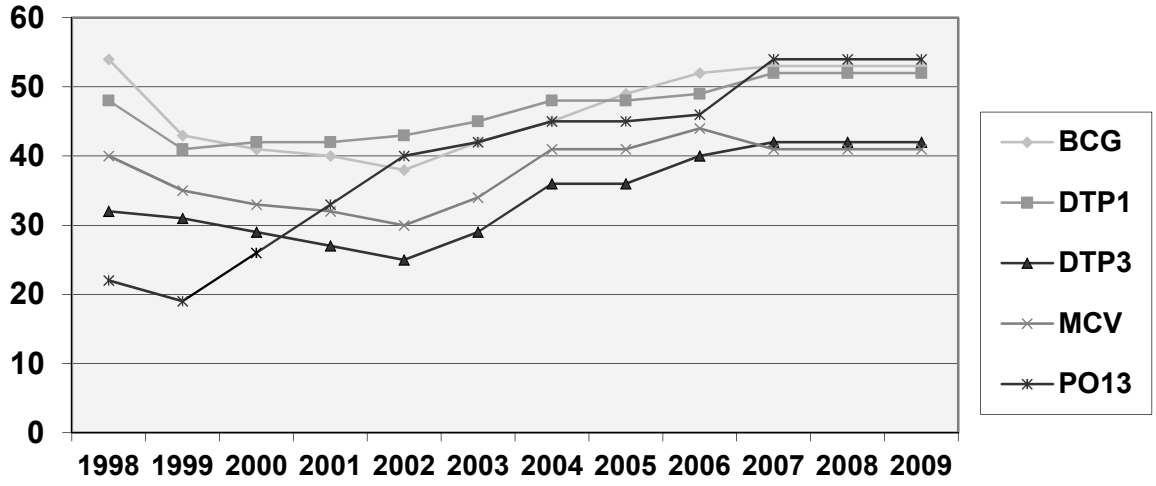

Figure 1. Estimates of national immunization coverage, 1998–2009.
Source: World Health Organization & United Nations Children's Fund, 2012, *Nigeria—Estimates of immunization coverage: 2012 revision*

Government Role in Immunization

In 1974, the WHO initiated the Expanded Program on Immunization to control the spread of TB, diphtheria, pertussis, poliomyelitis, measles, and tetanus (Erah & Ojieabu, 2009). In 1976, Nigeria began expanding its immunization program (Erah & Ojieabu, 2009; Salami, Samuel, Eze, & Oziogbe, 2007). According to data from the NPC (2004), the expanded program had limited success. Inadequate funding by the Nigerian government, poor management, and inadequate mobilization of communities to participate in the implementation of the expanded program led to low immunization rates (NPC, 2009, 2014).

Primary health care infrastructure has been neglected for three decades as a result of poor economic growth and political instability (NPC, 2009, 2014). Because of the poor quality of delivery of services in public and private health care, people have begun to choose alternative sources of health care and use traditional health care providers for treatment (Antai, 2009a; Baker, Dang, Ly, & Diaz, 2010; Muula, Polycarpe, Job, Siziya, & Rudatsikira, 2009). To eradicate polio, Nigeria initiated house-to-house and public site vaccination of children less than 5 years of age, regardless of whether the child had taken OPV doses in the past (NPC, 2009). Religious leaders educated the caregivers by creating awareness among the people to be vaccinated against poliomyelitis (Jombo et al., 2008; Musa et al., 2009; Renne, 2006; Yahya, 2007).

The Stop TB Strategy developed by the WHO helped improve detection and treatment of TB cases in all 774 local government areas in Nigeria (WHO, 2007, 2009b). There was success in reducing the number of positive cases of TB detected and treated

under the Directly Observed Short Course. By 2006, the success rate had more than doubled with 76% case detection and treatment compared to 32% in 1996.

Literature Gap

Evidence from the literature indicates that inadequate health facilities, lack of medical supplies, and long distance to clinics are barriers to childhood immunization (Babalola & Adewuyi, 2005; Ehiri, Oyo-Ita, Anyanwu, Meremikwu, & Ikpeme, 2005; Zeni, Sappenfield, Thompson, & Chen, 2007). In Nigeria, caregivers' poor attitudes and beliefs about childhood immunizations, as well as the lack of an awareness campaign, have resulted in high mortality and morbidity outcomes over the years (NPC, 2009; Wonodi et al., 2012). There has been no study conducted in Awba-Ofemili in the Anambra State of Nigeria on immunizations, especially addressing the impact of caregivers' perceptions and attitudes about immunizations among children younger than 5 years. This study of caregivers of at-risk children was conducted using phenomenological methodology to provide insight and obtain knowledge regarding caregivers' perceptions. The findings from this study may be used to increase awareness regarding the need for routine immunization of Awba Ofemili children.

Immunization rates in Nigeria are below the target for African countries. To address this problem, I gathered qualitative data using a phenomenological design to explore caregivers' perceptions, attitudes, cultural beliefs, and knowledge related to childhood vaccination coverage. By actively listening and conversing with caregivers, I obtained a full and rich description of their experiences regarding routine immunization of their children.

Statement of the Problem

In 2013, 25% of Nigerian children were vaccinated; this was the lowest number in all of Africa (NPC, 2014; WHO-UNICEF, 2012). Nigeria was the 10th largest country in the world with 162 million people including 27 million children less than 5 years of age (UNICEF, 2011). Vaccine-preventable diseases such as pertussis, tetanus, and measles caused 42,000 deaths in 2009 in Nigeria (Wonodi et al., (2012). Immunization has been an effective intervention to reduce deaths among children. Immunization has saved more than three million people each year and has reduced illness and disability (WHO, 2009b). According to the NPC (2009), in 2008 only 23% of Nigerian children ages 12 to 23 months were fully immunized. Data indicated that the fully immunized rate in Nigeria increased to 69% as of 2010.

Nigeria has made considerable improvements in vaccination coverage; however, vaccination rates remain among the lowest in the world (WHO, 2010b). Focus groups including caregivers, workers, and opinion leaders were conducted in eight of Nigeria's states (Bayelsa, Ebonyi, Gombe, Kano Zamfara, Osun, Talaba, and the Federal Territory, Abuja) to determine their immunization status (Wonodi et al.2012).Wonodi et al. (2012) found poor accountability and poor access to hard-to-reach areas. The state of Anambra has not been included in prior qualitative research.

The NPC (2009, 2014) determined that vaccination coverage differed between urban and rural areas. In Nigeria, 40% of children in urban areas were fully vaccinated compared to only 16% of children in rural areas. Caregivers in Awba Ofemili did not have regular health care providers, placing them and their children at risk. Prior evidence

demonstrates that the problem has remained; Nigerian children are not receiving necessary vaccines due to limited access and cultural beliefs.

Purpose of the Study

The purpose of this phenomenological study was to describe the perceptions of family caregivers related to routine immunization of their children ages 24 to 36 months. This qualitative study provided in-depth understanding of cultural beliefs, knowledge, and attitudes among caregivers regarding routine immunization of their children. After reviewing the results of previous studies (Abdulraheem et al., 2011; NPC, 2014; Wonodi et al., 2012), I concluded that additional research was needed to describe the perceptions of caregivers in Awba Ofemili regarding the routine immunization of their children and to compare their experiences with those reported in the literature. I used a phenomenological design to collect and analyze data from caregivers in Awba Ofemili. Better understanding of caregivers' perceptions of routine immunization related to knowledge, beliefs, and attitudes was essential (Chan et al., 2011; Kululanga, Malata, Chirwa, & Sundby, 2012). A qualitative approach was used to obtain information about routine immunization not captured adequately with closed questions.

Theoretical Framework

The health belief model provided the theoretical framework for the study. The health belief model was developed in the 1950s by social psychologists at the U.S. Public Health Service to describe why individuals did not participate in screening tests for early detection of diseases (Rosenstock, 1966). The health belief model has been used widely in studies to predict and explain preventive health behavior (Becker, 1974; Butraporn et al., 2004) such as influenza immunization (Rosenstock, 1966). The health belief model is

composed of six constructs: perceived susceptibility, perceived severity, perceived benefit, perceived barriers, self-efficacy, and cues to actions (Champion & Skinner, 2008). Perceived susceptibility refers to an individual's perception of getting a disease. Perceived severity refers to a person's belief about the seriousness of contracting an illness and consequences of living with a disease if not treated, including death or disability. Perceived benefits refer to a person's belief that behavior change regarding various available actions could reduce the risk of getting the disease. Perceived barriers refer to a belief a person may have about factors that interfere with changing behavior or accessing health care. Self-efficacy refers to confidence in an individual's ability to take action. Cues to action refer to various strategies an individual has to take action (Champion & Skinner, 2008). A more detailed discussion of the health belief model is presented in Chapter 2.

These six dimensions of the health belief model were used to develop interview questions, interpret results, and describe the way caregivers in Awba Ofemili perceived routine immunization of their children. Figure 2 shows the relationships among the constructs.

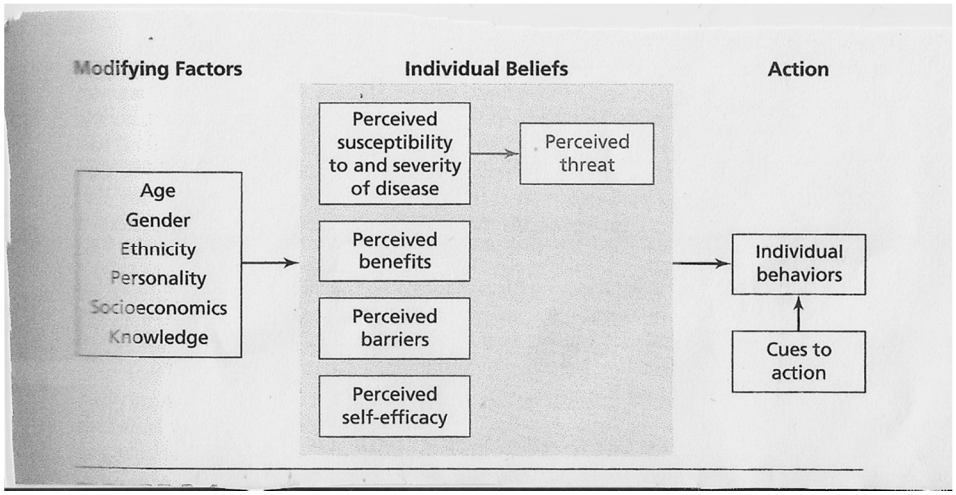

Figure 2. Health Belief model components and linkages.
Source: *Health behavior and health education: Theory, research and practice,* by K. Glanz, B. K. Rimer, & K. Viswanath, 2008, San Francisco, CA: Jossey-Bass, p. 49, reprinted with permission.

Nature of the Study

I used a qualitative phenomenological approach. The participants were recruited from family caregivers in Awba Ofemili in Southeast Nigeria. I conducted in-depth interviews with 10 female caregivers between 20 and 35 years of age who had children ages 24 to 36 months who resided in Awba Ofemili. Constructs from the health belief model were used to develop the interview guide to explore caregivers' perceptions of immunization of their children. As the major investigator, I asked questions and took notes in each interview. A digital recorder was used to record each caregiver's responses and with each participant's consent. The study was conducted in Awba Ofemili. The research was necessary to perceptions toward immunization of their children.

Awba Ofemili consists of eight villages located in Awka, the capital of Anambra state. The population of the area is approximately 35,000 people, including 300 children (National Population Commission, 2006) within the age range of my study. Purposive sampling was used to recruit caregivers to be participants in the study. Approval from the

chief (leader) of Awba Ofemili was sought before any contact was made with potential participants. Informed consent was essential to ensure that participants' fundamental rights were maintained. Consent to participate was obtained in writing, witnessed by the researcher and participant. I speak the native language (Igbo) fluently and conducted the interviews.

Research Questions

1. What are the caregivers' perceptions regarding attitudes toward immunization of their children in rural Nigeria?
2. What are the caregivers' perceptions regarding cultural beliefs toward immunization of their children in rural Nigeria?
3. What are the caregivers' perceptions regarding knowledge toward immunization of their children in rural Nigeria?

Definitions of Terms

Diphtheria: An infection that causes swelling and destruction of the tissues of the throat. An estimated 5 to 10 percent of children die from it (WHO, 2014).

Family caregiver: Relatives, friends or neighbors who live in the same household with children and have the obligation to care for them when they are sick (National Alliance for Caregiving, 2009).

*Health service professional*s: Persons employed in health service facilities, including physicians, nurses, and social workers (Zenzano et al., 2011).

Hepatitis B infection: A serious infection that causes chronic liver infection that leads to liver failure. An estimated 600,000 people die each year of this infection in the world (WHO, 2014).

Measles: An acute and contagious disease caused by a virus and marked by small red spots on the skin. It can spread by direct contact with secretions or through the air (WHO, 2014).

Pertussis: A highly contagious disease of the respiratory tract caused by *Bordetella pertussis*: It occurs mainly in infants and young children and is transmitted from infected to susceptible individuals. The bacteria live in the mouth, nose, and throat and the child may have coughing spells that last up to a minute (WHO, 2014).

Polio (poliomyelitis): Caused by poliovirus that only affects humans. Polio causes permanent paralysis (WHO, 2014).

Tetanus: A bacterial disease that affects the nervous system leading to painful muscle contractions especially of jaw and neck muscles (Atkinson, Hamborsky, & Wolfe, 2012). Neonatal tetanus occurs through infection due to unhygienic childbirth practices (Rahman, 2009)

Tuberculosis: A disease caused by *Mycobacterium tuberculosis*, which mainly affects the lungs. The bacteria that cause tuberculosis are spread from one person to another through coughs and sneezes (WHO, 2014).

Wild poliovirus: Three types of poliovirus that usually occur naturally. Type 2 has been eradicated; however, type 1 and 3 still exist in endemic areas. Wild poliovirus is highly infectious (WHO, 2014).

Scope and Delimitations

The study was conducted in Awba Ofemili and addressed caregivers' attitudes, perceptions, cultural beliefs, and knowledge regarding routine vaccination of their children. Delimitations included rural family caregivers whose children were between 24

and 36 months of age and who lived in Awba Ofemili. The literature indicated that access to and awareness of immunization was lower in rural areas. Prior research carried out in Nigeria included several states but not the State of Anambra where Awba Ofemili is located. As a native of Anambra and a person familiar with the culture, I was welcomed as a researcher in an area where workers from international organizations may not have been welcomed. The caregivers resided in the community and ranged in age from 20 to 35 years; they were recruited by purposive sampling, and they had a wide range of perspectives. The family caregivers were males or females and included birth mothers, guardians or grandmothers; the males were difficult to recruit. However, males and females were given information to participate. Awba Ofemili was a rural town in a remote area of Nigeria with rough terrain.

Limitations

Family members could have been biased, and participants may have been afraid to disclose social practices that are taboo. Additional limitations may have included the family members having certain beliefs and habitual mode of thoughts that influence caregiver's responses. Caregivers may have been anxious about associating with me. Cultural sensitivity may have prevented caregivers from responding appropriately to questions.

Assumptions

It is assumed that participants would answer questions honestly according to their ability to understand. In addition, I assumed that caregivers had reasons for the decisions they made about immunization. For example, they may not have supported the biomedical theory and may not have accepted the role of vaccinations. The purpose of in-

depth interviews was to collect information to enable me to understand caregivers' perceptions of routine immunization of their children and provide insights about their beliefs and attitudes on vaccination coverage. I also assumed that children's vaccination cards provided accurate information to determine whether children were fully or partially immunized.

Significance of the Study

Results from this study added to the existing body of knowledge on immunization rates in rural areas of Nigeria. Through this study, positive and negative perceptions influencing family caregivers' attitudes toward child vaccination which, might be used by educators, nurses, and policymakers. I asked why caregivers did or did not take advantage of vaccines to prevent diseases, and identified barriers to immunization.

Social Change Among Family Caregivers

Data collected provided information to understand participants' attitudes and perceptions toward childhood routine immunizations. Social change implications included the potential to increase awareness through education and promote healthy practices among at-risk communities through policies that might increase the low rate of immunization of children.

Summary and Transition

In 2013, 21% of Nigerian children age 12 months did not receive the recommended vaccines, and Nigeria had the highest rate of unvaccinated of children in Africa (WHO-UNICEF, 2012). Vaccine-preventable diseases, including pertussis, tetanus, and measles, caused 42,000 deaths in 2009 (Wonodi et al., 2012) Immunization has been an effective intervention to reduce diseases and death among children (WHO,

2009b). Several immunization campaigns aimed at African countries yielded fluctuations in vaccination rates, and vaccines requiring multiple administrations had the lowest rates (WHO-UNICEF, 2012). In 2009, only 23% of Nigerian children ages 12 to23 months received all recommended vaccines, including one dose of BCG vaccine, three doses of DPT vaccine, at least three doses of polio vaccine, and one dose of measles vaccine (NPC, 2009); however, the rate increased to 25% in 2013 (NPC, 2014). A report issued by WHO-UNICEF (2012) indicated the percentage of children ages 12 to 23 months receiving the recommended vaccination in Nigeria increased from 23% to 69% in 2010. However, specific regions and subpopulations remained at much higher risk (WHO-UNICEF, 2012).

Nigeria has made considerable improvement in vaccination coverage; however, vaccinations remain among the lowest in the world. According to NPC (2009, 2014), vaccination coverage differed between urban and rural areas. In Nigeria, 40% of children ages 12 to 23 months in urban areas were fully vaccinated compared to 16% of children ages 12 to 23 months in rural areas. Family caregivers were less likely to have fully immunized children who received the recommended vaccines as a result in differences in access to vaccination services, as well as cultural beliefs (Amin et al. 2013). In Chapter 2, I review existing literature and describe how this study addressed gaps in the literature.

Chapter 2: Literature Review

Introduction

The purpose of this phenomenological study was to describe the perceptions of family caregivers related to routine immunization of their children ages 24 to 36 months. Immunizations save millions of people; the reasons caregivers do not take advantage of vaccines to stave off preventable diseases are complex. Compared to other African countries, Nigeria continues to have low immunization rates despite considerable improvements (WHO, 2010b). In addition, Nigeria still has cases of three wild poliovirus types (National Primary Health Care Development Agency, 2012). Many factors affect caregivers, resulting in their failing to bring their children to health centers for immunization. In this review, I describe various studies conducted on immunization focusing on topics such as poor knowledge, education, misconceptions about the adverse effects of vaccines, cultural beliefs, and attitudes. I specifically address studies involving interviews to uncover barriers caregivers face in bringing their children to health facilities for immunization and intervention programs.

Literature Search Strategy

I performed an extensive literature search of works published between 2004 and 2014 to identify cultural beliefs, attitudes, knowledge, and other barriers related to childhood immunization among family caregivers, as well as government-based barriers influencing childhood immunization. The literature review included published peer-reviewed, medical, and scientific literature relevant to the study. In addition, separate searches were conducted on topics related to the research questions. I searched numerous databases and search engines including Google scholar, Medical Literature on Line,

Health Star (Services, Technology, Administration and Research), and Combined Health Information Database. In addition, I searched Cumulative Index to Nursing and Allied Health Literature, International Nursing Index, ProQuest, and EBSCOhost using 53 search terms. To identify current peer-reviewed articles relevant to the study, I conducted a search on Walden PubMed and Walden Medline with full text. Some terms, words, and phrases used alone and/or in combination included: health belief model: immunization: culture: knowledge: vaccine, adverse effect, measles, polio, diphtheria, tetanus, phenomenology, case study, grounded theory, qualitative, quantitative research methods, analysis, interviews, data collection: data analysis on immunization, childhood immunization, and family caregivers. More than 1,000 papers and manuscripts were identified, and about 120 papers were relevant to childhood routine immunization. Pertinent articles on health belief model concepts addressed perceived susceptibility, perceived benefits, perceived severity, perceived barriers, cues to action, and self-efficacy.

Anambra State

Anambra State is in Southeast Nigeria, and its capital is Awka. It became a state in 1991 from the old Anambra state with 21 local government areas and 326 wards. Anambra State has a population of 4.1 million people with 51.2% males and 48.8% females (NPC, 2006) in an area of 4,848 square kilometers. The rural population in Nigeria was 49.7% in 2010 and employed 90% in agriculture (World Bank, 2011). The state has a total of 1,084 health facilities made up of 396 primary health facilities, 25 state general hospitals, one federal medical center, one federal neuropsychiatry hospital, one

tertiary health care facility, and 660 private hospitals (Balogun, 2007; Ibeh, 2008; National Bureau of Statistics, 2009a).

There are three types of primary health facilities in Anambra state. Type 1 has 144 facilities, called health posts, are mostly owned by local governments. These facilities employ mainly paramedics and assistants with no formal training. Type II has 252 facilities are the primary health centers with more responsibilities and diverse staff including nurses, midwives, community health officers, senior community extension workers, pharmacy technicians, laboratory attendants, and visiting physicians from the local government area headquarters. Each community has more than one health center. A Type III facility is called a comprehensive community health center; there are three of such facilities. Comprehensive community health center serves as a cottage hospital, mainly performing referral and performing limited surgeries.

These facilities are inadequate and lack basic health equipment including microscopes and sterile gloves (Chukwuani et al., 2006; Ehiri et al., 2005; World Bank, 2010). However, rather than seek treatment at health posts, health centers, or comprehensive community health centers, most patients prefer state hospitals and teaching hospitals (Akande, 2004; Bankole et al., 2010). State hospitals and teaching hospitals are the main sources of personal and group health services. Most health care visits are made to government health posts and health centers for immunization; these are free and have inconsistent hours of operations (Adeyemo, 2005; Ajala, Sanni, & Adeyinka, 2005; Babalola & Aina, 2004). The private sector owns most facilities in the state, as shown in Table 2.

Table 2

Ownership of Health Facilities, Anambra State

Entity	Number
Local government areas	396
State	25
Federal	3
Private/nongovernment	660
Number of state facilities and types, Anambra State	
All facilities	421
Health posts/dispensaries	144
Primary health centers	252
Comprehensive health centers	3
Hospitals	22

Source: *Directory of health establishments in Nigeria, 2007,* by National Bureau of Statistics, 2009b, retrieved from http://www.nigeriastat.gov.ng

Immunization Programs

Community Partnership

Forming community partnerships is an effective way for public health professionals to achieve active community involvement that can promote knowledge and awareness of vaccine-preventable diseases. For example, the presence of female health workers among groups advocating for the use of vaccines might have a greater impact on the target audience (Carrol et al., 2007; Mulumba, Daoud, & Kabang, 2007).Collaborative relationships are essential among consumers and organizations in the community to address health and social issues (Olusanya, 2007). Community involvement is the process of people working together for a common interest and includes service providers, religious and social communities, and special-interest groups. Increased participation or involvement could empower community partners to use

resources available to solve their problems (Babalola & Aina, 2004; Becker, Kovach, & Gronseth, 2004; Ohnishi & Nakamura, 2009). In Nigeria, faith-based organizations provide about 60% of health care, especially in remote and rural areas. The Christian Health Association of Nigeria operates throughout the country and provides about 40% of health care services in rural areas (Antai, Ghilagaber, Wedren, Macassa, & Moradi, 2009; Larbi et al., 2004).

Coalition partnerships are beneficial because they enhance community resources by avoiding duplication of services and providing opportunities for special interest groups to participate in developing public policy (Findley et al., 2004; 2008). To have consistent, routine immunization coverage, community institution advocates, stakeholders, and social clubs have to play a more prominent role in promoting community-wide programs like childhood immunization. Evidence demonstrated the success community partnerships had in providing training to health service providers, increasing community health promotion activities on childhood immunization, working with local community stakeholders to identify and address vaccine-preventable diseases, and empowering family caregivers to become active participants in matters related to the immunization status of their children (Findley et al., 2008; Rosato et al., 2008).

State and Local Partnerships

Partnerships between communities and state governments provide a wealth of information that promotes planning and implementation of public health programs and infrastructure reform. Collaboration between state and local organizations has increased public debate on health issues affecting communities (Padgett, Bekemeier & Berkowitz, 2004). The Nigerian Red Cross provided assistance to the Zaria local government area to

control the spread of measles in the northern part of Nigeria (International Federation of Red Cross and Red Crescent Societies, 2007). The Nigerian Red Cross retrained volunteers and community health workers to carry out health education efforts to prevent childhood and adult diseases. The Nigerian Red Cross also collaborated with the state's ministry of health to address measles diseases among children less than 5 years of age.

The Nigeria Partnerships for Transforming Health Systems has contributed immensely to the improvement of health systems with ministry and departments of health at federal, state, and local government levels. The aim was to improve the health status of poor Nigerians. In addition, Partnerships for Transforming Health Systems partners with private sector, civil society, and other development partners and focuses on four health conditions: malaria, TB, sexually transmitted infections, and common childhood diseases (Chukwuani et al., 2006; Oluwadare, 2009; Shiffman & Okonofua, 2007).

In Nigeria, coalitions have been created for social services, one of which is called Maternal, Newborn, and Child Health Care; that coalition came into existence in 2007. In 2003, the infant mortality rate was 100 per 1000 live births compared to 87 per 1,000 in 1990. The global campaign against polio in northern Nigeria has not been successful due to inadequate knowledge of Western medicine. As a result, the wild poliovirus exists in Northern Nigeria (Battersby, Feilden, Gruber, & Oguntoyinbo, 2005; Jegede, 2007). Numerous states have developed coalitions of consumers in partnership with the United Nations Population Fund (UNFPA) to assist states in providing training for midwives, physicians, and other health care professionals. UNFPA also supplies medical equipment to health care facilities (Galadanci, Idris, Sadauki, & Yakasai, 2010; Nzama & Hofoney 2005; Shiffman & Okonofua, 2007).

There has been progress in polio eradication in Nigeria as a result of technical assistance from UNFPA between 2006 and 2007, during implementation of Immunization Plus Days. The program helped to reduce the incidence of wild polio from 399 cases in 2006 to 86 in 2007 (Arulogun & Obute, 2007; Jenkins et al., 2008; Weiss, Winch, & Burnham, 2009).

International Partnerships

Nigeria's health system has received financial support and technical assistance from WHO, the World Bank, the United States Agency for International Development, UNICEF, UNFPA, and the Department for International Development (DFID) of the United Kingdom. The aim of the international support has been to increase capacity building by promoting health care systems, training health care workers, and providing technical support and funding local government areas (Fasina, Kaplan, Kahn, & Monath, 2008; Ikharehon, 2007).

In various parts of Nigeria, UNICEF has contributed significantly to reducing mortality and morbidity by organizing immunization activities, efforts to prevent transmission of HIV/AIDS, malaria control, and provision of basic health services. In Northern Nigeria, WHO and UNICEF worked with the National Program on Immunization to reduce polio by providing support on staffing, training, and logistics (Battersby et al., 2005). With the effective collaboration of UNICEF, WHO, and the Red Cross, an increase in immunization coverage occurred in Nigeria, increasing use of delivery services and coordinating immunization services at the community level (Aylward, 2006; Meremikwu & Ehiri, 2009; Moss, 2009; Ryman, Dietz, & Cairns, 2008). DFID has its main office in Abuja, Nigeria, and has played an active role in

partnership with Nigerian stakeholders and other organizations to ameliorate social problems in Nigeria. DFID has provided for improved health care delivery in many local government areas. DFID has worked with federal and state governments to enhance health systems and build capacity to better serve the people (Battersby et al., 2005; DFID, 2004, 2008; House of Commons International Development Committee, 2009). As previously discussed, a strategy was introduced in 2006 to reach all previously unreached eligible children ages 23 to 59 months. Anambra State implemented house-to-house vaccination and experienced improvement for various vaccines; however, rural areas continued to face enormous challenges in infrastructure and accessibility.

Health Care Structure of Nigeria

Nigerian health care is structured on three levels. The national government is responsible for tertiary care, the state government is responsible for secondary care, and the local government areas are responsible for primary care. The state and local government areas have primary responsibility for implementing health-related activities, whereas the federal government formulates policies and provides directives that are managed through the Federal Ministry of Health, Abuja (2004). The National Health Policy and Strategy, initiated in 1988 and revised in 2004, was intended to promote better health for all Nigerians.

The National Primary Health Care Development Agency provides technical knowledge and other related information on policy direction and supervising implementation of delivery system for the Federal Ministry of Health. Primary health care facilities provide free basic preventive care and promote health services including immunizations, health education, and antenatal services. The local government area is

responsible for managing health delivery activities at the primary level. To ensure effective implementation of primary health services, each local government area is subdivided into wards; each ward plays an important role in supporting health services. At the local government area, the national program on immunization manager reports to the primary health care coordinator. The national program on immunization manager is responsible for overseeing cold chain officers and ensuring record keeping is adequate at all facilities in the district. Management and technical committees exist in various local government areas; however, lack of coordination is apparent. As a result, wards cannot get the appropriate materials (Adeyemo, 2005; Khemani, 2006).

The state and the 774 local government areas provide financial resources to run primary care services. The federal government also takes responsibility to manage teaching hospitals and train medical doctors, in contrast to the state-trained nurses, midwives, and health care workers. One problem is that the Federal Ministry of Health might give directives but cannot mandate that the State Ministry of Health implement health policies and programs. Therefore, transparency and accountability are lacking (Khemani, 2006).

Wide gaps existed in the three-tier system, especially in policy formulation at the national level and actual implementation was invested at the states and local government areas. For example, during polio eradication exercises, it was the federal government that planned and developed the program and provided materials that would be helpful, including posters, banners, and stickers to be used in local areas. In addition, health goals and objectives were planned at the national and global levels. The result was that these materials, designed by federal ministry of Health, were inappropriate to use at the local

and communities, due to a disconnection between cultures (Jombo et al., 2008; Obadare, 2005; Obute & Arulogun, 2007; Yahya, 2007).

Each state provides funds for primary healthcare, hiring, and training personnel for local government areas through the state ministry of health. The state director ministry of health oversees the implementation services provided by local government areas. Local government areas have sole responsibility for providing public primary health care, whereas the state ensures that secondary health care remains viable. The activities of primary health care are headed by a local government area coordinator who communicates with other levels in each local government. Lack of effective coordination on vaccines, drug procurement, and distribution to various levels of the system is common, and resources were not allocated efficiently (Battersby et al., 2005). In addition, each level of the healthcare system in Nigeria is autonomous. Therefore it is common to find that administrators of activities of primary, secondary, and tertiary healthcare systems are not accountable to each other. The result is that the three-tier system duplicated roles (Bankole et al., 2010; Oluwadare, 2009).

State Government Level

The state ministries of health focus on training nurses, midwives, and health technicians who provide good care services, especially for clients refer from community health services. Early identification of health problems and interventions are provided to address health issues such as teaching self-examination for breast cancer. Most secondary healthcare facilities are located in district, division, and zonal levels of the state. Services provided by this level of care include diagnosis and treatment, blood bank, and

physiotherapy. However, basic amenities are lacking in most of these facilities in rural areas (Chukwuani et al., 2006; Kawuwa et al., 2007).

Tertiary Health Care

This level of health care focused on restoration and rehabilitation of patients to an optimal level of functioning. These advanced functions were performed by teaching hospitals and other specialized hospitals. Services included orthopedic, psychiatric, maternity, and pediatric. A patient who sustained a spinal cord injury, for example, might be referred to a rehabilitation facility for training to improve or enhance remaining abilities. Tertiary health facilities were overburdened due to inadequate healthcare services at primary health centers (Akande, 2004; Bankole et al., 2010; Ehiri, Oyo-Ita, Anyanwu, Meremikwu, & Ikpeme 2005; Sule et al., 2008). Routine immunizations performed at tertiary clinics often did not have necessary adequate cold chain (Aderibigbe, Osagbemi, & Bolarinwa, 2010). A study was performed that included a tertiary hospital and three health centers in the middle belt zone of Nigeria (Aderibigbe et al., 2010). Researchers found all cases of adverse reactions to vaccine administration (93%) occurred at tertiary health facility. Cases seen according to facility indicated that Facility A accounted for three cases (5.3%) of adverse reactions, whereas one case (1.8%) occurred at Facility B, and no case of vaccine adverse reactions occurred at Facility C; however, 53 cases (93%) of adverse reactions occurred at a tertiary facility. In addition, the health clinic at the hospital had inadequate cold chain, compared with three health facilities outside the hospital.

The nation's low socioeconomic status continues to affect adequate provision of funding for public health care. Nigeria ranks 159 of 177 countries in poverty, with a

human-development index of 0.448 (in a range of 0 to 1; United Nations Development Programme [UNDP], 2010). Lack of drugs, vaccines, and cold chains in healthcare facilities were common, and inadequate medical equipment continued to result in the reduction of the use of healthcare facilities, especially by rural residents (Babalola & Fatusi, 2009; Ehiri et al., 2005; Oluwadare, 2009). The result was that most citizens preferred to be served by private medicine vendors. Private medicine vendors carried and sold drugs at their convenience and patent medicine stores were the major sources of care for people with low socioeconomic status and low levels of education (Afolabi, 2008; Onwujekwe, 2005; Uzochukwu & Onwujekwe, 2005). Regulation of medicine dealers has become a major problem for the federal government (Mohamed, 2007; Obot, 2004).

In 2003, the Pharmaceutical Council of Nigeria was assigned responsibility for regulating private medicine dealers by the federal government. In addition, a government agency under the Federal ministry of health, the National Agency for Food and Drug Administration and Control, has the responsibility for drug and product registration, and for imports and exports, in an attempt to control use and distribution of placebos sold as efficacious medicine.

Theoretical Foundation

The health belief model composed of six constructs included perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and cues to action were used in this study to address caregivers' perceptions toward immunization of their children. The health belief model was original developed to explain individual health behaviors especially individuals seeking screening tests for early detection of diseases (Rosenstock, 1966). Health belief model included an

individual's perception of susceptibility, perception of severity of disease as well as perception of barriers, benefits and taking action to prevent diseases (Becker, 1974). Components of health belief model have been applied in shigellosis vaccine (Butraporn, 2004), participation in screening for tuberculosis (Rosenstock, 1966), and medical regimen (Becker, 1974). According to Rosenstock (1966), the health belief model would be used to explain communication campaigns that would lead to positive health behaviors. The health belief model was assumed to understanding that if individuals perception a negative outcome to be severe as well as perceived the person to be susceptible to a disease, perceive benefits that would lead to a good outcome, and perceive barriers following the behavior to be low, the behavior was likely to occur. In this study, I have used the health belief model to develop the interview guide. It was essential to study the beliefs of caregivers who have children at risk of influenza preventable diseases with use of all constructs of the model (Chen et al., 2011).

Versions of the health belief model was applied in flu vaccine (Shahrabani and Benzion, 2012) using four constructs of the health belief model perceived susceptibility, perceived severity, perceived benefits, and perceived barrier among employees in Israel. The results indicated that individuals who took flu shots in the past perceived higher level of benefits from the vaccine and lower barriers to getting the vaccination than those who did not get vaccinated.

Chew, Palmer, Slonska, and Subbiah (2002) used dimensions of health belief model including self-efficacy, perceived susceptibility, and cues to actions to measure the impact of a health promoting television on health knowledge among viewers and non-viewers in Poland. In a study by Murele et al. (2013), concepts of health belief model

were used in study OPV (Murele et al., 2013). It was found that this model was appropriate for identifying and distinguishing vaccine acceptors and non-acceptors. Chen et al. (2011) conducted a study in Taiwan in 33 health centers to examine factors influencing caregivers' decision to vaccinate their children against influenza.

An individual who perceived greater fear of a threat of disease was likely to be eager to prevent the disease occurring. Family caregivers were willing to bring their children to healthcare facilities for immunization when they were aware of grave consequences for failing to adhere to routine immunization (Adeyinka, Oladimeji, Adeyinka, & Aimakhu, 2009). The perceptions of severity of diseases, the greater caregiver's perception of a child's susceptibility, and the greater perceived threat of the polio, the more likely the caregiver would seek immunization for their children (Borras et al., 2009).

A caregiver might likely refuse to bring her children to health facilities if the caregiver believed the child might have side effects as result of vaccination. Murele et al. (2013) conducted a qualitative study among 72 caregivers in Sokoto State in Nigeria. It was found that perceived barriers to low immunization included cost barrier and general barrier (transportation, availability of vaccines) of vaccination.

Brewer et al., (2007) reviewed literatures to analyze the relationship between the health belief model and behavior toward influenza vaccine among elderly adults. They conducted a meta-analysis of 12 studies described perceived susceptibility to influenza and 32 studies described perceived severity of influenza. Perceived susceptibility and perceived severity showed significance in attitudes toward vaccines for influenza.

Self-efficacy construct was used to determine regular use of human papillomavirus (HPM) vaccination among 16, and 19-year-old university female students in a cross sectional study in United Kingdom (Marlow, Waller, Evans, & Wardle, 2009). Marlow et al. (2009) found information campaign helped to create awareness and acceptance to vaccinate by 89%. Cues to action were factors that would prompt an individual to take an active role including doctor's recommendation, social media, and family advice to her children vaccinated. Caregivers were likely get their children vaccinated if they watched television about polio diseases or had doctors' recommendations. Allison et al. (2010), applied versions of health belief model to conduct a cross sectional survey of parents of elementary school aged children to identify parental beliefs and barriers to influenza immunization. Allison et al. found that doctor's discussions and social norm were associated to cues to action. I used the health belief model to develop interview guide and interpret results, and explained the way caregivers in Awba Ofemili accepted routine immunization of their children.

Review of Literature

Poor Knowledge of Vaccines

A lack of knowledge was a significant barrier to childhood immunization, in addition to a lack of health facilities, low literacy level, lack of commitment among health workers, and rough terrain (Abdulraheem et al., 2011; Kabir, IIiyasu, Abubakar, & Gajida, 2005; Oluwadare, 2009). Oluwadare (2009) reported that poor immunization coverage occurred as a result of a lack of cold chain, poor road conditions, lack of quality of service, and lack of access roads. Oluwadare found that residents who lived in areas

that lacked health centers and had to walk long distances to have their children immunized had low immunization rates.

Additional reasons for low immunization included lack of information about immunization (40.7%), and participants lacking proper information about returning for the third dose of DPT/OPV. Almost 12% lacked motivation to participate in routine immunization (Adeiga et al., 2007). Family caregivers' inadequate knowledge of vaccine-preventable diseases may have led to misconceptions about the risk from these diseases to children. Even family caregivers who possessed basic vaccine knowledge might fail to get their children vaccinated (Tadesse, Deribew, & Woldie, 2009). Poor immunization rates might be due to mothers not knowing the benefits of vaccine-preventable diseases, and being illiterate (Sharma & Bhasin, 2008).

Adeiga et al. (2007) conducted a retrospective study among 210 children, aged 12 to 23 months, in difficult-to-reach areas along the coast of Lagos. A child was deemed unimmunized if the child received no doses of vaccine at all. A child was considered fully immunized if the child received BCG at birth against tuberculosis, three doses of DPT to prevent diphtheria, pertussis (whooping cough), and tetanus, at least three doses of polio vaccine and one dose of measles at age 9 months. A child who did not receive three doses of DPT was labeled partially immunized. The study results showed that 82 (39%) of the 210 children were not immunized and only 44 (21%) were fully immunized. Of infants at 1 year of age, only 21 (10%) of the children had completed immunization. The rate for BCG was highest with 44.8%, probably because full BCG vaccination indicates the infant received one dose. Of the children in the study, 15.7% received DPT/OPV, with 15.7%, whereas measles was the lowest with 11.9%. In addition, 41.7%

of the 103 children who started the receiving DPT immunization did not complete the third dose of the regimen. Also, it was found that 65 .3% Of 127 children who started BCG, 30.1% dropped out by the time of they would have received receiving the measles vaccination. A full BCG vaccination occurs when an infant receives one dose of BCG.

Researchers conducted a study in Wongo district, south Ethiopia, among children aged 9–23 months (Tadesse et al., 2009). Children who received all the recommended vaccines, including BCG, pentavalent, polio, and measles by the age of 23 months were considered to be fully immunized. In contrast, children who missed one recommended vaccine were deemed defaulters. Of the children, 418 (41.7%) were fully immunized and 412 (41.2%) were partially vaccinated; the BCG and measles rate was 76.2%. Most mothers were not aware that newly recommended vaccines, including hepatitis B and Haemophilus had been added (Tadesse et al., 2009).

Delayed immunization should be prevented to avoid unvaccinated individuals infecting others; however, low immunization persisted frequently in developing countries, including Nigeria (Clark & Sanderson, 2009; NPC, 2009). A study conducted by Sadoh and Eregie (2009) investigated 512 Nigerian children to determine timeliness of receiving vaccines and the completion of schedules in Benin City. An estimated 30% of the children received their first immunization 4 weeks after birth. Full immunization among the children was 44.3%. Full immunization occurred when a child received a BCG vaccination against tuberculosis, three doses of polio vaccine, three doses of DPT to prevent diphtheria, pertussis, and tetanus, three doses of Hepatitis B, one dose of measles, and one dose of yellow fever each at nine months of age. The highest rates of full vaccinations were vaccines at birth, BCG 89.5%, OPV 96.7%, and Hepatitis B 93.8%;

whereas the receipt of vaccines were lowest for measles (57.6%) and yellow fever (57.2%) which should be administered at 9 months of age. The researchers found the large majority of children 73.2% received the measles vaccine at 9 months of age, whereas 11.3% received it at 10 months, 4.8% at 11 months, and 2.1% at 12 months. Differences in receipt of vaccines occurred as mothers' attitudes affected taking children to health centers to be immunized.

Children who were not vaccinated were likely to be at higher risk for a host of vaccine-preventable diseases including measles, tetanus, TB, mumps, and polio (WHO, 2008b). Poliovirus is a highly contagious viral infection that is likely to be contracted by children less than 5 years old compared with any other group. It is often transmitted through the fecal–oral route, especially among children in unsanitary and crowded conditions. Poliovirus, if not prevented, may lead to permanent physical disability. The northern states in Nigeria continued to have outbreaks of poliomyelitis; in 2009, 537 cases of poliomyelitis occurred compared to 353 cases in 2007 (Jenkins et al., 2008; Okonko et al., 2008; Renne, 2006; WHO, 2010c). Children aged 12 to 23 months received three doses of polio vaccine in northern zones included North Central, 57.7%; North East, 45.2%; and Northwest 37.1% (NPC, 2009). In Nigeria, the Polio Eradication Program has been successful in reaching more districts and wards through funding by WHO. There were 537 cases of poliomyelitis in 2009, compared to 39 cases in 2010 (WHO, 2011). However, outbreak of wild poliovirus Type 1 and Type 3 continued to occur, in 2010, 21 wild poliovirus cases occurred, compared with 33 in 2011 (Global Polio Eradication Initiative, 2011). Measles immunization rates among children aged 12

months in Nigeria were 41% in 2009, compared with 33% in 2000 and 54% in 1990 (WHO, 2011).

Education and Immunization Rates

Education was associated with higher immunization rates. 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, it led to an increase in immunization rates.

Mulumba et al. (2007) used visual aids to improve immunization coverage. The researchers investigated social workers who administered visual aid two weeks before national immunization days in one community and by vaccinators during national immunization days in Chad. The authors presented two poster cards to parents during national immunization days. The first poster card carried pictures of two children; one healthy child receives two drops of OPV every national immunization day, whereas the second child looks weak and suffers from acute flaccid paralysis. The second poster card with two children pictures one suffered from paralysis because of missed OPV. Researchers found parents' awareness significantly rose in both communities. After seeing the pictures, caregivers preferred to have their children healthy and had the children vaccinated.

To ensure high immunization rates among family caregivers in rural areas, nurses and healthcare workers were better positioned to practice and teach family caregivers about the dangers and benefits of vaccines for preventable diseases (Kabir et al., 2005).

Teaching a few healthcare workers in rural Nigeria vaccine-preventable diseases would be far less of an investment than trying to train the general population (Oluwadare, 2009). The general population would be educated over time, and trained healthcare workers would assist in that education. Oluwadare (2009) conducted a study in various communities in Ekiti State, Nigeria and found most public health facilities in rural areas had no qualified nurses or senior health officers. The health facilities depended on unskilled assistants with poor knowledge of immunization. It was essential that healthcare workers from rural communities be sent for basic training about vaccines, because they would be expected to return to the community after training, to be the community nurse.

Misconceptions About the Adverse Effects of Vaccines

Family caregivers' lack of clear understanding of the relationship between vaccine-preventable diseases and childhood diseases in rural areas continued to be an issue of concern. Kabir, IIiyasu, Abubakar, & Gajida (2005) conducted a cross-sectional descriptive study in Dabare village of Kumnotso Local Area in Kano State, among 200 mothers of children under 2 years old. Of the mothers, 75% knew about the existence of routine immunization services, whereas 68% had poor knowledge of childhood immunization schedules; 106 (53%) of mothers opposed having their children immunized because they perceived that vaccines did not protect children. However, 59.9% believed vaccines offered protection against diseases, 48.05% of respondents believed vaccines were safe.

Jegede (2007) reported the controversy in 2003 surrounding polio immunization program in three northern Nigerian states, Kano, Zamfara, and Kaduna, halted the WHO

polio vaccination program. The aim of the Global Polio Eradication Initiative of 2003 was to contain the high prevalence of polio in Nigeria. However, political and religious leaders in these states claimed that the vaccine contained agents that would cause HIV as well as cancer. Parents were told not to have their children immunized.

To improve routine immunization in the nation, WHO (2005) advocated and supported the implementation of capacity building, including assessment of human resources and equipment, providing training of health workers in various parts of the nation, and ensuring the availability of vaccines and syringes. The country had assistance from the United States through its agency, the United States Agency for International Development (2009). United States Agency for International Development provided funds and trained health workers in Bauchi and Sokoto States.

Traditional Healers and Lack of Vaccine Knowledge

Most people in various rural communities in Nigeria, South Africa, and Peru first seek treatment from traditional healers before seeking formal health care (Awojoodu & Baran, 2009). Heavy reliance on traditional healers among caregivers in rural areas had negatively affected immunization rates. Generally, traditional healers had low education and lacked sound knowledge of vaccine preventable diseases, yet parents depended on them to cure ailments. Such dependency was a result of easy access to traditional healers and the low cost of treatment. In a study of traditional healers (*dibias*) in Igboland, southeast Nigeria, Igbara and Isong (2005) found that only 8% of traditional healers had formal education among 38 general practitioners (80% male traditional healers, 16% female traditional healers and nontraditional healers (4%). Studies of those in other cultures found traditional healers provided inadequate treatment and lacked knowledge

about various diseases (Baker, Melnikow et al., 2010). A study conducted by Peters, Immanagha, Essien, and Ekott (2004) among traditional healers in four states in Nigeria found traditional healers had inadequate knowledge of HIV/AIDS and used unsterilized instruments, cross contamination was common. However, recent studies have found traditional healers were essential in working with other health care providers enhanced entire health system. Researchers in Nigeria and South Africa indicated traditional healers referred sick people to formal health care as well as being effective in areas of prevention and management of diseases (Gonzales, Aguilar, & Villar, 2010; Osowole et al., 2005; Peltzer, Mngqundaniso, & Petros, 2006).

Culture, Beliefs, and Attitudes

Nigeria had numerous ethnic groups with diverse cultures and a high illiteracy rate, according to the NPC (2009). The beliefs and attitudes about the causes and treatment of children's diseases varied widely from one region to another. Each cultural group viewed health practices differently and according to their traditions, which affected behavior. Family caregivers' attitudes might be positive or negative based on beliefs that were likely to affect the vaccination rates among children. Muula et al. (2009) conducted a study among 720 mothers in Pont-Sonde, Haiti and found that the use of traditional healers led to low immunization rates. Other study found that training and educating traditional healers on child health would increase the number of health cases referred to health centers, and become a link between local populations and healthcare professionals (Elujoba, Odeleye & Ogunyemi, 2005)

Myths and misconceptions were common among Nigerian communities regarding vaccination of their children (Etokidem, Nsan, & Ndifon, 2013). Etokidem et al.

conducted qualitative study among four focus groups consisted of 12 women in Calabar, Nigeria. It was found that some participants believed that mermaid spirits, witches, and wizards caused vaccine-preventable diseases. Participants were community healthcare workers and nurses. Researchers found poor knowledge of safe injection among primary healthcare workers (Bolarinwa, Salaudeen, Aderibigbe, Musa, & Akande, 2011).

Lack of cultural sensitivity might deter family caregivers from responding appropriately to health care (Oluwadare, 2009; Yahaya, Aryeija, & Bitwari, 2004). Scheppers, Dongen, Dekker, Geertzen, and Dekker (2006) suggested that health care providers had the potential to reduce barriers to the use of health services. If providers did not understand the culture or speak the language of the caregivers, the quality of health service would be compromised. To promote cultural awareness, the health care providers would recruit and retained staff member who reflected the cultural diversity of the community served; use of interpreters' services and training of health care providers were essential to reduce disparities. In addition, disparities such as bias, stereotyping and prejudice would be reduced by better education of caregivers and empowerment as well as that of health care providers. Lack of consistent communication between family caregivers and health workers would jeopardize caregivers bringing in their children to hospitals, clinics, and healthcare centers for immunization (Barlow et al., 2006). Barlow et al. (2006) conducted randomized controlled trial among Native American pregnant teens to assess the impact of home visits. The subjects were divided into two groups randomly, 28 for intervention and 25 for the control group. Paraprofessionals visited one Apache and three Navajo communities and taught 41 prenatal and infant care lessons in homes from 28 weeks' gestation to 6 months postpartum. Lessons covered in these

homes included prenatal care, labor, delivery, breastfeeding, and immunizations. Results were significant improvements in parental knowledge and involvement. Health workers were the major source of information about immunization for family caregivers. When vaccinators become insensitive to family caregivers' concerns or showed rudeness, parents would fail to participate in immunization program (Babalola & Aina, 2004; Smith, Kennedy, Wooten, Gust, & Pickering, 2006).

Traditional medicine was largely used in Nigeria to meet primary health care. It involved beliefs and spiritual practices to treat and prevent illnesses. Studies have found in Africa an estimated 80% of the people used traditional medicine to help meet some of their primary health care needs (Idowu, Mafiana, & Sotiloye, 2008; Yahaya et al., 2004). Serbulea (2005) reported that traditional medicine had proved successful by using plants found effective for treating infectious diseases in Senegal and Cote d'lvoire. However, Agbaje and Babatunde (2005) found among participants in Agege, Lagos State that traditional medicine could be effective when used in combination with orthodox drugs for efficacy.

Poverty as a Cause of Low Immunization

Poverty was a major problem in Nigeria and one that was difficult to resolve. The nation had oil and gas resources (U.S. State Department, 2010). However, poverty was widespread, especially in rural areas as well as other parts of the nation. Adams, Osho, and Coleman (2008) conducted a study about oil exploration in Niger Delta communities and found that despite billions of dollars derived from American oil companies, the residents of these communities were living in abject poverty. A study was conducted by Yusuf, Adesanoye, and Awotide (2008) among 200 farming households from two local

government areas in Ibadan engaged in crop farming. The researchers found these farmers had the highest poverty level. Of those with mixed income including farming, 37% lived below the poverty level; 17% of those raising livestock lived below the poverty level. The farmers had no adequate education or knowledge about farming and had no farming equipment. A national estimate of the population indicates that 70% live below the poverty level and the nation was ranked 142 of 182 poorest countries. The people below the poverty level lived on one US dollar a day; 67% of the population lived in rural areas (Onwuka, 2006; UNDP, 2010).

The United Nations Development Programme, Human Development Index was a measure of average achievement in key dimensions including life expectancy, education, and per capita income. Human Development Index as a measurement could be used to compare countries in literacy or health. To determine the Human Development Index education of a country, one obtained the literacy rate of the country, divided the rate by 100, and added two thirds to the quotient. Agriculture, which was subsistence in nature, was the major source of income in Nigeria, with 86.5% of the households living in rural areas, compared with 14% living in urban areas (National Bureau of Statistics, 2005). Food production in Nigeria was not increasing due to numerous challenges included poor road networks in rural areas, lack of farm-storage facilities, inadequate education, and poor rural electrification (Basorun & Fasakin, 2010; Yusuf et al., 2008) The result had a profound effect on communities' quality of life; and impacted their ability to afford healthcare costs (Arikpo, Lja, & Idoh, 2010; Sambo, Ejembi, Adamu, & Aliyu, 2004). However, the U.S. Military HIV Research Program in partnership with the Nigerian Military of Health and its large network of medical facilities, established in 2005, have

provided effective treatments for HIV/AIDS patients. The U.S. Military HIV Research Program (2011) also promotes laboratory training in combating malaria disease in Nigeria.

Inadequate income had been identified as affecting immunization status among family caregivers in rural areas. Even when free vaccines were provided, incidental expenses, including transportation, might become a burden to poor family caregivers (Arcury, Preisser, Gesler, & Powers, 2005; Babalola & Aina, 2004). Arcury et al. (2005) conducted a study in 12 western North Carolina counties among 1,059 households and found that households in which a parent held a driver's license visited health clinics for chronic care and regular checkup 5.21 times more than those did not have a driver's license. Young and single pregnant mothers, widows, and mothers with multiple children have difficulty paying even the small fees needed for vaccination (Onyiriuka, 2005). People who lived in rural areas had significantly lower income than those in urban (Fisher, 2005; Saheed, 2010; Weber & Jensen, 2004).

Inadequate Health Facilities and Long Distance

Many of Nigeria's children were not vaccinated due to inadequate access to health facilities (Adeiga et al., 2007). In rural areas, a poor transportation system and lack of infrastructure increased the degree of isolation, particularly for those who were poor. Family caregivers living in rural areas had to travel long distances to seek treatment, compared to those in urban areas. Children who lived impoverished and hard to reach areas had the greatest difficulty getting vaccinated. Successful immunization coverage means that health workers must reached children in hard to reach places. Sometimes this

might entail healthcare workers used speedboats and then paddled in wooden canoes across rivers to get to the land (Adeiga et al., 2007).

In multiple studies, researchers found that distances from homes, transportation costs, and an inadequate transportation system affected the utilization of healthcare services (NPC, 2014; Okonkwo & Ngege, 2004). Similar studies also showed that an inadequate delivery system for vaccines and poor treatment of rural residents had become a major cause of a poor immunization rate (Chukwuani et al., 2006; NPC, 2014). In other studies, Opwora, Laving, Nyabola, and Olenja (2011) used focus group questions and key-informant questions to investigate barriers to accessing healthcare services for children aged less than 5 years in Butere District, in Kenya. Participants were 397 caregivers, 40 participated in four focus-group sessions and five, who satisfied necessary criteria were interviewed at various locations. Researchers found that 97.8% of children were current in their immunizations. Of the 2.2% who were not current, 78.4% indicated a long waiting time as a big problem, whereas 5.8% stated poor services, 9.6% indicated lack of drugs, and 6.2% listed rude staff or unfriendly attitudes as impeding their adherence to the immunization schedule.

Inadequate health facilities and lack of accessibility to healthcare centers in rural areas had continued the use of traditional, untrained birth attendants when babies are born at home (Babalola & Aina, 2004; Larbi et al., 2004; Thatte, Mullany, Khatry, Katz, & Tielsch, 2009). Neonatal tetanus among pregnant mothers was prevalent due to unhealthy delivery environments; 71.3% of women were protected against tetanus toxoid in urban areas compared with 37.9% in rural setting (Mukhtar-Yola & Iliyasu, 2007; NPC, 2009; Omoigberale & Abiodun, 2005). Harju, Wuensch, Kuhl, and Cross (2006) found that

individuals with better income and better education had better health than people with low income. Previous studies found that people with low socioeconomic status were at high health risk for low immunization and poor health (Antai, 2009b; Wooten, Luman, & Barker, 2007). Lack of employment opportunities and lack of health insurance in rural Nigeria have been consistently associated with poor health among family caregivers in rural areas of Nigeria (Bhandari, Shrestha, & Ghimire, 2007; Omoruran, Bamidele, & Phillips, 2009; Ucha, 2010).

The high birth rate in Nigeria had an average of 5.7 births per woman since 2003. Differences existed between 6.3 births per woman in rural settings compared with 4.7 births for those in urban areas, according to data from the NPC (2009). Large family size means more people to feed and with more money going to food, family caregivers may lack resources to take children to clinics (Igberaese & Okojie-Okoedo, 2010).

Lack of Cold Chain and Vaccine Supplies

During routine immunization services, insufficient and broken cold chain equipment is often believed to be a major problem. Oluwadare (2009) conducted a study in six local government areas in Ekiti using focus groups with mothers and government health workers. The researcher found that poor immunization coverage was due to lack of cold chain, poor road conditions, the cost of transportation, and lack of quality service, attitudes, and poor access roads. Lack of technically trained staff as well as technicians having considerable training to correctly use the equipment was likely to undermine routine immunization programs.

Samant et al. (2007) investigated 46 health centers to assess the operation of uninterrupted temperature of storage in relation with OPV. The researchers used vaccine

vial monitor to determine if the cold storage was adequate to maintain vaccines in health facilities and found that cold storage for OPV was not adequately maintained. A vaccine vial monitor is a device that monitors and ensured that cold chain equipment was well maintained. It was a small patch, usually placed on the vaccine vials containing vaccines to indicate if the vaccine had been kept at a recommended temperature. In similar study, Bankole et al. (2010) conducted a study among 2,100 health workers and monitored 1,000 facilities in privately owned facilities in Lagos, Nigeria. The aim was to determine knowledge of proper vaccine storage, temperature, the vaccine vial monitor indicator, and expiration dates of vaccine, including BCG, DPT, OPV, and measles. The study was conducted in two phases. In the pre-study, Bankole et al. found vaccine storage equipment was not functioning in 900 (90%) of 1,000 vaccine storage refrigerators, 2,000 (95%) health workers had little or no knowledge of the vaccine vial monitor indicator, and 12,000 (80%) vials were in Stage 3 or Stage 4 on the vaccine vial monitor (when the vaccine vial monitor is in stages 3 and 4, vaccines in that box would not be used); however, expiration dates of all vaccines screened were intact. Immediately, health workers were trained on practices of vaccine storage and management. During the second visit, 80 (92%) of 520 refrigerators were in good condition with backup generators, 1,050 (84%) of 1,250 health workers interviewed had good knowledge of the vaccine vial monitor, 280 (9.3%) of 3,000 vaccine vials found in stock were at Stages 3 and 4 of the vaccine vial monitor or had the label removed. Although vaccine expiration dates were intact, no temperature charts were found in 180 (35%) refrigerators with thermometers (Bankole et al., 2010).

Knowledge of injection safety practices was essential among healthcare workers to prevent the transmission of diseases. WHO (2010b) provided injection assessment guides to health workers in various countries in order to help them learn and implement injection safety practices. However, lack of knowledge and flaws in injection practices were found among healthcare workers, included changed the needle but reused them, sterilized and reused disposal syringes, boiled injection equipment in open pans, recapped needles, touched the needles, and gave or sold used syringes to vendors who resold them (Pandit & Choudhary, 2008).

The shortage of vaccine supplies had a considerable effect on poor residents in rural areas (Babalola & Adewuyi, 2005; Santibanez, Santoli, & Barker, 2006; Stokely et al., 2004). Adetunji et al. (2007) examined 42 children and found that 31.0% of children were immunized compared with 69% who were not. The reasons for failing to get children immunized were lack of vaccines in the facility (41.4%), and children being under age (27.6%). The financial burden on the nation might delay the purchase of vaccines. Thus, family caregivers did not get their children vaccinated for lack of vaccines in clinics and health centers.

Oladokun, Adedokun, and Lawoyin (2010) interviewed 248 mothers in Ibadan, Nigeria to identify reasons and beliefs mothers whose children have not received adequate immunization or not at all. The most common reason for failing to get their children immunized were non availability of vaccines (26.2%), not being aware of need for additional doses (16.5%), and inconvenient time (13.7%). A significant number of mothers believed that immunization 186 (75%), 161 (64.9%) believed that immunization would save the life of the child, and 129 (52.0%) believed that taking a child to a health

facility for immunization was a waste of time. Appendix A shows the rudimentary nature of health facilities in rural Nigeria. The reluctance of healthcare workers to make frequent visits to remote rural areas was also a key predictor of low immunization (Anah, Etuk, & Udo, 2006; Topuzolu, Ay, Hidiroglu, & Gurbuz, 2006). Infrequent visits to poor residents to update immunization status or check on family caregivers was likely to affect the health of rural citizens.

Summary and Transition

Various researchers on the importance of immunizations to prevent vaccine-preventable diseases (Abdulraheem et al., 2011; Roush & Murphy, 2007) have conducted substantive studies. However, vaccine preventable diseases were rife in developing countries. 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 took steps to have children vaccinated. Despite these studies, and despite some improvement, Nigeria was one of the four countries (India, Pakistan, and Afghanistan) in the world in which 50% of the children were unvaccinated. More studies were needed in rural areas, to fully understand the barriers these caregivers face. In Chapter 2, I reviewed existing literature and describe how this study addressed gaps in the literature. In Chapter 3, I discussed research design and approach, setting and sample, materials and instruments, data collection and analysis method used.

Chapter 3: Methodology

Introduction

The purpose of this phenomenological study was to describe the perceptions of family caregivers related to routine immunization of their children ages 24 to 36 months. A phenomenological design was used with the aim of developing rich, insightful descriptions of the caregivers' experiences regarding vaccination of their children (Creswell, 2009). I explored perceptions of caregivers regarding immunization of their children in rural Awba Ofemili in Anambra state, Nigeria, hoping to find ways to reduce the incidence of vaccine-preventable diseases. I used in-depth face-to-face interviews to gather data. This chapter includes the rationale for using a phenomenological design. I also describe the setting, sample size, and instruments used to collect and analyze data.

Research Design and Approach

I used a phenomenological design with in-depth face-to-face interviews to explore the perceptions, attitudes, knowledge, and beliefs of family caregivers about routine immunization of their children in Awba Ofemili. The interviews included open-ended and follow-up questions (Appendix C) to allow caregivers to tell their stories regarding their experiences with routine immunization of their children. The interviews were transcribed and reviewed to detect errors that might have occurred during transcription. NVivo 10 software was used for data analysis. The aim was to develop rich and insightful descriptions regarding the views of the participants (Patton, 2002). In-depth semi structured interviews are open ended and a good method of collecting data when gathering opinions and views from the participants (Kvale, 1996). The interviews afforded an opportunity to access a wide range of participants, to synthesize and validate

findings. Qualitative studies include statements made by participants in face-to-face interaction (Creswell, 1998). Active listening enabled me to ask questions to get deeper and more meaningful responses from each caregiver.

Rationale for the Use of Phenomenology

Phenomenological research is used to describe rather than to explain the lived experiences and perceptions of participants without any preconceived suppositions (Creswell, 1998; Husserl, 1970). I did not have a preconceived hypothesis and worked to understand the data through comparative analysis. Bracketing is one of the characteristics of phenomenological inquiry, which requires a researcher to identify any previous knowledge or beliefs about the phenomenon of interest under investigation; I did not have any preconceived knowledge or bias about the study topic. In this study, I suspended my preconceived bias such as beliefs and habitual modes of thoughts rather focused on the lived experiences of the caregivers. I asked each caregiver to describe the lived experiences by telling their story in their own terms.

I described caregivers' knowledge, attitudes, and perceptions of routine immunization of their children ages 24 to 36 months. The objective was to explore caregivers' perceptions of fully immunizing or not immunizing their children against preventable childhood diseases. I chose a phenomenological approach because there was little understanding of caregivers' perspectives to regarding routine immunizations for their children in Awba Ofemili. Phenomenology a qualitative design in which the researcher systematically examines qualitative data with the aim of describing the lived experience of caregivers as a result of their behavior (Creswell, 2007); in this case, the behavior that was relevant for caregivers related to immunization of their children. A

phenomenological design is used to understand the lived experiences of caregivers and their attitudes toward vaccinating their children. The caregivers were the only individuals who were able to provide rich information and discuss their attitudes toward routine vaccination of their children.

To gain understanding of the lived experience on the phenomenon of interest, it is essential to use interviews or other methods to capture experiences that could not be expressed through numbers (Berg, 1995). Using a phenomenological approach, I was able to understand the lived experiences of the caregivers in their setting. I was in a position to witness caregivers as they described their experiences during conversations. Through the use of the interview questions, I sought to discover the perceptions caregivers have toward routine immunization. In addition, I considered how caregivers interpreted and gave meaning to the situations that influenced their experiences bringing their children to health facilities for vaccination.

Holloway (1997) stated that a phenomenological approach is used to capture the lived experiences of participants; in this study, I described the lived experiences of caregivers' regarding immunization of their children. My aim was to have conversations with caregivers and understand their meanings attached to attitudes toward routine vaccination of their children. I considered the use of ethnography but found it not relevant for this study; it was not my aim to study the intact cultural group of Awba Ofemili over a prolonged period by collecting, observing, and interviewing participants (Creswell, 2007). The grounded theory design was not appropriate for this study because my objective was not to generate a theory of the lived experience about the phenomenon of interest with a small sample or to spend extensive time with each participant to

identify a pattern. I considered a case study was considered but found it inappropriate because I did not wish to explore one or two caregivers' perceptions of routine immunization of their children over a long period of time.

Role of the Researcher

In a quantitative study, the researcher usually tends to be loosely attached to the process of the research; however, in this qualitative study I was an active, integral part of the process, including participating in data collection and data analysis. I had no preconceived hypotheses or expectations; rather, I began the process of collecting data to develop guiding concepts. I ensured all ethical rules were followed. No participant was embarrassed because of the comment the individual made.

I shared my research proposal with the Anambra State Commissioner of Health (Appendix H) for review as well as the Regent of Awba Ofemili (Appendix B). I had no personal or professional relationship with the participants. I collaborated with a health care worker or a community leader residing in the rural Awba Ofemili to visit the community several times before the study began to acquaint traditional leaders with the study and to build trust. This type of visit was called familiarization. I came in contact with community leaders and provided information about my study on barriers to childhood immunization in Awba Ofemili, and leaders had the opportunity to ask questions regarding the study. The visits enabled me to identify specific knowledge about the people and culture of Awba Ofemili. Approval to conduct this study was received from Anambra State Ministry of Health, and I also received support from Awba Ofemili traditional leaders. I met with caregivers to ensure that they met the study criteria. I also completed the training on research ethics from the National Institutes of Health.

Researcher Bias

The method of collecting data affects the quality of the data. During the interview, I ensured that my facial expressions and body language did not introduce bias. I also ensured that I did not ask biased questions. In interviewing caregivers, I ensured information provided by caregivers was accurate. To control information bias, I established rapport with each caregiver, especially those whose children did not receive vaccination. I did not want them to have the notion that they were bad parents.

Methodology

Setting and Sampling

This study was conducted in Awba Ofemili, Nigeria. This community was selected for this study because of lack of accessibility by health workers and lack of proficient human personnel. Awba Ofemili consists of eight villages with one primary health center and one health post and no hospital. The villages included Akpana, Enugu, Enuguage, Ezike, Muanyafulu, Umuezeafor, Umuosite, and Umuchibu. Awba Ofemili is located in the northern part of Awka with a population of 35,000 people. At the time of the study, approximately 1,400 children were under 1 year of age and 300 were 24 to 36 months in the eight communities of Awba Ofemili (NPC, 2006).

The Awba Ofemili community has a homogenous culture, and people speak predominately Igbo. Awba Ofemili is mostly swampy, making the area inaccessible during the rainy season from the months of May through October. There is no electricity in the community and no pipe borne water; the only water supply is the river. Awba Ofemili is mostly agrarian. The population consists mostly of peasants and subsistence farmers.

In a qualitative study, there is no specific formula that can be used to determine sample size. The purpose is to explain meanings and phenomena, which produces an adequate sample size to accomplish the goal of the study, unlike quantitative studies in which the sample size is determined in advance (Creswell, 1998). I recruited 10 participants for the study consisting of two groups of five female caregivers between 20 and 35 years of age. One group had children ages 24 to 36 months who were fully vaccinated, and the other group had children ages 24 to 36 months with few or no vaccinations. These caregivers were recruited by word of mouth, town crier, church services, and the health center. Through contact with community leaders, the pastor of each church was contacted to inform the congregation about the study.

Patton (2002) stated that a minimum sample to reach expected coverage could be determined and then modified if needed. A researcher should conduct at least 10 high quality interviews (Strauss & Corbin, 1998). Many factors are involved in determining the sample size in qualitative studies, including time and setting. For a phenomenological study, Creswell (1998) recommended 10 long interviews. Morse (1994) recommended at least six interviews for phenomenological studies. However, in qualitative research there are no fixed rules about the number of participants (Patton, 2002). According to Glaser and Strauss (1967), if a researcher remains faithful to the principles of qualitative research, sample size follows the concept of saturation. This means that the collection of new data does not shed further light on the phenomenon under investigation. If I found no new descriptive codes, categories, or themes from the data analysis after 10 interviews, I would discontinue interviews (Rebar, Gersch, Macnee, & McCabe, 2011). However, if

the interviews continued to produce new concepts, recruitment of caregivers would continue.

Miller, Verhoef, and Cardwell (2008) conducted a qualitative study using semistructured interviews in rural communities south of Calgary, Alberta, Canada. The aim was to gain insight into information parents' need regarding child immunization to improve communication among rural health professionals. Eleven interviews were conducted and participants were all mothers. Ruijs et al. (2012) conducted 27 interviews with 21 mothers, three fathers, and three couples to gain insight into how orthodox protestant parents decided on vaccination. After 27 interviews, the data collection was terminated because there were no new descriptions or interpretations of the experience from the study participants. In these two studies, the exact numbers of the participants were not determined in advance.

Materials and Instrumentation

I conducted an in-depth interview with each of the participants. Interviews were conducted using open-ended questions (Appendix C). The discussions guide consisted of questions used for each caregiver to ensure consistency in each session. I asked a panel of experts to review the questions to be used in the study (Appendices D and E). The panel comprised three lecturers in the field of nursing and public health at Nnamdi Azikiwe University, Nnewi, Nigeria; comments provided by the expert reviewers were considered when preparing the final interview guide.

Procedure for Recruitment, Participation, and Data Collection

The caregivers were purposefully recruited because of their unique and wide range of perspectives (Kruger, 1988). To recruit caregivers, I displayed fliers (Appendix

F) at the health center, churches, and health post asking for caregivers who would be interested in volunteering for the study. I also used the town crier and traditional leaders during recruitment of participants because they were familiar with the community and were better able to explain to participants the importance of the study. Church leaders also played an important role to speed up recruitment. During the Sunday service the church leaders informed the congregation about the study and the need for caregivers to participate. My contact number was on the fliers. When potential participants contacted me, I checked if they had children ages 24 months to 36 months. Caregivers between the ages of 20 and 35 years participated in the study. If the caregivers met the criteria, I arranged a time and place to meet them for the interview.

Data Collection

The interviews were held in each caregiver's home. I hired a driver to transport me to each caregiver's home. The time for the interview was appropriate for the caregivers. Interviews were conducted with five caregivers who had children who were fully immunized and five caregivers whose children received few or no immunizations. By talking to me in their homes, caregivers felt free to converse and told rich stories about their experiences regarding vaccination of their children. I paid attention to the caregivers and separated any beliefs I might hold to be objective and obtain meaningful data (Creswell, 2007).

I used in-depth open ended questions 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. Each caregiver was asked and approved the researcher to contact her again to clarify

statements. I contacted caregivers for clarification of findings a week after the first interview for 1 hour and less as a follow up. Some caregivers brought vaccination cards to the interview. I tape recorded all interviews with permission from each caregiver (Arksey & Knight, 1999).

I interviewed all caregivers in their native language and transcribed the native language into English. I speak Igbo fluently and am familiar with the community and its culture. I ensured that all topics were covered by asking probing questions when appropriate. I used prepared open- ended questions (Appendix C) to guide the interview, I provided participants the opportunity to discuss issues that were important and identified challenges caregivers face to get their children vaccinated. After each session, I transcribed the audio recording.

Data Analysis

Data collection was conducted until all the caregivers were interviewed. I then read and transcribed all interviews; I followed the words of caregivers' line by line, to make sense of caregivers' perceptions about vaccination for preventable diseases. In this study, I was guided by the principles of phenomenology and the seven steps for data analysis as described by Colaizzi (1978). Colaizzi's seven steps of phenomenological enquiry include:

Step 1: Transcribed the subjects' interviews.

I transcribed each caregiver's interview from the digital recording then read the transcript several times withheld my thoughts, and feelings derived from previous immunization literature. The purpose was to ensure that I explored the phenomenon of interest as the caregivers experienced (Moustakas, 1994).

Step 2: Extract significant statements

I carefully read each transcript to ensure significant statements directly related to caregivers' phenomenon of interest under investigation were extracted (Colaizzi, 1978). I used the qualitative software NVivo 10. I extracted statements that had significance to the research question from each transcript. The significance was supported by providing verbatim quotes from interviews, and to increase accuracy of interpretation.

Step 3: Articulated the meaning of each significant statement

In this stage, meanings from significant statements disclosed by the caregivers were formulated. Meaningful statements were coded. I did not have a prearranged list of codes but used a "bottom-up" approach to creating codes, allowing themes to arise from the data. I repeated the process to ensure that each significant statement from the caregiver was accurate and consistent with the formulated meanings.

Step 4: Aggregate the meanings into themes

I organized responses for themes into codes (Creswell, 2007).

Step 5: Write an exhaustive description

The results were written up into an exhaustive description that integrated all the steps, verbatim statements, formulated meanings, nodes, themes, and summary (Colaizzi, 1978).

Step 6: Returned to the participants to validate exhaustive descriptions

I visited with caregivers and sought clarification of statements as needed to validate the data.

Step 7: Incorporated any new data revealed during validations into a final description.

Validation occurred as I compared the findings with participant caregivers' descriptions of their experiences (Colaizzi, 1978). The qualitative software offered flexibility to recode nodes or develop node hierarchies.

I sorted the data to develop nodes that were related emerging patterns and ideas. Themes are fundamental concepts or statements that recur, unifying caregivers' lived experiences (Boyatzis, 1998). The use of coding, content analysis and theme development were relevant to provide validation of data analysis. A computer package may improve the efficiency of data management in analysis process (Creswell, 2007). To analyze data collected efficiently software NVivo 10 was used. NVivo has the capability to store, organize, and data coding. The interview data were organized into Microsoft Word files and then imported into NVivo. In addition, the interview files were saved as source cases. NVivo provided a coding process to manage the data, explore, and organize interviews (Bell, 2010). Finally, all data included interview, text, code, and nodes were reviewed.

Issues of Trustworthiness

Bias may occur in the planning, data collection, analysis, and publication phases if not well planned (Pannucci & Wilkins, 2010). Lincoln & Guba (1985) postulated qualitative research study should establish trustworthiness to improve the outcome of a study including credibility, dependability, confirmability, and transferability. Credibility entails the researcher being active in the field, observing and monitoring activities to ensure errors or omissions are examined and corrected (Lincoln & Guba, 1985). Dependability ensures that findings of research are consistent and could be repeated, including the method used, collection, data analysis, and the decisions made by the

researcher (Lincoln & Guba, 1985). Audit trails are records kept to show how the study is conducted. These records included field notes or things I observed during data collection. Transcripts and audio recorders were kept and secured. This information was accessible to attest study was conducted. Confirmability is the degrees of how well the research findings are supported by respondents (Lincoln & Guba, 1985). I made sure principle of confirmability was adhered to by ensuring that the findings and data were objectively gathered through the use of checking and rechecking data. The aim was to determine if there was any discrepancy with the previous statement. Transferability shows the results of the study could be applicable to similar situations, thereby adhering to the concept of generalizability (Lincoln & Guba, 1985). I collected and wrote detailed descriptions of the data to enable readers judge the transferability of the study.

Ethical Considerations

Informed consent is essential to ensure that participants' confidential information is not violated. Consent to participate was obtained in writing, and witnessed by me before the study began. The transcripts, tape recordings, flash drive, and journal entries of this study are maintained in a locked file cabinet for protection and easy access to the records. The interviews were tape recorded to provide an accurate description of the phenomenon of interest. Digital recordings will be destroyed at the completion of the study; the records will be kept for 7 years and then destroyed. 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. My 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 (Appendix J).

Benefits and Risks

Study participants benefit from participating in the study only insofar as they contribute information that may lead to improve the health of their community. Information derive from this research study may benefit others if the information collected can be used to enhance immunization rates of children in Awba Ofemili. There is no known risks associate with participating in this study. Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue, stress or becoming upset. The participants were provided with snacks and drinks.

Summary and Transition

A qualitative study is conducted in Awba Ofemili, a community with persistent low immunization rates. This qualitative phenomenological study is concerned with the meaning of human experiences by bringing coherent and improved understanding of perceptions toward routine immunization of their children. The purpose of the study is to discover perceptions of the lived experience that prevent caregivers from bringing their children to health centers for routine immunization. In-depth interviews, research technique was used to gather information among female caregivers with children ages of 24 to 36 months who have received or did not receive six immunizations against vaccine-preventable diseases. Assessment of attitudes toward immunization provides comprehensive understanding of individuals' characteristics in making decisions about immunization.

Chapter 4: Presentation of Results

Introduction

The purpose of this phenomenological study was to describe the perceptions of family caregivers related to routine immunization of their children ages 24 to 36 months. A phenomenological approach was used with the aim of developing rich, insightful descriptions (Creswell, 2009). I explored perceptions of caregivers regarding immunization of their children in rural Awba Ofemili in Anambra state, Nigeria. I used in-depth interviews to gather data. In Chapter 4, I describe the data analysis and present the results of the study. The study addressed the following research questions:

1. What are the caregivers' perceptions regarding attitudes toward immunization of their children in rural Nigeria?
2. What are the caregivers' perceptions regarding cultural beliefs toward immunization of their children in rural Nigeria?
3. What are the caregivers' perceptions regarding knowledge toward immunization of their children in rural Nigeria?

Study Participants

Ten participants were proposed and 10 were interviewed. These caregivers were purposively recruited from the community of Awba Ofemili, Nigeria. All 10 caregivers were female and married. The caregivers were in two groups of five. One group (Caregivers 1 through 5) had children ages 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 (M = 26.4 years, SD = 3.8 years). Caregivers in the fully vaccinated group were 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). Four of the caregivers of fully vaccinated children did not specify their occupation. Conversely, only one of the caregivers in the few/no vaccination group had an occupation classified as "not specified." Three of the five caregivers with fully vaccinated children did not have a monthly income, but only one of the five caregivers of children with few/no vaccinations did not receive a monthly income. Table 3 presents the demographic information for the 10 caregivers interviewed.

Table 3

Characteristics of Caregivers Interviewed

ID	Caregiver Group	Age (in years)	Education level	Occupation	Monthly income
C001	Fully vaccinated	25	High school	Not specified	None
C002	Fully vaccinated	25	Middle school	Not specified	None
C003	Fully vaccinated	24	Middle school	Not specified	N200
C004	Fully vaccinated	35	Elementary	Not specified	None
C005	Fully vaccinated	26	Elementary	Farmer	N400
C006	Few/no vaccinations	27	Elementary	Fish trader	N400
C007	Few/no vaccinations	20	Middle school	Not specified	None
C008	Few/no vaccinations	27	Elementary	Farmer	N400
C009	Few/no vaccinations	26	Elementary	Farmer	N200
C010	Few/no vaccinations	29	Elementary	Farmer	N200

Data Collection

All interviews were conducted in the caregivers' homes. I hired a driver to transport me to each caregiver's home. Each caregiver's interview lasted between 45 and 60 minutes. I recorded all interviews with permission from each caregiver (Arksey &

Knight, 1999). Interviews were conducted in the caregivers' native language; Igbo is the dialect spoken in Awba. I speak Igbo fluently and am familiar with the community and its culture. In addition, I ensured that all topics were covered by asking probing questions when appropriate. Prepared and open-ended questions (Appendix C) were used to guide the discussions and to provide participants the opportunity to discuss issues that were important (Elliott & Timulak, 2005). After the interview sessions, the audio recordings of the interviews were translated into English and transcribed into Word documents.

Credibility was enhanced through an additional visit with all the caregivers over three days to verify and validate the data transcribed from the interviews. All the caregivers were visited at home. I read and discussed the transcript of the interview to avoid misinterpretation or overinterpretation of the data. Each caregiver was asked to respond to the accuracy of the statements. The information verified by the caregiver from the Word documents was then uploaded into NVivo 10 software for thematic analysis.

Data Analysis

I was guided by the principles of phenomenology and seven steps for data analysis described by Colaizzi (1978). In Step 1, the researcher transcribes the subjects' interviews. I transcribed each caregiver's interview from the digital recording and read the transcript several times while withholding my thoughts and feelings derived from previous immunization literature. The purpose was to ensure that I explored the phenomenon of interest as the caregivers experienced it (Moustakas, 1994).

In Step 2, the researcher extracts significant statements (Colaizzi, 1978). I carefully read each transcript to ensure significant statements directly related to the phenomenon of interest under investigation were extracted (Colaizzi, 1978). I imported

all transcripts into the qualitative software NVivo 10 to identify statements that had significance to the research question. The significance was supported by verbatim quotes from interviews to increase accuracy of interpretation.

In Step 3, the researcher articulates the meaning of each significant statement (Colaizzi, 1978). In this stage, meanings from significant statements disclosed by the caregivers were formulated as they related to the dimensions of the health belief model (perceived barriers, etc.). Meaningful statements were coded into themes using nodes in NVivo. I did not have a prearranged list of codes but used a bottom-up approach to create codes, allowing themes to arise from the data. I repeated the process to ensure that each significant statement from the caregiver was accurate and consistent with the formulated meanings.

In Step 4, the researcher aggregates the meanings into themes (Colaizzi, 1978). I used the auto code function to classify the caregivers' responses into nodes according to the interview questions and sub-questions. Each expression relevant to each caregiver's experience was checked for its relationship to the invariant constituents, purpose statement, and the research questions of the study. This process led to the identification and final determination of the themes and subthemes of the study.

In Step 5 the researcher writes an exhaustive description (Colaizzi, 1978). The results were written up into an exhaustive description that integrated all the steps, verbatim statements, formulated meanings, nodes, themes, and summary.

In Step 6, the researcher returns to the participants to validate exhaustive descriptions (Colaizzi, 1978). I visited with caregivers and sought clarification of statements as needed to validate the data.

In Step 7, the researcher confirms that no new data were revealed during validation of the findings (Colaizzi, 1978). Data and all the transcripts of the interviewees were presented and discussed with each caregiver as member check during debriefing to support the accuracy of the findings.

Phenomenological reduction of the collected data was performed using Nvivo 10 software (QSR International Pty Ltd., 2012). Knowledge obtained from word frequency analyses and output of visual representations (word clouds) of the number of times a word appeared in answers to each of the open-ended questions assisted me in a more in-depth classification of themes to answer the research questions. A larger size word in the word cloud for a particular question indicated a higher degree of the word's use by the caregivers. I then reviewed each interview question node and performed a preliminary grouping of every expression relevant to each interview question and the research questions of the study. The preliminary grouping was performed by reviewing each of the open-ended response items and classifying all relevant information. Additional nodes were constructed as themes emerged from the word frequency and data review and classification process. The nodes are presented in Table 4.

Table 4

Nodes Derived From Transcripts, Mapped to Themes

Node	Theme
Distance to the vaccination center is prohibitive	Perceived access barrier
No card, no vaccination	Perceived benefits
Vaccines are always well stocked at the center	Perceived benefits
Efficient process at vaccination center	Perceived benefits
Vaccines given at no cost to family	Perceived benefits
Vaccines prevent illness in own children	Perceived benefits
Vaccines prevent illness in the community	Perceived benefits
Preference for Western medicine over traditional healers	Religious perceptions
Preference for traditional healers over Western medicine	Religious perceptions
Expressed Christianity as a reason for favoring vaccination over traditional healer	Religious perceptions
Lack of husband's support in getting child to the vaccination center	Mother's responsibility
Information sharing between nurses and mother is lacking	Lack of knowledge
Nurses convey knowledge	Lack of knowledge
Town crier is primary way of notification regarding vaccination day	Lack of knowledge
Neighbors remind each other of vaccination days	Lack of knowledge

Clustering different units of meaning (also called invariant constituents) was performed by grouping into core themes. The themes were then cross-referenced with each caregiver's complete interview record to create a textual structural description of the perceptions and essence of the caregivers' experience with the vaccination process. Each expression relevant to each caregiver's experience was checked for its relationship to the invariant constituents, purpose statement, and the research questions of the study. This process led to the identification and final determination of the themes and subthemes of the study.

Study Findings

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 5 presents the themes and subthemes according to each research question.

Table 5

Themes and Corresponding Subthemes by Research Question

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

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 the following:

> It is always a struggle to get to the health center because of the distance. I will carry my child on the back with an umbrella over my head because it was raining or the sun. The center is far but I have to walk I don't have a choice because I want my child to be vaccinated.

C002 also stated that the distance to the vaccination center was far: "however I like to walk I go to places walking I don't have the means of transportation and I don't have money to pay for motor cycle so I must walk to the center. I am used to it."

C003 mentioned that the center was far away but that she still made the trip because she did not want her child to be sick. She stated that if the center was closer it would make things easier and it would not take as long to make the trip: "If the government may have the center closer it will not be a burden for me. I have to get ready in the morning as well as get other my children ready to go to the center."

C004 also mentioned the burden of distance as well as the burden of preparing all of her children for the long trip to the center to have her baby vaccinated:

> The center is far and it takes a long time. It is a big burden. I have to take my other children to the center at the same time, the ones that will walk and the little one on my back. The road is bad, dirty, and rough but I don't have choice, I want my child to be okay.

C005, a caregiver with a child who had received the full set of vaccinations, mirrored the other caregivers with fully vaccinated children in that she felt the distance to the vaccination center was prohibitive, but that she did what was needed to keep her child protected from childhood diseases:

> I like to have my child to get shots but the problem is that the center is too far if the government could build center near to us I will not have problem going to the center with my child. Before I could get my child ready and go to the center it takes a while and I become frustrated. The center is far and the road is difficult, it is a big problem and I don't have the means for transportation. I am scared that is the reason I try to take him to the center but the center is too far and sometimes I don't get there on time. I always take my child to the center to get a shot.

C005 also noted that sometimes the nurses visited the village, but that did not guarantee her child received a vaccination: "Sometimes the nurses will visit this place if you are lucky to meet the nurses they will give shot to the child."

Caregivers of children without complete vaccination records understood the importance of vaccination and worried about childhood diseases adversely affecting their children. They also gave the distance to the center as the main hindrance to their child receiving timely vaccines. Unlike the five caregivers of children with complete

vaccination records, the caregivers of the children with incomplete vaccination records more often identified a lack of transportation to the vaccination center as a barrier. C006 stated:

> Vaccination of my children is good. I like to have my child vaccinated but the problem is long distance which I find difficult taking my child to the center for vaccination. My first son was sick for whooping cough at night and my husband was around, we took the child to hospital and he was given shot and he was okay.

C007 stated:

> I don't want my child to be sick with childhood diseases so I like to take my child to the center to get shots. The problem is where the center is located is far; it takes me and child time to get there so that my child will receive shots. I am worried but the way to the center is far. If the government would build a center closer I will not have a problem getting to the center in order to have my child vaccinated.

C008 stated succinctly, "Vaccination is important, it is good it helps not to be sick from childhood diseases. The problem is that it is too far." And she continued:

> Going to the center to have my child get shots is a big problem. It is far and the road is bad and there are times when it becomes impassable. I like to go there with motorcycle. There is no other means but to walk to the center and I don't have the money sometimes to pay for transportation. The center is too far, I don't have means of transportation so I don't go at all. Sometimes by the time I got to the center with my child to get shots, the center was closed. They have certain times to remain open.

C009 stated, “The health center is a problem, it is too far. I have to walk to get there, sometimes I don’t go.” C010 also stated she understood the importance of vaccinations for her child. But that the distance to the vaccination center was a problem. Additionally, she mentioned that traveling to the center without transportation was not safe, something not specifically mentioned by the other caregivers:

> I want to take my child to the center to get shots because I know it is important and safe so that my child will not be sick. However, the center is far. Going to the center is a big problem. The location is too far from this area, the road is very bad and risky. I don’t have the money for transportation we can go there by motor cycle if there is one.

Two caregivers (C009 and C010), noted that nurses’ visits to the community were helpful in getting vaccinations to the children. Caregiver 009 stated:

> I have difficulty going to the center, I don’t have the means. I have missed a lot. Sometime the nurses come here and give my child oral drops in the mouth. I don’t know the type of vaccine my child gets, but when the nurses come to my house they give my child shots and write it on the wall of my house. I like that way better than going to the center.

Caregiver C010 said, “I will get up early in the morning and get my child ready for long trip to the center. I like the nurses to come here and give my child shot.”

Theme 2: Perceived Benefits

All 10 female 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, “My first son was sick for whooping cough at night and my husband was around. We took the child to the hospital and the child was given a shot, and he 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:

> My first daughter had measles and would have been dead if I did not take her to the hospital to get shot. If I don’t let my child have shots the disease in the air will affect my child and she will become sick.

Caregiver C003 mirrored the opinions of the other caregivers regarding the importance of vaccination in preventative care:

Vaccination for children is good. I like to have my child vaccinated. It helps to prevent chicken pox and measles. If I don’t vaccinate my child she becomes sick and may die. That is the reason I like to have my 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 my child from childhood diseases. I am the first daughter, and since I was born and was little, my mom takes me to the center and hospital to get me vaccinated. I developed such practice to continue to have my children vaccinated until I will stop having kids. I teach young mothers in my neighborhood to take their children to the center to take vaccine preventable diseases.

Caregiver C003 mirrored the opinions of the other caregivers regarding the importance of vaccination in preventive care: Vaccination for children is good. I like to have my child vaccinated. It helps to prevent chicken pox and measles. If I don't vaccinate my child she becomes sick and may die. That is the reason I like to have my child to have shots.

Caregivers could not receive vaccinations for their children unless the caregiver had a vaccination card. However, vaccination cards were lost or misplaced, thus resulting in a child not receiving their vaccination on time. Three caregivers made mention of the association between missing immunization cards and missed vaccinations. C004 simply stated, "The nurses will not treat my child and will ask me to go home."

C003 said that when she did not bring the immunization card to the center,

> The nurses will send me home to get my card, my house is too far so I make sure I have my card. If the nurse sends me home which means my child will not get the shot because I find difficult to go and come back.

Both caregivers C003 and C004 had complete immunization records for their children. Caregiver 006 had an incomplete immunization record for her child and noted that a flood washed everything away, including her child's immunization record, which made it difficult to get timely vaccines:

> I had a card for my child. However, there was a flood and my things were washed away including the card. Sometime ago, my child was very sick for whooping cough. I went to the hospital with my husband and the doctor asked me for my card. I told him I don't have one. The doctor was not happy and told me to go the

> health center and obtain an immunization card. Since then I have not been able to go the center and request for another card.

Caregivers stated that the vaccines were always in stock and that the wait time for vaccinations was minimal. Also, vaccines were given at no cost to the family or community. According to caregiver C001:

> The vaccines are there any time I want my child vaccinated. The nurses told us to line up when it is your turn she gives the child shot. I usually wait for 25 seconds, as you come the nurses give the kid the shot. I don't pay any fees before my child receives a shot, the shots are free.

The steps of the vaccination process at the vaccination center were noted similarly by caregiver C002:

> All the times I have been at the center my child received a shot after the nurse looked at the card. The nurses have not told me to go home because there was no vaccine. The nurses tell us to stay on the line and when it is my turn she gives my child a shot, or sometimes tells me my child will receive a shot next visit. I don't pay money to the nurse before my child gets a shot.

Caregiver C003 also stated that vaccines were always in stock, and free of charge. She also stated that if she arrived at the center early in the day then the wait wasn't long:

> The wait for the vaccination does not take long. The nurses tell us to be in lines. If I come by 9 am I will be in the line and when it is my turn the nurse gives my child a shot.

Caregivers of children without complete vaccination records had similar experiences with the efficiency of the vaccination process at the vaccination center, and

did not mention any adverse experiences with the process during their visits to the center. Caregiver C008 noted, “All the time I went to the center my child got shots.” C010 stated, “The nurses do not charge me fees before my child received shots.”

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:

> I go to traditional healers. They are good. When my child is sick I take the child to see the traditional healers to treat my child. I believe in cultural beliefs by having my child with a necklace and key. The key is to lock up the disease affecting my 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 me not to go, that the vaccine will hurt my child.” However, she continued, “Vaccination is essential. I don’t go to traditional healers and I 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:

> I don't follow cultural beliefs; my mom did not teach me that. She taught me to seek western medicine for treatment. The nurses told the mothers not to practice or follow cultural beliefs; they are harmful to the child if I do not get my child vaccinated. The nurses told the mothers at the center not to follow cultural practice and not to listen to mothers who do that. If my child is sick I go to the health center or hospital. I have some of my neighbors who don't believe having their children vaccinated and they are afraid of western medicine.

Caregiver C005 noted, "I don't believe in cultural beliefs. There is no hospital in this town it is far away but it is better, my child receives better treatment when he is sick." Caregiver C007 also preferred Western medicine, saying, "I have not taken my child to traditional healers, I don't like them. I prefer to go to the center and have my child get shots."

The preference for Western medicine was also mentioned by caregivers C008 and C010. Caregiver C008 said, "I don't visit traditional healers, I prefer western medicine. I like going to the center or hospital for treatment." Caregiver C010 also noted that she preferred traveling to the vaccination center or hospital to receive shots for her child, "I don't follow any belief. I believe going to the center to see the nurses to give shots to my child or go the hospital."

Several caregivers (C001, C004, C005, and C006) preferred Western medicine and cited their Christian beliefs as the compelling reason for their preference. Caregiver C001 stated simply, "I am a Christian and do not go to traditional healers." Caregiver C004 mentioned her faith as a reason for preferring Western medicine and also commented that traditional medicine was of no value in protecting against disease, "I

don't believe in traditional healers and cultural beliefs. I am a Christian, I like Western medicine, and native medicine is fake."

Caregiver C005 noted that she went to the center for vaccinations, and also prayed for her child's health:

> I don't know about going to traditional healers, I am a Christian. If my child is sick, I take the child to the center or hospital for treatment. I also go to the prayer house to pray so that my child may not be sick.

The theme of religious perceptions as a reason to prefer Western medicine was supported by the comments of caregiver C006, "I don't believe in traditional healers they are not good and should not be trusted. I am a Christian, when my child is sick and needs a shot I go the center or hospital."

Theme 4: Mother's Responsibility

All the caregivers (N=10) were given sole responsibility for obtaining their children's immunizations. The fathers would often remind the mothers of upcoming vaccination events and would sometimes help if they were available. However, the husbands often were away at work and took the family's only mode of transportation, leaving the mother to go to the clinic with her children by foot. According to caregiver C005:

> My husband does not support me when I tell him that I have to take the child to the center for vaccination. He tells me that is my responsibility. Some times when he goes to his business he comes late and is tired such that when I tell him about taking the child to the center he states to be tired. I do not have a choice but to take the child to the center. When my child becomes sick at night I will let my

husband know. But he does not care and says nothing will happen to the child and 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:

> The center is far, I have to walk. Sometimes I go there with a motor cycle. If I am lucky, my husband is around but most of the time I walk to the center with my child. It is a hard journey.

Caregiver C007's views were similar to those of caregiver C006:

> The center is a big problem; it is too far for me and the child to walk. If my husband is available it will not be a problem, he has a motor cycle. He can take me and the child to the center but most of the time he is not available.

Three of the five caregivers who had children with complete immunization records noted that, although their husbands did not take the mothers and children to the vaccination center, their husbands reminded them of the vaccination days. Caregiver C002 stated, "My husband helps by telling me there would be a vaccination day but he does not take me with the child to go to the center for vaccination. I go there with my child and card."

Caregiver C003 said, "My husband does not really go with me. He will let me know the town crier announced about vaccination day so that I will take the child to the center." Caregiver C004 also noted that her husband would remind her of upcoming vaccination events, but she was responsible for taking the children for their vaccines:

> My husband reminds me about vaccination day. He tells me the town crier has announced about vaccination day. He only tells me there would be vaccination day. My husband has to go and find something we are going to eat; therefore I am the one that takes care of the children make sure they are not sick.

However, Caregiver C001 said that her husband would drive her to the center if he was available, "My husband also tells me about the vaccination. Sometimes he takes me to the center with his motor cycle if he is around. He leaves the house in the morning for his business."

Theme 5:Lack of Knowledge

Five of the caregivers stated that they did not know what vaccines their children received or were not needed. 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 teach us the importance of vaccination on vaccination day at the center. I know about polio, small pox, and malaria. I don't know the type of vaccine my child will receive, they don't tell us, but I go with my vaccination card. The nurse will look at my card and check if my child will get shots. If she checks and my child has not received the vaccine, she will give my child a shot. Sometimes, I come to the center the nurse tells me my child has got the shot and will get another shot next visit. I don't feel good about it because my trip is wasted and for nothing.

Caregiver C002 stated that she learned about the importance of vaccinations from the nurses while she was pregnant but that she was not sure of the vaccination her child would receive on vaccination day:

> I have not missed going to the center. I must make time to take my child to the center for vaccination because I don't want my child to be sick. When I was pregnant the nurses taught mothers about childhood diseases and how to prevent them is by having shots so I make sure I take my child to the center to get a shot. I don't know which vaccine my child receives at the center. The nurse looks at my child's vaccination card and determines which vaccine my child receives. I just go the center with my child on vaccination day.

Caregiver C004 mentioned that the nurses were very helpful in teaching about childhood vaccination. However, she also relied on the nurses to advise her of the needed vaccination for her child:

> When I gave the nurse my card, she tells me if my child has got the shot. If my child has completed the shot, the nurses will begin to teach us about childhood vaccination. The nurses are good; they teach us a lot about vaccination and tell us to always bring our children to the center for vaccination.

Caregiver C007 simply stated, "I don't know what shots my child gets, the nurse tells me with my card if my child receives a shot. The nurse looks at the child's card then tells me the child would get shot."

Although some caregivers were reminded of vaccination days by their neighbors or spouse, many caregivers relied on the town crier for relaying information of upcoming vaccination events. Caregiver C004 said that, "The town crier will go around and beat on

the slit drum (ekwe) and let people be aware there will be a vaccination day, and then I will go to the center with my card."

Caregiver C001 also noted the process of the town crier notification to the community, but said others in the community also reminded her of the vaccination event:

> The town crier will go around and announce the day for vaccination by beating the slit drum (ekwe). I have not missed taking my child to the center for vaccination, the town crier will announce the day and I will get ready. My neighbors and the church also remind me about immunization day.

Caregiver C003 also noted that her neighbors helped to remind her of the vaccination event:

> The town crier goes around beating on the slit drum (ekwe) announcing that there would be a vaccination day and mothers should bring their children to the center for vaccination at certain time maybe 10 am. My neighbors are helpful, they let me know. Sometimes I forget and they will tell me about going to the center.

Caregiver C002 said, "My neighbor tells me that the town crier announced there would be vaccination day." Some of the other caregivers also noted that, although the town crier was the primary way that the community learned of vaccination day, they relied more often on receiving the information from their neighbors. According to caregiver C006:

> The town crier will go around announcing about vaccination day by beating on the ogene (gong) for mothers to bring their children to the center for vaccination. I forget to take my child for vaccination. And no one reminds me so I don't take

my child for vaccination. Sometimes the announcer does not get to this area. Therefore I don't take my child to the center for a shot.

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:

The town crier will go around announcing about vaccination day by beating on the slit drum (ekwe). Sometimes I don't know. I have sometimes missed the town crier announcing about vaccination day. I don't know about the event and nobody informed me about it.

Discrepant Cases

One caregiver, C009, preferred traditional medicine stating,

I go to traditional healers. They are good. When my child is sick I take the child to see the traditional healers to treat my child. I believe in cultural beliefs by having my child with a necklace and key. The key is to lock up the disease affecting my child.

This finding was contrary to the perceptions of other caregivers.

This caregiver who had obtained partial vaccination for the children trusted the traditional healer rather than going to the health center. This finding supported Benin, Wisler-Scher, Colson, Shapiro, and Holmboe (2006) who described a caregiver who refused vaccination, reporting a trusting relationship with a traditional healer and had doubts about vaccination. This discrepancy may have existed because the caregiver did not understand the seriousness of vaccine preventable diseases or that failure to vaccinate could spread disease to populations in the community.

Evidence of Trustworthiness

To ensure evidence of qualitative in this phenomenological study, several steps were taken. Through multiple interviews with the caregivers opportunities were given to review and amend the transcript that was accomplished over three days. In the consent form, caregivers were informed that they could withdraw from the interview at any time.

To enhance the quality of this study, direct quotes from the caregivers were adhered to by ensuring that the findings and data were objectively gathered through the use of checking and rechecking data. Though the sample of participants in this study was of a small size, saturation provided for an accurate and rich description of research findings.

Credibility

To enhance credibility the three expert panels reviewed the research questions and interview protocol to ensure there was no bias. Data and all the transcripts of the interviewees were presented and discussed with each caregiver as member check during debriefing to support the accuracy of the findings. I also maintained a detailed audit trail of the data collected.

Transferability

Transferability was addressed by providing clear descriptions of the sample and data collection procedure, as well as providing textual excerpts directly from the interview transcript. The results of this study could be transferred to other researchers with the use of information to explore other theories. In addition, the study could be used to gain a more meaningful understanding of health behavior of caregivers. Informed

consent was obtained from each caregiver along with assurances of confidentiality and anonymity.

Dependability

Dependability was achieved through the detailed and clear description of the study from problem identification through data analysis and discussion as well as maintaining audit trail.

Confirmability

The audit trail supports the confirmability (Creswell, 2007). The data collected will be available for a minimum of 5 years. It includes the recordings of each interview and all the transcripts. The data collected during the research study were based on the caregiver's own experiences.

Summary and Transition

In this phenomenological study, I investigated the perceptions of family caregivers related to routine immunization of their child or children aged 24 to 36 months. A total of 10 caregivers, all mothers, answered demographic questions and participated in interviews with open-ended questions regarding their attitudes, cultural beliefs, and knowledge of immunization. In this chapter five themes emerged from the thematic analysis and were used to address the research question. In Chapter 5, I present a summary and interpretation of findings. The results are compared and contrasted to current literature. In Chapter 5, I also describe implications of social change, recommendations for further study, and my experiences.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative phenomenological study was to describe the perceptions of family caregivers about routine immunization of children ages 24 to 36 months. My goal in using a phenomenological approach was to examine the lived experiences of family caregivers and identify common themes about caregivers' understanding of whether vaccinations were important in preventing childhood disease in their children and community. In-depth face-to-face interviews with 10 female caregivers in rural Awba Ofemili, Anambra State, Nigeria, were conducted to collect data. I identified principal themes and subthemes pertinent to experiences and views of caregivers regarding immunization of their children.

A phenomenological approach was used to develop rich, insightful descriptions (Creswell, 2009). To this end, I used interview questions that required in-depth open-ended responses as well as flexible follow-up questions to allow caregivers to tell their stories about their experiences with routine immunization of their children. Semistructured interviews provided a good method of generating data and gathering opinions and views from the participants (Kvale, 1996).

The purposive sample consisted of 10 caregivers recruited as participants, including five caregivers with fully vaccinated children and five caregivers with children who had partial or no vaccinations. For a phenomenological study, Creswell (1998) recommended 10 long interviews as an appropriate sample size. Morse (1994) recommended at least six participants for phenomenological studies. Participants in my study resided in eight villages of Awba Ofemili and ranged in age from 20 to 35 years.

Summary and Interpretation of Findings

This section summarizes the findings to answer the three research questions addressing caregivers' attitudes, cultural beliefs, and knowledge about vaccination of their children. To provide an impartial interpretation of findings, I interpreted perceptions of caregivers of fully immunized children and perceptions of caregivers with partial or no vaccinations. Based on prior literature, it was important to identify which factors could be attributed to complete and incomplete vaccination status of children. Allan and Harden (2014) determined that conclusions about parental decision-making in uptake of the MMR vaccination could not be drawn because the 14 studies examined did not distinguish between acceptors and rejectors of vaccines.

The first research question of my study was the following: 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 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. Abdulraheem et al. conducted a cross-sectional survey of vaccination among 685 caregivers of infants in 85 villages in North Nigeria. Abdulraheem et al. 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 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 money for transportation.

The second research question was the following: 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 perceptions. Almost all of the caregivers indicated religion played a 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.

Several studies in the literature 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. Ojikutu found that 85.45% of Christians vaccinated their children while 71.53% of children from Muslim vaccinated were vaccinated. In my 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 the following: 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, Leman, and Woodcock (2007). Brown et al. (2012) found that parental decisions whether to vaccinate would be judged by people around them.

Perceptions by Vaccination Status

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 6.

Table 6

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

Possible Barriers to Vaccination Status

In my 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, Quick, Sanda, and Niandou (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.

Extending Knowledge

All caregivers in my study stated the long distance 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., 2007) 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 & 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 & 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 my study titled understanding caregivers' perceptions of childhood vaccination, 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 Chen, Fox, Cantrell, Stockdale, and Kagawa-Singer (2007). 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, Swedmark, and Grubbs (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. (2013).

Applying the Theoretical Framework to the Results

The findings from this study supported the constructs of the heath belief model, which offers an explanation of caregivers' perceptions about having their children vaccinated. In the health belief model, the decision to adhere to preventative health behavior is based on perceived susceptibility, perceived severity, perceived barriers, perceived benefits, cues to actions and self-efficacy. The health belief model was used as the theoretical framework for interpreting results of this study. Each construct of the health-belief model was applied to this study and compared with published literature.

Perceived Susceptibility

All caregivers expressed concerns regarding their children contracting vaccine-preventable diseases. Findings confirmed a previous study (Rosenstock, 1966) used to explain influenza immunization. The model proposes an individual will perform disease-prevention behavior (Chen et al., 2011) According to the health belief model, the greater

the caregiver's perception of a child's susceptibility, and the greater the perceived threat of polio, the more likely the caregiver will seek immunization for their children (Borras et al., 2009).

Perceived Severity

Caregivers reported the serious of childhood disease. One caregiver of a child with an incomplete vaccination record stated, "My first son was sick for whooping cough at night and my husband was around. We took the child to the hospital and the child was given a shot, and he was ok." The findings from this study are consistent with Borras et al. (2009). Perceptions of the severity of diseases and the greater perceived threat of polio, the more likely the caregiver would seek immunization for their children.

Perceived Barriers

All caregivers reported difficulties getting to the health center to vaccinate their children. However, five of 10 caregivers had their children fully vaccinated whereas five caregivers' children received few or no vaccinations. For caregivers to accept a new behavior the caregiver evaluated the obstacles and ensured the benefits outweighed the consequences of the old behavior (Liddon, Hood, & Leichliter, 2012). These findings agreed with Rosenstock (1966) who found barriers such as lack of information and transportation led to refusal to vaccinate.

Perceived Benefits

Individuals adopt healthier behavior if they believe the new behavior will decrease the chances of contracting a disease or if the benefits outweigh the cost. Caregivers understood that vaccinations were important in preventing childhood disease

in their children and community. This is consistent with participation in screening for tuberculosis (Rosenstock, 1966).

Cues to Action

Cues to action are factors that would prompt an individual to take an active role, such as following a doctor's recommendation, social media, and family advice to get children vaccinated. Although some caregivers were reminded of vaccination days by their neighbors or spouses, many caregivers relied on the town crier for information of upcoming vaccination events. This is in consistent with a previous study (Amin et al., 2013) in which caregivers had better access to information and communication from various sources such as health facilities, neighbors, media, and community leaders.

Self-Efficacy

Self-efficacy in this study refers to the conviction that an individual can successfully execute a health behavior. Caregivers in this study were solely responsible for ensuring that their children are likely to help to maintain regular vaccination of their children. Five of 10 caregivers were always present with their children and completed the vaccine series, unlike the five caregivers whose children received few or no vaccines. This finding is consistent in Chew et al. (2002) in which the efficacy of participants' health knowledge was boosted through viewing television.

Limitations of the Study

Culture-specific and response bias and my own bias as the researcher were the primary limitations of this study. Family members could be biased, such as if participants were afraid to disclose social norms that are taboo. Additional limitations may have included the family members having certain beliefs and habitual mode of thoughts that

influence caregiver's responses. Caregivers may have been anxious about associating with me, lacking trust and respect. Cultural sensitivity may deter caregivers from responding appropriately to questions.

During the development of the Interview Guide, I recruited an expert panel of three professors in Nigerian universities to provide feedback about the number of semi-structured questions, the wording, and how to probe. Their familiarity with the culture, experience as researchers and mentors guided the process once I arrived in Nigeria and continued communication about the findings and interpretation will lead to community and professional presentations.

When collecting data, caregivers may have given inaccurate answers for fear of being judged, telling me what they thought I wanted to hear rather than the truth. Reporting bias may occur if the results of the research are not accurately recorded in this text. To improve accuracy of interview notes, the interviews were audio recorded while I took notes by hand. To increase my focus on the responses and body language of the caregivers, a local female facilitated the interview. The presence of the local female was also to respect local traditions that a strange male should not be alone with a female. Her presence would also make the caregivers more comfortable with the interview.

Questions may have elicited certain types of responses due to the way I designed the survey. I may unknowingly have designed questions that lead to supporting my conclusion. Responses from caregivers are often subjective and open to interpretation. A researcher may find it difficult to help caregivers feel comfortable enough to fully disclose true opinions and feelings. Participants may respond by adhering to socially acceptable standards. My presence during data gathering may have affected caregivers'

responses. Perhaps a researcher from Awba Ofemili, with more personal contacts, would have been able to collect more in-depth data with a wider range of caregivers. The sample was drawn from areas in Awba Ofemili and not from a particular location. A more focused purposive sample comprising caregivers of children aged 24 to 36 months may have been barrier, in contrast to surveying caregivers of children less than 24 months.

Implications for Social Change

I undertook this study to understand how caregivers perceive immunization of their children and how it affects immunization of their children. Because most caregivers said that travel to the clinic was arduous and having nurses visit the local area to provide immunizations was much easier and convenient, one social change implication may be to work with the local government to plan an outreach program that includes visiting family caregivers' homes. The policy makers in the state may use these findings to improve routine vaccination in Awba Ofemili. Various policy makers in the state, Local Government Areas, and municipal level should ensure the availability of health centers that provide vaccination to the people (ward). Opinion leaders such as the traditional and religious leaders, health providers, and non-governmental organizations should be involved through workshops, meetings, brochures, and posters to educate or provide sufficient education to rural women regarding routine vaccination.

Increased availability to health centers is necessary to enable parents to have proper access to the health centers.Information about the benefits of immunization to community leaders is essential so people whose cultural beliefs and opinions are negative about vaccination of their children will adhere to immunization schedules. Providing immunization service on a specific day each week would enable the community to be

aware of vaccination day. Media outreach programs should be developed to enable all the wards to be well informed about vaccination day. Immunization cards should be modified so that less educated parents can easily understand them. Nurses or healthcare providers should maintain adequate and accurate records of individuals vaccinated, including the type of vaccines and dates administered.

Recommendations for Actions

Awba Ofemili is a rural community with numerous challenges related to routine vaccination of children. The themes that emerged in this study focused on shared experiences caregivers faced bringing their children to the health center for vaccination. The principal challenge facing caregivers in Awba Ofemili is the lack of a nearby primary health center. Awba Ofemili has only health center, the participants live in different locations in different wards. All participants in the study indicated they had difficulty going to the center to have their children vaccinated. The further the caregiver lived from the health center, the greater the problem walking to the center. The caregivers in these areas have to travel longer distances compared with the caregivers of fully vaccinated children who lived closer to the health center. The distance is long and road conditions are poor. Based on the findings, it would be helpful if community and religious leaders played a role in creating awareness to local government officials to bring health centers closer to the wards as the participants had suggested.

The second barrier was that the participants reported missed opportunities that occurred where caregivers came to the health centers with their children and failed to be vaccinated because they did not possess their vaccination cards and the nurses did not maintain their vaccination history. Even when caregivers forgot to come with the

vaccination cards or the cards were lost, the children would still receive treatment if the health centers maintained the vaccination history of all who attended the centers.

The third obstacle discussed by the participants was vaccination schedule. The town crier announced vaccination day. Some of the participants stated forgetting about the vaccination or were reminded by their neighbors. I suggest the community leaders and religious leaders develop other ways to supplement the use of town criers including church announcement, group meetings, and the use of youth volunteers, and radio to advertise vaccination day.

Recommendations for Further Study

All caregivers acknowledged inadequate support from their spouses about having their children vaccinated. Further study is needed to involve male partners to be participants in immunization study as this may help to identify ways in which male partners can be helpful including providing transportation to the health center. Further studies are strongly recommended on the importance of immunization coverage through education of caregivers with knowledge of the immunization card and immunization schedule as well as timely immunization for the children. Study is also needed to find better ways to deliver immunization services in rural areas and to enhance the ability to involve volunteers of different wards in Awba Ofemili.

Dissemination of Results

The findings of this study will be presented to the Anambra State Government Ministry of Health, Republic of Nigeria Ministry of Health, and Local Government Areas in Anambra state. In addition, I will disseminate research findings in Awba Ofemili by holding presentations and discussions with leaders of the community. I will assist

community organizations in seeking nonprofit funding to support effective immunization service delivery. I will submit manuscripts for publications in Nigerian journals, United States publications and international publications.

Researcher's Experience

The cost of conducting the study was prohibitive; however, the hope of bringing the problems of Awba Ofemili to the world was encouraging. I traveled to different locations to interview the participants at their different homes in different wards. The poor road condition was challenging, if this study was done during the rainy season (May-September) it should not be possible. The roads will become impassable. I am a novice researcher and would like to suggest to novice researchers not be discouraged by qualitative methods because they are time consuming. In spite of the difficulties encountered in completing the study, I am interested in continuing to be a qualitative researcher.

Conclusion

In this study, I examined the perceptions of caregivers about immunization of their children. Immunizations of children in rural Awba Ofemili have identified long distance to health centers, transportation, and lack of infrastructure. This study provided insight into the factors influencing caregivers who had fully vaccinated children and caregivers with partial or no vaccination of their children in Awba Ofemili. 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 Awba Ofemili 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. Awba Ofemili 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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Appendix A: Map of Nigerian States

Appendix B: Letter to Regent and Traditional Rulers

Dear Regent,

My name is Oliver Anyabolu, and I am a PhD student at Walden University. I have selected Awba Ofemili in Awka North Local Government Area to conduct my dissertation research on barriers to childhood immunization.

Routine immunization has saved thousands of children from vaccine preventable diseases; however, low immunization coverage rates have been implicated as a major cause for the continuing adverse impacts of vaccine preventable diseases in rural Nigeria. In this study, I will be trying to identify barriers family caregivers face when considering having their children properly immunized. I also plan to review what immunization services the government clinics are providing and how people use them. The intent of my research is to enable the planning of mitigation efforts that can address barriers and enhance immunization compliance.

Participation in this study will be strictly voluntary and participant responses and identity will be protected as confidential. When completed, I will share my research findings and recommendations with the Anambra State Ministry of Health as-well-as other interested stakeholders in the region, including nongovernmental organizations and United Nations agencies.

I respectfully request your approval for me to conduct this proposed public health research within Awba Ofemili in the Awka North Local Government area. If you have any questions or concerns of this project, please contact me by email . Also you contact my PhD Committee Chairperson, Dr. Mary-Lou Gutierrez

Thank you for your consideration of this request. I look forward to hearing from you.

Sincerely,

Oliver Anyabolu

Appendix C: Research Questions and Interview Guide

Research Questions:

1. What are the caregivers' perceptions regarding attitudes toward immunization of their children in rural Nigeria?
2. What are the caregivers' perceptions regarding cultural beliefs toward immunization of their children in rural Nigeria?
3. What are the caregivers' perceptions regarding knowledge toward immunization of their children in rural Nigeria?

Interview Guide:

The interview guide is structured to address different components of the health belief model including perceived susceptibility, perceived severity, perceived barriers, perceived benefits, self-efficacy, and cues to action among caregivers exploring their perceptions toward immunization of their children in Awba Ofemili in Nigeria.

Demographic Background

Caregiver Number

Education Level:

Age: 15–24 25–34 35–44 45–55

Marital Status:

Income per month:

Interview Questions

Perceived Susceptibility:

1. Are you concerned about childhood diseases? Do you think your child should be vaccinated? If so, why or why not?

Perceived Severity

2. Are you concerned about your child getting polio? Why, why not? What do you think will happen to your child if she or he gets measles?

Perceived Barriers:

3. If you want your children vaccinated, have you experienced any problems? If so, please describe the problem(s). Was the problem solved?

Probes

- Does the distance to the health center or health clinic pose a problem?
- When you visited the health, were the vaccines available?
- While at health center were any of the nurses or health workers available to vaccinate your children?
- How long did you wait to see a nurse or health worker?
- Did you pay any fees to get your children vaccinated?

Perceived Benefits:

4. Do you think there is anything you can do to prevent your child from being infected with polio or measles? Do you think vaccinating your child will make your child not get polio?

Self efficacy

5. Who do you think could advise you about vaccinating your child? What can you do so your child will not get infected with polio? How do you know when your children's vaccination is due? Do you have an immunization card? How often do you check your children's immunization card? Have your taken your child to traditional healers? Tell me the reasons you see the traditional healers

Cues to Actions

6. If you had your child vaccinated, were there specific people or events that motivated you to do this? Please describe what they were.

Ajuju nchoputa—Research Questions.

1. kedu etu ndi nlekota anya si ahuta igba ogwu mgbochi umuaka ‘ obodo emepeghi emepe na Naijiria.
2. Kedu etu ndi nlekota anya siri nwe nkwenye n’ ebe igba umuaka ogwu mgbochi n’ obodo emepeghi emepe na Naijiria.
3. Kedu ka amamihe ndi nlekota anya si di n’ ebe igba umuaka ogwu mgbochi n’ ebe emepeghi emepe na Naijiria.

Interview Guides (Usoro Igba ajuju) usoro igba ajuju dabere n’ uzo di icheiche gbasara ahuike n’ udi o ga-eji doo ndi mmadu anya dika ihe ndi mmadu kwenyere maka ya na mbu, ihe nhiahu, mgbochi na ihe nweta n’ igba mbo na ka ndi nlekota si ahuta igba ogwu mgbochi umuaka n’ Awba Ofemili n’ ime Naijiria.

Demographic Background-

Ntoala agumonu, omumu, onwunwu na oria di icheiche na mgbe.

Caregiver—Ndi Nlekota

Education level—ogo agumakwukwo

Afo—iri na ise—iri abua na ano, iri abua na ise—iri ati na ano, iri ato na ise-iri anon a ano, iri ano na ise-iri ise na ise.

Marital status—Nziputa ilula di maobu ilubeghi

Income per month—oge nweta kwa onwa

Interview questions—Ajuju

1. Perceived susceptibility—

Dika nkwenye—

Oria umuaka a o metutara gi? I chere na-a ga-agba nwa gi ogwu, o buru na I kwere, kwuputa ma oburu na I kwenyeghi, kwue ihe kpatara.

2. Perceived Severity—Dika ihe ntaramahuhu nhiahu o nwere nwata oria nturi ukwu metutara gi?

O buru, na o bughi, kwuputa.

Kedu ihe I chere ga-eme nwa gi maoburu na o nwere arubara?

3. O buru na nwa gi maobu umu gi agbaala ogwu, o nwere ihe nhiahu maobu nsogbu I zutere? O buru na o nwere, Biko kowa nsogbu ndi ahu. Nsogbu ahu e lebara ya anya?

Probes—Ajuju—

i. Njem I ga-n' ogige ahuike o buru gi nsogbu/nhiahu

ii. Mgbe I gara leta ndi ahuike, ogwu ogbugba o dikwa?'

4. Mgbe I no na nke ndi ahuike, ndi noosu maobu ndi ahuike ndi ozo ha anokwa igba nwa gi maobu umu gi ogwu?

I kwuru ugwo obula ka e wee gba nwa/umu gi ogwu?

Perceived Benefits—Nhuta uru

O di gi ka o nwere ihe I ga-eme iji wee gbochie nwa gi inweta oria nturi ukwu maobu arubara?

E chere n' igba nwa gi ogwu ga-ewezuga ya inweta oria nturi ukwu?

5. Self-Efficacy—ka I si ahuta ya.

Kedu ihe nyere gi ndumodu/igba gi ume n' igba nwa gi ogwu?

Kedu ihe I ga-eme ka nwa gi ghara I nweta oria nturi ukwu?

Kedu ka I si ama n' igba nwa ogwu eruola?

I nwere akwukwo kadi e ji agba ogwu mgbochi? Kedu mgbe I ji elebanye anya n' akwukwo eji agba nwa gi ogwu.

I dulaa nwa gi gaa na nke ndi dibia mkporogwu na mkpa akwukwo. Gwa m Ihe kpatara iji wee jee hu ndi dibia mkporogwu na mkpa akwukwo.

6. Cues & Actions—Ihe gbara gi ume.

O buru na I gbalaa nwa gi ogwu, o nwere ndi puru iche maobu ihe e mere nke nyere gi agbamume ime nke a, Biko, kowaa ebe ha no.

Appendix D: Expert Panel for Qualitative Instrumentation 1

Understanding Caregivers' Perceptions to Immunizing Their Children

Instructions: Please review the attached Qualitative Instrumentation of Understanding Caregiver's Barriers to Immunizing their Children and respond to the following questions regarding the construction, validity and potential reliability for the Qualitative research topic Understanding Caregiver's Barriers to Immunizing their children in light of the phenomenon being researched, examined, assessed, evaluated or measured.

Section I. VALIDITY EVALUATION

A test, survey, questionnaire, evaluation or assessment instrument is valid to the extent that the instrument measures the construct(s) that the instrument purports to measure.

1. Instrument Construction:

1. (a). Are the instructions for completing the instrument clear?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

1. (b). Is the application and results of the Qualitative Instrumentation of research topic: Understanding Caregiver's Barriers to Immunizing their Children adequately reflected in this instrument?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

1. (b). Is the application and results of the Qualitative Instrumentation of research topic Understanding Caregiver's Barriers to Immunizing their Children adequately reflected in this instrument?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

1. (c). What items would you add?

1. (d). What items would you delete?

2. Content Validity:

Will the scores yielded by Qualitative Instrumentation of research topic Understanding Caregiver's Barriers to Immunizing their Children adequately represent the content or conceptual domain of the construct being measured? In other words, does the instrument have adequate and appropriate items that constitute a representative sample of the complete domain of items used to generalize the construct being measured? Please see the attached table of specifications [instrument blueprint] that reflect which items and how many items within the instrument are designed to measure each type of content domain.

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

3. Construct Validity:

Qualitative Instrumentation research topic Understanding Caregiver's Barriers to Immunizing their Children

is designed to measure (Understanding Caregiver's Barriers to Immunizing their Children). Please see constructs definition:

Insert constructs definition here:

3. (a) Does the Qualitative Instrumentation of (research topic ….) represent concepts or constructs it should represent and does not represent concepts it should not represent? In other words, does the Qualitative Instrumentation of (research topic ….) adequately represent the constructs it purports to represent?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

3. (b) Is the Qualitative Instrumentation of (research topic ….) inclusive of the important dimensions or facets of the constructs it purports to measure.

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

3. (c) Does the Qualitative Instrumentation of (research topic ….) avoid excess reliable variance, ensuring no items are easier or harder for some respondents in a manner relevant to the interpreted construct?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

4. Face Validity

Does the Qualitative Instrumentation of (research topic

Does the Qualitative Instrumentation of (research topic ….) look valid? Does it appear to represent a measure of the construct it purports to measure?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

5. Item Bias

Does the wording or placement of an item avoid affecting someone's response? (This includes the avoidance of double-barreled items, words or phrases, which raise emotional red flags, ambiguous wording, gender bias, racial/ethnic bias, and the manipulative placement of an item or wording of an item)

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

6. Consequential Validity

Does the Qualitative Instrumentation of (research topic ….) instrument embody desirable values and have potentially positive consequences for the discipline or field it reflects?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Section II. RELIABILITY EVALUATION

A test, survey, questionnaire, evaluation or assessment instrument is reliable to the extent that whatever construct(s) the instrument measures, it measures the construct(s) consistently.

A. Internal Consistency

Are the items that make up the Qualitative Instrumentation of (research topic ….) internally consistent with each component and/or the constructs being examined, assessed, evaluated or measured?

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

B. Potential for Reliability (Potential for Consistent Responses)

Understanding that research participants completing this instrument will vary in their understanding and experience with the (research topic ….) and thus vary in their responses, is there anything about this instrument that would lead you to believe that this instrument would not consistently measure (research topic ….).

[√] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Please provide any additional comments, suggestions for improvement, and/or any other thoughts regarding the construction, how the survey to be easier to complete, validity and/or reliability of the Qualitative Instrumentation of (research topic ….).

Panel Member

Printed or typed Name:

Title: Dr. Ifeoma Ekejindu

Department: Medical Microbiology/Parasitology

Organization: College of Health Sciences, Nnamdi Azikiwe University

Location: Nnewi, Anambra State, Nigeria

Signature: __ifyekejindu_____Date: __12th July, 2013_

Expert Panel Evaluation of Qualitative Instrumentation 2

Understanding Caregivers' Perceptions to Immunizing their Children

Instructions: Please review the attached Qualitative Instrumentation of research topic: Understanding Caregiver's Barriers to Immunizing their Children and respond to the following questions regarding the construction, validity and potential reliability for the Qualitative (research topic ….) in light of the phenomenon being researched, examined, assessed, evaluated or measured.

Section I. VALIDITY EVALUATION

A test, survey, questionnaire, evaluation or assessment instrument is valid to the extent that the instrument measures the construct(s) that the instrument purports to measure.

1. Instrument Construction:

1. (a). Are the instructions for completing the instrument clear?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

1. (b). Is the application and results of the Qualitative Instrumentation of (research topic ….) adequately reflected in this instrument?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

1. (c). What items would you add? (None)

1. (d). What items would you delete? (None)

2. Content Validity:

Will the scores yielded by Qualitative Instrumentation of (research topic ….) adequately represent the content or conceptual domain of the construct being measured? In other words, does the instrument have adequate and appropriate items that constitute a representative sample of the complete domain of items used to generalize the construct being measured? Please see the attached table of specifications [instrument blueprint] that reflect which items and how many items within the instrument are designed to measure each type of content domain.

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

3. Construct Validity:

Qualitative Instrumentation (research topic: Understanding Caregiver's Barriers to Immunizing their Children) is designed to measure (research topic ….). Please see constructs definition:

Insert constructs definition here:

3. (a) Does the Qualitative Instrumentation of (research topic ….) represent concepts or constructs it should represent and does not represent concepts it should not represent? In other words, does the Qualitative Instrumentation of (research topic ….) adequately represent the constructs it purports to represent?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

3. (b) Is the Qualitative Instrumentation of (research topic ….) inclusive of the important dimensions or facets of the constructs it purports to measure.

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

3. (c) Does the Qualitative Instrumentation of (research topic ….) avoid excess reliable variance, ensuring no items are easier or harder for some respondents in a manner relevant to the interpreted construct?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

D. Face Validity

Does the Qualitative Instrumentation of (research topic ….) look valid? Does it appear to represent a measure of the construct it purports to measure?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

E. Item Bias

Does the wording or placement of an item avoid affecting someone's response? (This includes the avoidance of double-barreled items, words or phrases, which raise emotional red flags, ambiguous wording, gender bias, racial/ethnic bias, and the manipulative placement of an item or wording of an item)

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

F. Consequential Validity

Does the Qualitative Instrumentation of (research topic ….) instrument embody desirable values and have potentially positive consequences for the discipline or field it reflects?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Section II. RELIABILITY EVALUATION

A test, survey, questionnaire, evaluation or assessment instrument is reliable to the extent that whatever construct(s) the instrument measures, it measures the construct(s) consistently.

A. Internal Consistency

Are the items that make up the Qualitative Instrumentation of (research topic ….) internally consistent with each component and/or the constructs being examined, assessed, evaluated or measured?

[*] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

B. Potential for Reliability (Potential for Consistent Responses)

Understanding that research participants completing this instrument will vary in their understanding and experience with the (research topic ….) and thus vary in their

responses, is there anything about this instrument that would lead you to believe that this instrument would not consistently measure (research topic ….).

[ ] Yes

[*] No (if no, please explain) (I think the instrument is designed to consistently measure the variables)

[ ] Yes provided the following actions are taken:

Please provide any additional comments, suggestions for improvement, and/or any other thoughts regarding the construction, how the survey to be easier to complete, validity and/or reliability of the Qualitative Instrumentation of (research topic ….).

Panel Member

Printed or typed Name: DR. IFEYINWA CLEMENTINE ILO

Title: LECTURER

Department: NURSING SCIENCE

Organization: NNAMDI AZIKIWE UNIVERSITY AWKA

Location: ANAMBRA STATE NIGERIA

Signature: ___IloCI_____ Date: __6/7/2013_____

Expert Panel of Qualitative Instrumentation 3

Understanding Caregivers' Perceptions to immunizing their Children

Instructions: Please review the attached Qualitative Instrumentation of (research topic) and respond to the following questions regarding the construction, validity and potential reliability for the Qualitative (research topic ….) in light of the phenomenon being researched, examined, assessed, evaluated or measured.

Section I. VALIDITY EVALUATION

A test, survey, questionnaire, evaluation or assessment instrument is valid to the extent that the instrument measures the construct(s) that the instrument purports to measure.

1. Instrument Construction:

1. (a). Are the instructions for completing the instrument clear?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Since it is assumed that you have done your literature review, why not provide options (structure the questions) for respondents to tick so as to reduce a scenario they whereby they provide options that have nothing to do with the topic.

1. (b). Is the application and results of the Qualitative Instrumentation of (research topic ….) adequately reflected in this instrument?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken: see 1a and 1c

1. (c). What items would you add?

*Start the questionnaire with a cover letter which must include your address, salutation, title, body of the letter which must specify the title of your research and the purpose of the questionnaire. It must end with your details (name and registration number) before the questionnaire itself.

The instruction should be recast to read please tick in the in the space provided for the answer(s) that best suit(s) your response to the following questions/statements.

• Since there are principally three objectives to be actualized by this study why not structure the questions in such a way that questions are grouped into three sections so that sectional reliability and validity can be determined before overall reliability and validity.

• Questions 1, 2, 3, 8, & 9 should be for perception

• Questions 5 & 6 for attitudes influencing routine vaccination

• Questions 4 and 7 for cultural beliefs

1. (d). What items would you delete?

4 is playing a dual role for objectives 1 and 3 but I advise it should be for 3 since only one question was asked on cultural beliefs

2. Content Validity:

Will the scores yielded by Qualitative Instrumentation of (research topic ….) adequately represent the content or conceptual domain of the construct being measured? In other words, does the instrument have adequate and appropriate items that constitute a representative sample of the complete domain of items used to generalize the construct being measured? Please see the attached table of specifications [instrument blueprint] that reflect which items and how many items within the instrument are designed to measure each type of content domain.

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

See comments in 1

3. Construct Validity:

Qualitative Instrumentation (research topic: Understanding Caregiver's Barriers to Immunizing their Children) is designed to measure (research topic ….). Please see constructs definition:

Insert constructs definition here:

3. (a) Does the Qualitative Instrumentation of (research topic ….) represent concepts or constructs it should represent and does not represent concepts it should not represent? In other words, does the Qualitative Instrumentation of (research topic ….) adequately represent the constructs it purports to represent?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

See comments and suggestions in 1 above

3. (b) Is the Qualitative Instrumentation of (research topic ….) inclusive of the important dimensions or facets of the constructs it purports to measure.

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

See comments and suggestions in 1 above

3. (c) Does the Qualitative Instrumentation of (research topic ….) avoid excess reliable variance, ensuring no items are easier or harder for some respondents in a manner relevant to the interpreted construct?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

See comments and suggestions in 1 above

D. Face Validity

Does the Qualitative Instrumentation of (research topic ….) look valid? Does it appear to represent a measure of the construct it purports to measure?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

See comments and suggestions in 1 above

E. Item Bias

Does the wording or placement of an item avoid affecting someone's response? (This includes the avoidance of double-barreled items, words or phrases, which raise emotional red flags, ambiguous wording, gender bias, racial/ethnic bias, and the manipulative placement of an item or wording of an item)

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Depending on how (sampling techniques) and who administers this questionnaire and the comments and suggestions in 1 above.

F. Consequential Validity

Does the Qualitative Instrumentation of (research topic ….) instrument embody desirable values and have potentially positive consequences for the discipline or field it reflects?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Section II. RELIABILITY EVALUATION

A test, survey, questionnaire, evaluation or assessment instrument is reliable to the extent that whatever construct(s) the instrument measures, it measures the construct(s) consistently.

A. Internal Consistency

Are the items that make up the Qualitative Instrumentation of (research topic ….) internally consistent with each component and/or the constructs being examined, assessed, evaluated or measured?

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Implement suggestions in 1 above as it relates to the three objectives.

B. Potential for Reliability (Potential for Consistent Responses)

Understanding that research participants completing this instrument will vary in their understanding and experience with the (research topic ….) and thus vary in their

responses, is there anything about this instrument that would lead you to believe that this instrument would not consistently measure (research topic ….).

[ ] Yes

[ ] No (if no, please explain)

[ ] Yes provided the following actions are taken:

Responses will be purely based on their understanding of the subject matter and their literate level as well as who and how the questionnaires were administered. Please provide any additional comments, suggestions for improvement, and/or any other thoughts regarding the construction, how the survey to be easier to complete, validity and/or reliability of the Qualitative Instrumentation of (research topic ….).

Comments

The simple natures of the questions are perfect so that it doesn't become tedious for respondents to fill

Validity simply means measuring what the research was set out to measure but reliability mean how well the set questions can appropriately measure the objectives.

My take on this is that if respondents are left to provide their options there is tendency for them to provide answers that are not related to the subject matter depending on their knowledge hence affecting the reliability of the instrument.

Panel Member

Printed or typed Name:

Title: Dr.

Department: Statistics

Organization: Nnamdi Azikiwe University

Location: Nigeria

Signature: Ebuh G.U. Date: 18/07/2013

Appendix E: Summary of Panel of Experts

Instrument and Development of a New Survey

Expert Panel Review

Three expert panel members were invited to review the proposed questions for validity and reliability which was designed to cover four domains considered important to caregivers and barriers to childhood immunizations. These domains included knowledge, safety of vaccines, attitudes, and beliefs. The three members of the expert panel are lecturers at local university in Nigeria. They are in the field of nursing and public health at Nnamdi Azikiwe University, Nnewi, Nigeria. The panel convened to do two tasks which included examining the questions whether they meet the validity and reliability and secondly to review the questions to ascertain if important items or domains were omitted. Email was sent to panel members with attached forms and questions (see Appendix M, N, O).

The three member panel reviewed validity and reliability and found no changes to be made.

The panel members are:

Ifeoma Mercy Ekejindu, Professor

Ifeanyinwa Clementina Ilo, Lecturer

Ebuh G. Lecturer

Appendix F: Flyer

Flyer

Akwụkwọ maka izi ozi

Caregivers of Children ages 24–36 months Needed

A chọrọ ndị ogbo-mkpa ụmụaka di agbata ọnwa iri abụọ na anọ iri atọ na isii.

Onye Ọrụ

Town Crier

Onye Ọkụ Ogene Mgbasa Ozi N'Ime Obodo

Personal Interview about Your Experiences

Ajụjụ ọnụ gbasara ihe I chọputara na ihe ị maara nke ọma gbasara ịgba ọgwụ mgbochi ọrịa.

Research Study in Awba, Ofemili by Oliver Anyabolu

Nchọputa di iche a geme n' obodo Awba Ofemili. Oliver Anyabolu

Understanding Caregivers' Barriers to Immunizing their Children

Ighọta nsogbu dị ichie iche ndi ogbo-mkpa na-enwegasi n' igba ụmụaka ha ọgwụ mgbochi ọrịa.

Appendix G: Permission to Use Health Belief Model Figure

Dear Oliver:

Thank you for your request.

Permission is hereby granted for the use requested subject to the usual acknowledgements (author, title of material, title of book/journal, ourselves as publisher). You shall also duplicate the copyright notice that appears in the Wiley publication in your use of the Material.

Any third party material is expressly excluded from this permission. If any of the material you wish to use appears within our work with credit to another source, authorization from that source must be obtained.

This permission does not include the right to grant others permission to photocopy or otherwise reproduce this material except for accessible versions made by non-profit organizations serving the blind, visually impaired and other persons with print disabilities (VIPs).

Sincerely,

Paulette Goldweber

Associate Manager, Permissions

Wiley

pgoldweb@wiley.com

T +1 201-748-8765

F +1 201-748-6008

111 River Street, MS 4-02

Hoboken, NJ 07030-5774

U.S.

permissions@wiley.com

Description: Description: cid:image001.jpg@01CD4ED1.91DE0370

Sent: Tuesday, December 02, 2014 3:43 PM

To: Goldweber, Paulette-Hoboken

Subject: HEALTH BELIEF FIGURE

Dear Ms. Paulette,

My name is Oliver, graduate student presently writing my dissertation on barriers to immunization in rural Nigeria from Walden University. I will be using health belief model to guide me in determining the participants' health belief toward immunizing their children. I am seeking permission to use Health Belief model components and linkages of figure 3.1 on page 49 of the book titled Health Behavior and Health Education, theory, research, and practice by Glanz, K, Rimer, B., and Viswanath, K.

The book is published by John Wiley and Sons, 2008, 4th edition.

I look forward to hearing from you.

Sincerely,

Oliver Anyabolu

Appendix H: Anambra State Commissioner

ANAMBRA STATE OF NIGERIA

MINISTRY OF HEALTH

State Secretariat
P. M. B. 6002
Awka.

Your Ref:.....
MH/COMM./18/125
Our Ref:.....

26th January, 2015

Dear Oliver Anyabolu,

RESEARCH PROPOSAL: STUDY OF AWBA OFEMILI.

Many thanks for your letter requesting to conduct a field research on vaccine and immunization in AWBA OFEMIL Anambra State Nigeria.

This is to grant the permission of the Ministry of Health for you to conduct the research. You are however expected to submit a letter of ethical approval from the ethics committee of your university or research center.

You may also wish to seek such approval from the ethics committee of any health Institution in Nigeria.

Dr. Akabuike Joe
Hon. Commissioner for health
Anambra State.

All replies to be addressed to the Hon. Commissioner.