MEASLES INFORMATION VACCINE HESITANCY-CASE STUDY OF MOTHERS IN MINNA, NIGER STATE

BY

ABDULKADIR, Khadijat MTech/SICT/2017/7365

DEPARTMENT OF LIBRARY AND INFORMATION TECHNOLOGY FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

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ABSTRACT

Vaccine hesitancy has been growing in an alarming rate and as a result, innocent children are dying. This study investigated the information behaviour of mothers in Minna, Niger state about information on measles vaccination. Information processing theory was also used as a theoretical framework while grounded theory was used as the methodology. Also, concept mapping and in-depth interview were employed to collect data until saturation level was attained at the fifteenth respondent. The researcher used an analytic inductive process to identify 384 narratives, the narratives were further organized into 28 recurring topics and further collapsed into 8 emergent categories to explain hesitancy to measles vaccination. Findings indicated that hesitant women in Minna, Niger State, were aware of measles vaccination but they did not subscribe to using orthodox medicines in curing measles .The findings also showed that the term "viral" did not exist in the native vocabulary of the women in Minna, Niger state. So they do not believe measles is curable. It is aslo clear that they received conflicting information on vaccination from different sources hence their hesitancy. The research however recommended amongst others that information professionals should swing from the normal informative learning process which has proven ineffective (from the findings) and embrace the transformative learning processes. Also, there is a critical need to understudy the vaccine cognition of parents to determine their cognitive perspectives and then design communicative learning strategies for measles vaccination in the context and situations of Minna.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

The wish of every mother regardless of age, race, literacy level, settlement or religious background is to give birth and bring up a healthy child that is free of diseases. For this reason, a preventive measure to childhood killer diseases was invented. It is called vaccination. Vaccination is the process of stimulating the body's own immune system to protect a child against infection or disease, typically by the administration of a vaccine. WHO (2019) defined vaccination as the administration of a vaccine to help the immune system develop protection against a disease. Furthermore, the Centre for Diseases Control (2018) defined vaccination as the process of introducing a vaccine into the body to produce immunity to a specific disease. The term is often used interchangeably with immunization, as immunization is the process by which a person or animal becomes protected against a disease.

The use of vaccines has led to major improvements in children's health especially at a tender age. Vaccines are basically biological preparations that improve immunity to a particular disease. It typically contains an agent that resembles a disease-causing micro-organism, usually made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as foreign, destroy it, and remember it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters (WHO, 2015). There are several vaccine preventable diseases but the top 10 according to Expanded Programme on Immunization (EPI) are Tubercle bacillus., Poliovirus, Diphtheria, Tetanus, Pertussis, Measles virus, Hepatitis B virus, Rotavirus, Haemophilus influenzae

type B (Hib), Streptococcus Pneumoniae (Pneumococcal infection), and Yellow fever virus. (WHO, 2019).

Globally, vaccines are available for most childhood killer diseases especially the ones mentioned above but myths around them discourage parents from immunizing their children (Bustreo, 2017). For example, Multiple Indicator Cluster MICS (2016-2017) reported that in Nigeria, 77% of children aged 12-23 months did not receive all the routine vaccinations as recommended by national, while 40% of children in this age did not receive any vaccinations. The report also revealed that every day in Nigeria, roughly 2,300 children under 5 years of age die mainly from preventable causes. In addition to this, Shuaib (2019) discovered that one (1) out of every 10 Child in the same age category is a Nigerian and before their 5th birthday, one (1) out of every 8 Nigerian children died. It is in view of these discoveries that parents and particularly mothers are advised to stop vaccine hesitancy for the sake of the lives of their children.

Vaccine hesitancy is a situation where parents do not give consent for their children to be immunized or do not complete the vaccine dose. Vaccine hesitancy is high on an alarming rate and as a result, innocent children are dying from preventable diseases. Research has shown that there are surplus of studies aimed at finding the determinants of vaccine hesitancy. For instance, Macdonald (2015) in a research categorized the vaccine hesitancy determinants matrix into three, contextual, individual and group, and vaccine specific influence. The author referred to these three factors as responsible for influencing the behavioural decision for the acceptance, delay or outright refusal of vaccines. The World Health Organization (WHO) Euro Vaccine Communications Working Group (EVCWP) (2011) similarly proposed a 3Cs model that confirmed the complexity of vaccine hesitancy and its determinants which include complacency, confidence and convenience. In relation to this, Daniel *et al.* (2015) opined that the compulsory nature of vaccines, their coincidental temporal relationships to adverse health outcomes, unfamiliarity with vaccine-preventable diseases and lack of trust in corporations and public health agencies are some of the reasons for parent's refusal or reluctance to vaccinate their children. In a related discovery, Bowes, (2016) disclosed that lots of parents' still believe that combination of vaccinations is hazardous and may amplify the likelihood of an adverse reaction when the contents of one vaccine react with another. The author further observed that the defective study that linked autism to vaccinations is another concern of parents. Based on the above discoveries, it is reasonable to argue that there is the urgent need to discard vaccine hesitancy.

So many efforts have been made in reducing vaccine hesitancy. For example, in Nigeria, the National Primary Healthcare Development Agency (NPHCDA) collaborates with the WHO and other civil society organizations to sensitize parents on the importance of vaccinating their children. The Executive Director of the National Primary Healthcare Development Agency (NPHCDA) Shuaib (2019) stated that all avenues of media including the social media, traditional and religious influencers like the Catholic Bishop of Abuja and the Sultan of Sokoto have helped to sustain and encourage immunization efforts and best health practices at the community and state level. Furthermore, NPHCDA and its partners have also developed a 'Demand Creation Package', which uses community influencers such as Quranic teachers for mobilization and health camps to provide free health services (WHO, 2019). All efforts made to reduce vaccine hesitancy have not worked according to expectations especially for the dreaded measles.

Measles is an aerosol-borne disease caused by one of the most contagious pathogenic viruses known with no specific antiviral treatment (Holzman *et al.*, 2016). The case for global eradication of measles was first made in 1982. Since then, technical aspects of measles eradication have concluded that measles satisfied all criteria required for

eradication. To date, only smallpox, among human diseases, has been eradicated, with polio, the next eradication candidate (Robert *et al.*, 2017). WHO launched a programme to eliminate measles by a worldwide vaccination strategy in 2001 (WHO, 2011). Though the prevalence of wild-type measles infection has decreased by 90 % in Europe, measles is still not eliminated and has even re-emerged with recurrent outbreaks in developed countries, in which effective vaccination programmes have been installed for decades. In Nigeria for example, measles has been a burden especially on the northern region (Ibrahim *et al.*, 2019). Also, among the childhood vaccine-preventable diseases, measles causes the most deaths in children, (Kabra & Lodha, 2013) furthermore, Ibrahim *et al.* (2016) in his research discovered that measles is an endemic disease in Nigeria, with recurrent outbreaks occurring at irregular intervals. With the above example, it is obvious that measles is still far from being eradicated as many parents are still hesitant about its vaccine.

To succeed in reducing to the bearest minimum, vaccine hesitancy, there is need to have a fresh perspective. A potentially useful approach is the use of scientific information approach known as, human information behaviour perspective. Human information behaviour has been utilized to investigate issues relating to health and wellbeing. For instance, St. Jean, (2012) conducted a longitudinal investigation into the information behaviour of people with type 2 diabetes. The findings proved that information behaviour plays a very important role in enabling participants to physically, cognitively, and affectively cope with having diabetes. Similarly, Meadowbrooke *et al.* (2014) used the Theory of Planned Behaviour (TPB) to predict intentions to seek HIV testing among Young Men who have Sex with Men (YMSM). The results suggested that information behaviours may be more important predictors of health behaviour intentions. Human behaviour research approach has been classified into human computer interaction and information processing approach. Due to the nature of research problem, information processing approach will be adopted for this study. The information processing approach focuses on how the mind operates (David, 2015). The approach is classified into cognitive, social and socio-cognitive dimensions. The cognitive dimension deals with mental processing of information while social dimension examines the influence of environment on human reasoning and the third which is socio-cognitive hybridized the earlier mentioned approaches. (Sage publication, 2018).

Cognitive psychologists explain how human brain processes information and because of their varying nature, classified them into principles. According to Lutz and Huitt (2003) the first principle is the 'assumption of a limited capacity of the mental system'. The second, is that a 'control mechanism is required to oversee the encoding, transformation, processing, storage, retrieval, and utilization of information. Furthermore, Owlgen (2018) added that there is a 'two way flow of information' as the third principle while human organism has been 'genetically prepared to process and organize information in specific ways'. For the purpose of this study, the third of these principles which deals with the two ways flow of information and stored information (prior knowledge) which is demonstrated with either a top-down approach (from general to specific) or bottom-up approach (from specific to general). This is analogous to a situation of using information derived from the sensor and imagination.

The third principle states that there are two way flow of information. The two ways are prior knowledge and sensory information. Prior knowledge refers to facts or information learned or gained through previous experience or before meeting new information (Lee, 2016). There are two types of prior /background knowledge; declarative knowledge and

procedural knowledge. Declarative knowledge is the "knowledge about' or answers to "WH- questions" (Airth, 2018), such as what is today's date? What colour is this? Primarily, declarative knowledge comprises of the knowledge of facts and knowledge of meaning. It is also explicit in nature. That is, it is the knowledge an individual is confident that he knows. This type of knowledge comes to surface by recognition, reproduction, recalling, and definition. Procedural knowledge on the other hand is the knowledge of knowing how to do something (Airth, 2018). For example, knowing how to use the library? Knowing how to cook? It is usually implicit in nature, that is to say an individual is no longer consciously aware of the knowledge. It comes in surface through integration of knowledge and the application of knowledge. Sensory information on the other hand refers to meanings that the brain collects from the senses that define the world around us. The primary types of sensory information are visual information, auditory information, sense of touch, heptic perception, balance, taste, and smell (Spacey, 2017). The results of this study taking the prior knowledge of parents and the sensory information they acquired as the primary concern will enable the researcher unravel the reasons why women are hesitant to vaccination.

1.2 Statement of the Research Problem

To bring up a healthy child and ensure a generation free of vaccine preventable diseases, UNICEF and WHO, work with partners in government, NGOs, other UN agencies and the private sector to provide immunization for the children who need it most. To achieve this objective, funds are also allocated from all angles into the health sector so as to help in child vaccination and improve the general wellbeing of all.

Unfortunately however, with all the effort made by the various agencies to ensure that every child is vaccinated, not much seems to be recorded in terms of positive result in Nigeria, especially in the North. For instance, Olugbenga-Bello *et al.* (2017) corroborated

this view when the author ascertained that routine immunization coverage in Nigeria ranks lowest in terms of national coverage rates in the world. Further, the new Multiple Indicators Cluster Survey (MICS) carried out between 2016 - 2017which was organized by UNICEF, shows that only eight percent (8%) of children from North-western part of Nigeria were fully vaccinated and seventeen point-five (17.5%) from North-eastern part of the country, compared to that of the South-west which had over forty-seven percent (47.9%) of children that were fully vaccinated.

This recent vaccine hesitancy has led to a resurgence of diseases such as measles in countries that were close to eliminating them. This is happening because vaccination rates is allowed to slip backward (Chodosh, 2019). A survey from the northern part of Nigeria also revealed that the incidence of measles among children under the age of five increased more than two-fold (UNICEF, 2017). Similarly, Shuaib (2017) said a surveillance data shows that measles incidence among children under five years increased in the northern part of Nigeria from 190 million in 2014 to 527 million in 2016, and in 2019, the National Center for Disease Control reported almost 6, 000 cases of measles and 15 deaths since the beginning of 2019, twice as much as that of 2018 for the same period. Most disturbingly, in its 2019 New Year message, WHO named *vaccine hesitancy* as one of the world's top 10 global health threats. This is seriously worrisome and one wonders what might have led the situation to degenerate to that level. The knowledge of what might have led to this horrible situation is a gap.

This study was carried out to investigate the information behaviour of mothers in Minna, Niger state about information on measles vaccination. Specifically, what they know about measles, measles immunization, measles vaccination and how the make sense of information on measles vaccination.in Minna, Niger State. So as to fill the gap of knowledge so created in that area.

1.3 Aim and Objectives of the study

The aim of this study is to investigate measles information vaccine hesitancy in Minna, Niger State. The specific objectives are to:

- 1. Determine the prior knowledge of hesitant women about measles
- 2. Determine hesitant women prior knowledge about measles immunization
- 3. Determine the prior knowledge of hesitant women about measles vaccination
- 4. Determine the information given to hesitant women about measles vaccination
- 5. Determine the sources and type of information hesitant women receive about measles.
- 6. Determine how the information communicated to parents by orthodox health workers contradict the information given to them by family and friends?

1.4 Research Questions

The following research questions were postulated to guide the study.

- 1. What is the prior knowledge of hesitant women on measles?
- 2. What is the prior knowledge of hesitant women about measles using immunization?
- 3. What is the prior knowledge of hesitant women about measles vaccination?
- 4. What kind of information is given to hesitant women about measles vaccination?
- 5. What are the sources and types of information parents receive about measles?
- 6. How does the information communicated to parents by orthodox health workers contradict the information given to them by family and friends?

1.5 Significance of the study

The findings of this study will be of significance to information professionals, primary health care practitioners, policy makers, government officials, community volunteers, others involved in information management and immunization agencies, post graduate, students and lecturers in Library and Information Science and other related fields.

It will enable the government and policy makers to develop vaccine hesitancy information programmes and other vital policies necessary in fighting the hesitancy, especially in Niger state. It will also achieve the milestone of ensuring that the country is free from the thorn of early childhood mortality. It will enable primary health care practitioners and immunization agencies (UNICEF, WHO, CDC, SDGs, SAGE working group, GAVI) achieve their aim of ensuring that every child is fully immunized and thus no child dies from vaccine preventable diseases.

Information professionals will get to develop communication strategies via this study. This will show them how and when attitude and beliefs about vaccines are formed, how people make decisions about immunization, how best to present information about vaccines to hesitant women, and how to identify communities at risk of vaccine-preventable disease outbreaks. The results could also permit repackaging of new information on vaccination that will result in behavioural modification of parents against hesitancy. The findings of this research will also be beneficial to parents. This is because the findings will be used to design evidence based context specific immunization information and communication programmes that will hopefully change the negative parental attitudes on vaccines and vaccination. It will also serve as a guide to lecturers and students while teaching and carrying out related research. Consequently, it will add to the literature of Library and Information Science.

1.6 Scope and Limitations of the Study

The main scope of the study is to sought out the information behaviour of mothers in Minna, Niger state about information on measles vaccination. Specifically, what they know about measles, measles immunization, measles vaccination and how the make sense of information on measles vaccination.in Minna, Niger State.

The study covered hesitant women in Minna, Niger State, Nigeria. However, due to the methodology adopted for the study by the researcher, the population could not be estimated as the researcher was expected to collect code and analyze data until saturation level was reached. Thomsom (2011) in relation to this position opined that the sample size for grounded theory relies on the point of theoretical saturation which normally occurs between 10 and 30 interviews. Although saturation might occur after the tenth interview, it is good practice to test the level of saturation by conducting a few more interviews.

1.7 Operational Definition of Terms

Approach: a way of dealing with a situation or problem.

Behaviour: refers to how people respond to certain situations or stimulus

Eradication: is the reduction to zero of the incidence of a given disease and the elimination of the etiologic agent, so that fresh transmission is impossible.

Grounded theory: is a research methodology for the construction or development of theories.

Health professionals: are individuals that study, diagnose, conduct research, and improve or develop concepts or theories and operational methods to advance evidence-based healthcare

Immunization: is the process of making an individual become immuned or resistant to contagious diseases usually via vaccination

Measles: is a highly contagious childhood disease that is spread by a virus.

Information: can be defined as processed data

Investigation: means to closely examine or observe something

Prior knowledge: refers to the information individual already has before he meets new information

Vaccination: is the process of administering a vaccine to help the immune system become resistant to diseases.

Vaccine hesitancy: this refers to delay in acceptance or outright refusal of vaccine despite its availability or refusing to complete vaccine doses.

Vaccine: is a biological preparation that provides active acquired immunity to a particular disease.

Hesitant women: female mothers that have a children below 5 years who do not complete the vaccine dose for their children or have never in their lives vaccinated their children.

CHAPTER TWO

LITERITURE REVIEW

2.1 Conceptual Framework

2.0



Figure 2.1. Schematic Diagram of the Study (Author's original construct).

The prior knowledge is permanently stored in the memory while the new information/stimulus that comes is processed logically by an information processor and the result of the processed information coupled with the stored information in the memory are acted upon by the inference engine which now trigger a behaviour based on the presented signal from both the memory and the information processor. Thus, behaviour becomes an output from the inference engine which is a component of the central processing unit.

2.1.1 Concept of Human Information Behaviour

Human information behaviour can be defined as "the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking, and information use" (Wilson 2000). It can be understood as an overarching research trajectory attempting to develop generalizable explanations of behavioural phenomena observable when humans acquire and process information. (Browne *et al.*, 2017). Human behaviour research approach has been classified into Human Computer Interaction and Information Processing Approach.

Human Computer Interaction (HCI) is a cross disciplinary area such as engineering, psychology, ergonomics, design) that deals with the theory, design, implementation, and evaluation of the ways that humans use and interact with computing devices. Kim (2015) asserted that the HCI is guided by some principles such as know the user, understand the task, reduce memory load, strive for consistency, remind user and refresh their memory, prevent errors/reversal of actions, and naturalness. However, the author further stated that these principles are often based on or are just manifestations of deeper theories in cognitive science and ergonomics. However, they are trans-formed into more detailed and directly usable guidelines when put into actual practice for the specific purpose of designing an effective interface. On the other hand, the Information Processing Approach which was adopted for this study has to do with the human beings process information. Information processing is a cognitive learning theory that emphasizes thinking processes such as thought, reasoning, the way information is en-countered and stored, and memory functioning (Sternberg & Sternberg, 2017). How information is incorporated and retrieved is useful for nurses to know, especially in relation to learning by older adults (Park et al., 2014). The information-processing perspective is particularly helpful for assessing problems in acquiring, remembering, and recalling information. Some

strategies include having learners indicate how they believe they learn (metacognition); ask them to describe what they are thinking as they are learning; evaluate learners' mistakes; and give close attention to learners' inability to remember or demonstrate information

Forgetting or having difficulty in retrieving information from long-term memory is a major stumbling block in learning. This problem may occur at the input end, such as a failure to place the amount of information (cognitive load) and/or the timing of the presentation of information (Sweller *et al.*, 2011). To aid learning at the input stage, some suggestions are; to break the material into small parts or chunks, use memory tricks and techniques (mnemonic devices), relate the new material to something familiar, and put it into context for learners (Collins, 2016). At the output end, it may be a retrieval problem. For example, the information has faded from lack of use, other information interferes with its retrieval (what comes before or after a learning session may well confound storage and retrieval), or individuals are motivated to forget for a variety of conscious and unconscious reasons.

2.1.2 Concept of Prior Knowledge

Prior knowledge is knowledge that has been acquired through interaction with many different settings and is contextually situated (Jain, 2014). There are basically two types of prior knowledge, declarative knowledge and procedural knowledge. The components referring to the recognition and reproduction of information were viewed as declarative. While, the components referring to the production or application was viewed as procedural. This distinction was made in order to illuminate the nature of prior knowledge components.

Declarative and procedural knowledge are divided into two subcomponents to describe the growth of understanding. Declarative knowledge is divided into Knowledge of facts and Knowledge of meaning. The lower level of declarative knowledge the level of abstraction and can be probed with simple recognition or reproduction tasks, such as enumerating essential concepts. The second level (knowledge of meaning) goes a step deeper and requires an ability to understand the meaning of the concept by, for example, giving it a correct definition. Procedural knowledge on the other hand, is divided into integration of knowledge and application of knowledge. This type of knowledge is revealed in production or application tasks. The lower level of procedural knowledge is revealed in the ability to see interrelations between concepts and how different phenomena are linked to each other. The higher level requires a demonstration of the ability to apply knowledge and to perform a problem-solving task.

For learning to effectively take place, the fundamental things an individual needs to know is prior knowledge, this has to do with the knowledge an individual has before he meets with new information. In addition, Gee (2012) states that it is well known that people build on what they already know and have come to understand through formal and informal experiences. People develop attitudes and beliefs as they progress through life. It is therefore important to assess such prior knowledge or attitudes and beliefs very early as the knowledge possessed may either promote or hinder their learning. It is also important to assess prior knowledge and skills early since such information could be used to help foster peoples engagement and critical thinking.

The Eberly Center (2019) states that there are varieties of methods to assess people's prior knowledge and skills. Some methods such as portfolios, pre-tests, and auditions are direct measures. Others such as self-reports, and inventory of previous experiences are indirect measures. It can be categorized into performance-based prior knowledge assessment,

prior knowledge self-assessment, concept-map assessment, concept-test assessment, and classroom assessment technique.

The performance-based prior knowledge assessment is one of the most reliable ways to assess people's prior knowledge. It is done by assigning tasks such as quiz to gauge individuals/peoples background knowledge. The prior knowledge self-assessment; this entails asking students or individuals to reflect and comment on their level of knowledge and skills about a concept (knowledge, skill or experience). The feedback from this assessment helps in addressing weakness in existing skills or knowledge. The conceptmap assessment; this uses graphic representations of students' knowledge. Having individuals or students to create concept maps enable you with insights into how they organize and represent knowledge. Concept-test follows also a prior knowledge assessment method; it is a, short, informal, targeted test administered to help instructors/researchers to assess student's prior knowledge. The primary purpose of concept tests is to get a snapshot of the current understanding of a concept by a population not an individual. They are very useful for a large population where it is difficult to assess people's understanding in real time. The last is the classrooms assessment technique (CAT); these are set of activities that instructors can use to assess prior knowledge. This type of assessment technique provides immediate feedback about the level of understanding of a population not individual students. It involves using minute paper, muddiest point, problem recognition tasks, documented problem solution, and directed paraphrasing, application cards, student-generated test questions, class room opinion etc. Furthermore, Ambrose et al. (2010) discussed how faculty can gauge the extent and nature of students' prior knowledge. These strategies include talking to colleagues, using low stake assignments, and self-assessment of prior knowledge.

2.1.3 Concept of Vaccination

A vaccine is defined as a biological preparation that provides active acquired immunity to a particular disease. Wikipedia, (2019) asserted that vaccines typically contain an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins, or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and to further recognize and destroy any of the microorganisms associated with that agent that it may encounter in the future.

Vaccines also promote health, unlike many other health interventions, they help healthy people stay healthy, removing a major obstacle to human development. Furthermore, vaccines have an expansive reach as they protect individuals, communities, and the entire populations by the eradication of smallpox. Vaccination is one of the great public health achievements of human history. Vaccines used in National Immunization Programmes (NIPs) are considered safe and effective when used correctly. Vaccines are, however, not risk-free and adverse effects could be will occasionally occur following vaccination. Public trust in vaccine safety is key to the success of vaccination programmes (WHO, 2013). The impact of vaccination on the health of the world's peoples cannot be over exaggerated. With the exception of safe water, nothing else, not even antibiotics, has had such a major effect on the reduction of mortality (deaths) and morbidity (illness and disability) and on population growth. (Plotkin & Plotkin, 2010) According to the author, each year, vaccines prevent more than 2.5 million child deaths globally. An additional 2 million child deaths could be prevented each year through immunization with currently available vaccines (WHO, 2009).

The WHO (2010) further stated that vaccines have rapid impact that is to say the impact of most vaccines on communities and populations is almost immediate. For example, the organisation (WHO) discovered that between 2000 and 2008, vaccination reduced global deaths from measles by 78% (from 750,000 deaths to 164,000 deaths per year).) In addition to that, vaccines save lives and costs since recently, a panel of distinguished economists put expanded immunization coverage for children in the fourth place on a list of 30 cost-effective ways of advancing global welfare (Copenhagen Consensus, 2010).

The WHO also in the year 2013 stated that the goal of all vaccines is to elicit an immune response against an antigen so that when the individual is again exposed to the antigen, a much stronger secondary immune response will result. Vaccines contain the same antigens that are found on pathogens that cause the associated disease, but exposure to the antigens in vaccines is controlled. By priming the immune system through vaccination, when the vaccinated individual is later exposed to the live pathogens in the environment, the immune system can destroy them before they can cause disease. Thus, there are two ways of acquiring immunity to a pathogen by natural infection and by vaccination. Natural infections and vaccines produce a very similar end result immunity but the person who receives a vaccine does not endure the illness and its potential life-threatening complications. The very low risk of an adverse event caused by a vaccine greatly outweighs the risk of illness and complications caused by natural infection.

The main vaccine-preventable diseases targeted by the EPI are Tubercle bacillus, Poliovirus, Corynebacterium diphtheriae (Diphtheria), Clostridium tetani (Tetanus), Pertussis, Measles virus, Hepatitis B virus, Rotavirus, Haemophilus influenzae type B (Hib) Streptococcus Pneumoniae (Pneumococcal infection), and Yellow fever virus.

2.1.4 Concept of Vaccine Hesitancy

The SAGE Working Group (WG) on vaccine hesitancy was established in 2012. Their first task was to draft out the definition of vaccine hesitancy and its scope and to further

develop a model to categorize factors that influence the behavioural decision to accept vaccines. The Working Group achieved their aim via discussion of the use of term and similar terms in the scientific literatures and review of models of vaccine hesitancy, field reports, and personal observation, commissioned immunization managers' survey of vaccine hesitancy as well as personal observations and experiences of WG members (Larson, 2014).

The Sage (2014) revealed that the report of the WG presented in October 2014 comprises of the concept of vaccine hesitancy and vaccination hesitancy. The former means that the core issue is vaccine related while the latter covers wide range of factors such as: immunization services, time, place, phobia of needles, insufficient concern about vaccine preventable diseases etc. They however, concluded and chose the term Vaccine Hesitancy and defined it as the delay in acceptance or refusal of vaccination despite availability of vaccination services. Vaccine hesitancy is complex and context specific varying across time, place and vaccines. It is influenced by factors such as complicacy, convenience and confidence. The working group further explained that hesitancy is a behavioural phenomenon which is vaccine and context specific and measured against an expectation of reaching a predetermined vaccination coverage goal. Furthermore, Vaccine hesitancy may be present where vaccination uptake is low, and limited availability of vaccination services.

The World Health Organization (WHO) released the list of its top ten priorities for 2019. Among those priorities is combating what it terms vaccine hesitancy. They further stated that Vaccine hesitancy is the reluctance or refusal to vaccinate despite the availability of vaccines and this threatens to reverse progress made in tackling vaccine-preventable diseases. Vaccination is one of the most cost-effective ways of avoiding disease – it currently prevents 2-3 million deaths a year, and a further 1.5 million could be avoided if global coverage of vaccinations improves. Measles, for example, has seen a 30% increase in cases globally. The reasons for this rise are complex, and not all of these cases are due to vaccine hesitancy. The reasons why people choose not to vaccinate are complex; a vaccines advisory group to WHO identified complacency, inconvenience in accessing vaccines, and lack of confidence as key reasons underlying hesitancy. Health workers, especially those in communities, remain the most trusted advisors and influencers of vaccination decisions, and they must be supported to provide trusted, credible information on vaccines. In 2019, WHO ramped up work to eliminate cervical cancer worldwide by increasing coverage of the HPV vaccine, among other interventions, 2019 was the year transmission of wild poliovirus was stopped in Afghanistan and Pakistan. In 2018, less than 30 cases were reported in both countries. WHO and its partners are committed to supporting these countries to vaccinate every last child to eradicate this crippling disease for good.

Also, Najera (2019) stated the reason for women hesitancy can be a complex issue and as it is complex the solution may also be. The solutions might need to include strong incentives to get parents to choose vaccination, and these incentives could be punitive or rewarding. On the one hand, unvaccinated children (without a reasonable and legitimate exemption) may be ineligible for public education, like California has recently done. On the other hand, parents of vaccinated children might get better health insurance rates or a discount on day care. The author further made an analogy with a certain time when people did not like to use car seat belts while driving. Children in the backseat were unsecured. Yes, most children survived, but there were plenty of preventable injuries when accidents occurred, because of enlightenment on the benefits of securing children with seat belts, combined with fines and penalties for not doing so, placing children in car seats and under belts, is now a common practice in the United States. The author finally suggested it to be done with vaccines.

The WHO (2019) asserted that parental refusal of vaccines is a growing concern for the increased occurrence of vaccine preventable diseases in children. A number of studies have looked into the reasons why parents refuse, delay, or are hesitant to vaccinate their child(ren). These reasons vary widely between parents, but they can be encompassed in four overarching categories. The 4 categories are religious reasons, personal beliefs or philosophical reasons, safety concerns, and a desire for more information from healthcare providers. Parental concerns about vaccines in each category lead to a wide spectrum of decisions varying from parents completely refusing all vaccinations to only delaying vaccinations so that they are more spread out. A large subset of parents admits to having concerns and questions about childhood vaccinations. For this reason, it can be helpful for pharmacists and other healthcare providers to understand the cited reasons for hesitancy so they are better prepared to educate their patients' families. Education is a key player in equipping parents with the necessary information so that they can make responsible immunization decisions for their children.

The SAGE (2017) assessment report of the Global Vaccine Action Plan stated that hesitancy in relation to vaccination may affect motivation, causing people to reject it for themselves or their children. Hesitancy can be caused by individual, group, and contextual influences, as well as any vaccine-specific issues. Given the potential for hesitancy to rapidly undermine vaccination coverage in specific settings, it is important that all countries take steps to understand both the extent and nature of hesitancy at a local level, on a continuing basis. Accordingly, each country should develop a strategy to increase acceptance and demand for vaccination, which should include ongoing community engagement and trust-building, active hesitancy prevention, regular national assessments of concerns, and crisis response planning.

2.1.5 Cognitive Approach

The cognitive approach to human behaviour is an approach in psychology that deals with how people think. (Psychologist World, 2019). It assumes that our thought processes affect the way in which we behave. The cognitive approach to behaviour views human beings as processors of information much in the same way as a computer processes information. The cognitive approach to behaviour focuses on areas of research such as schema processing, memory processing, and thinking, and how cognition may influence behaviour. Researchers are also interested in the extent to which cognitive processes are reliable, for example, in relation to thinking and memory. A dominant cognitive approach evolved, advocating that sensory information is manipulated internally prior to responses made – influenced by, for instance, our motivations and beliefs.

The cognitive approach according to Turner, (2019) assumes that; the mind actively processes information from our senses (touch, taste) between stimulus and response are complex mental processes which can be studied scientifically; humans can be seen as data processing systems; and the workings of the computer and the human mind are alike.

2.1.6 Measles as a Vaccine Preventable Disease

Ludlow *et al.* (2015) defined measles as a highly contagious infectious disease caused by a RNA virus of the paramyxoviridae family in which it belongs to the genus morbillivirus. Other species of this genus are the canine distemper virus of dogs and the rinderpest virus of cattle. These morbilliviruses are strictly host-specific, i.e. there is no virus transmission from animals to humans or vice versa in terms of epidemiologic relevance. Measles is one of the most contagious diseases for humans. It is caused by a paramyxovirus virus, manifesting as a febrile rash illness. The incubation period for measles usually is 10–14 days (range 7–23 days) from exposure to symptom onset (WHO, 2017). It is also known as rubeola or morbilli, and is an endemic disease, meaning it is continually present in a community, and many people develop resistance. It is an unpleasant condition but one that normally passes without treatment within 7 to 10 days. Felman, (2017) stated that after a bout with measles, a person gains immunity for the rest of their life. They are very unlikely to contract measles a second time.

The exact source of measles transmission is frequently unknown because the patient is often infected by someone in the pre-rash prodrome stage. The WHO,(2017) stated that measles complications such as pneumonia, diarrhea and encephalitis can occur in up to 30% of persons depending on age and predisposing conditions, such as young age, malnutrition and immunocompromising conditions. These complications usually occur two to three weeks after rash onset. Measles can infect anyone of any age, but most of the burden of disease globally is still among children 5 years of age.

Felman, (2017) opined that the the symptoms of measles always include fever and at least one of the three Cs: cough, coryza, or runny nose and conjunctivitis. Usually, symptoms appear about 9 to 11 days after initial infection. Other symptoms may include; dry hacking cough, or swollen eyelids and inflamed eyes, watery eyes, photophobia, or sensitivity to light, sneezing, a reddish-brown rash, Koplik's spots, or very small grayish-white spots with bluish-white centers in the mouth, insides of cheeks, and throat or generalized body aches. The rash usually starts behind the ears and spreads over the head and neck. After a couple of days, it spreads to the rest of the body, including the legs. As the spots grow, they often join together. The WHO (2013) asserted that there are two types of measles each caused by a different virus: The one caused by rubeola virus and the one caused by rubella virus also known as German measles. Although both produce a rash and fever, they are different diseases. When most people use the term measles, they are referring to the first condition below.

- The rubeola virus causes "red measles," also known as "hard measles" or just "measles." Although most people recover without problems, rubeola can lead to ear infections, pneumonia, or inflammation of the brain (encephalitis).
- The rubella virus causes "German measles," also known as "3-day measles." This is usually a milder disease than red measles. However, this virus can cause profound birth defects if an infected pregnant woman passes the virus to her unborn child. Felman (2017) however stated that the measles, mumps, and rubella (MMR) vaccine contains immunizations for both types.

Perlstein *et al.* (2019) opined that if people are immune to the virus (either through vaccination or by having had measles in the past), they cannot get the disease caused by that virus. For example, someone who had rubeola as a child would not be able to get the disease again. Remember that rubella and rubeola are different viruses. An infection with or vaccination against one of these viruses does not protect against infection by the other. The author further stated that from researches, there is no specific antiviral treatment or cure for measles. Children should stay at home and out of school until cleared to return by their health care professional. Health researchers have noticed that some children in underdeveloped countries or throughout the globe who develop a severe case of measles have low vitamin A blood levels and seem to have a reduction of their symptoms if given vitamin A supplementation. Current guidelines are that all patients with rubeola should start a 2-day course of vitamin A at the time of diagnosis.

The Center for Disease Control and Prevention (CDP), the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists, and the American College of Physicians (ACP) all recommended the measles vaccine. Several live attenuated measles vaccines are available, either as monovalent vaccine or in combination with rubella, mumps, or varicella vaccines, or some combination of these. When using the combined measles– rubella (MR) vaccine, measles–mumps–rubella (MMR) vaccine, or measles–mumps– rubella–varicella (MMRV) vaccine, the protective immune response to each individual vaccine antigen is largely unchanged.

However, Minnesota, (2019) argued that fever is the most common side effect of measles vaccine, occurring in 5%–15% of vaccine recipients. About 5% of people develop a mild rash. When they occur, fever and rash usually appear 7–12 days after vaccination. About 25% of adult women receiving MMR vaccine develop temporary joint pain, a symptom related to the rubella component of the combined vaccine. Joint pain only occurs in women who are not immune to rubella at the time of vaccination. MMR vaccine may cause thrombocytopenia (low platelet count) at the rate of about 1 case per 30,000–40,000 vaccinated people. Cases are almost always temporary and not life-threatening. More severe reactions, including allergic reactions, are rare. Other severe problems (e.g., deafness, permanent brain damage) occur so rarely that experts cannot be sure whether they are caused by the vaccine or not.

2.1.7 Global Elimination of Measles

Vaccination has drastically reduced measles in all countries of the world, where programmes have been implemented. Vanpanhuis *et al.* (2013) opined that in the pre-vaccination era in the US measles outbreaks occurred every year with a median incidence

rate of 317.1 cases per 100,000 populations. After vaccine licensure (1963) and the start of vaccination programmes in the 1970s, the incidence rates dropped by 95 %. It has been calculated that since the introduction of the vaccine, about 35 milliabout measles cases have been prevented.

The WHO (in collaboration with UNICEF and the Measles Initiative) launched a global immunization campaign against measles aiming for a 90 % reduction in measles-related mortality by 2010. According to Doerr (2014) the worldwide campaign was very promising leading to a 78 % decline in estimated annual deaths globally from 562,400 in the year 2000 to 114,900 in 2014. While the first dose of measles vaccine coverage increased globally from 72 to 85 % between 2000 and 2010, it has remained unchanged for the past four years. In Europe, the number of measles cases dropped by 98 % from 341,289 in 1993 to 7073 in 2007. However, WHO stated that since 2010, measles vaccine activity rebounded with approximately 37,000 cases in 2014. In 2015, the sought elimination year in Europe, large outbreaks occurred again, with Germany and Austria being affected with more than 2500 and 300 cases, respectively. As a consequence of the increased measles activity in certain countries, especially in China, the Philippines and Viet Nam, nations that have eliminated measles are confronted with an increased number of importations of the disease, for example, in the USA, more than 600 measles cases were recorded in the year 2014 alone, and recently, the first measles death since 12 years was recorded. Thus, more efforts are urgently needed to completely wipe out measles.

2.1.8 Reasons for Vaccine Hesitancy

Religious Believe: one major reason why parents delay or choose not to vaccinate their children is due to their religious beliefs. With only 4 in Nigeria states not offering exemptions to families for this reason, it becomes a major hindrance to those seeking to
increase childhood vaccination rates (State Vaccination Requirements, 2016). Also, Dube *et al.* (2014) added that religious reasons appear different from the other cited reasons in that they are generally linked to the prior beliefs of the parents, and it is very difficult to persuade these individuals to vaccinate or immunize their children. Their choice is not a by-product of ignorance but rather the intentional and calculated decision related to a staunch conviction. In contrast to other reasons for hesitancy, those driven by religious assertions most often are linked to a complete refusal of all vaccines

Personal Beliefs or Philosophical Reasons: Another most common reason that parents give for refusing or delaying vaccination is in their personal or philosophical reasons. Fredrickson, (2014) asserted that although few states allow exemptions for this cause, it must be carefully studied, as it may present opportunities for practitioners to enlighten parents regarding the urgency of protecting their children through preventive measures. Though it seems contrary to human intuition, there is a group of people who see some benefit in having their children contract certain preventable diseases.

The author further argued that some parents believe that natural immunity is better for their children than the immunity acquired through vaccinations. Others express the belief that if their children contracts a preventable disease, it will be beneficial for the child in the long term, as it will help make the child's immune system stronger as he grows into adulthood. Some parents believe that the diseases for which children are vaccinated are not very prevalent so their children are at minimal risk of contracting them. Other parents also believe that the possible negative side effects of vaccine administration outweigh the benefits of the vaccines. Many parents do not see the preventable diseases as serious or life-threatening and would prefer not to put extra chemicals into their children's bodies. Other parents think if their children have healthy diets and lifestyles, they are at a decreased risk of contracting preventable childhood diseases. They are under the assumption that if their children were to contract any of the diseases, it would be easily treatable.

Safety Concerns: Safety of the vaccines is one of the most common reasons why some parents are hesitant to vaccination. Most of these concerns are based on information that the parents are fed up with either through the media or from acquaintances. Regardless of whether the stories stem from television, the Internet, radio, or from family and friends, parents are constantly bombarded with other peoples' opinions about vaccinations (Hamsen *et al.*, 2013). He also submitted that all of this information can be overwhelming for some parents to sift through, making it difficult for them to make their own well-informed decision. In relation to this, Saada *et al.* (2015), observed that parents raise doubts about both short-term adverse reactions and the possibility of long-lasting negative effects. These concerns about safety cause most parents to feel hesitant or refuse vaccines completely.

For instance, the media that cited problems with components of vaccines (such as thimerosal) and reported that vaccines can cause autism, brain damage, or behavioural problems caused parents to be more cautious and have more concerns regarding the safety of vaccines (Kennedy *et al.* 2011) Thimerosal, however, has been removed from those vaccines intended for children under 6 years of age for over a decade now. (Food and Drug Administration Web Site, 2016). Accounts noting these rare occurrences breed fear in the hearts and minds of parents who overestimate the dangers associated with vaccinations. Some fearful parents balk at the timing of immunizations. Fear can influence some parents' choice to delay vaccines so their children do not receive more than one vaccine at a time (Saada *et al.*, 2015). They fear that simultaneously administering multiple vaccines may overload their children's immune system, and they think that allowing all of the vaccinations to occur according to the recommended

schedule will make the safety risk greater. As a result of this, many choose to delay vaccines in order to better protect their children. (Siddiqui *et al.* 2013).

Need for Additional Education: Another common reason for parents hesitancy is that parents urge for more information regarding vaccinations. They want to be able to make informed decisions about their children's healthcare by knowing both the benefits and risks associated with each vaccine (Hamsen, 2014). In a study conducted by Gust *et al.* (2015) approximately one-third of parents indicated that they did not have enough access to sufficient information, and the majority of those parents did not think their children's provider was easy to talk to.

In view of the above discovery, a vital role pharmacists and other healthcare providers could play is to provide unbiased, factual information relating to vaccines as well as the discussion of these materials with the parents (SAGE, 2014). Parents would also like to have the freedom to be able to ask questions without judgement. Physicians are one of the most important sources of information for parents who are making decisions about their children's healthcare (Dube *et al.*, 2014) In a study conducted by Kennedy *et al.* (2014) it was discovered that 81.7% of parents said their child's healthcare provider was one of the most important sources of information. When parents do not get the information they want from providers they seek information from other sources that could potentially mislead and misinform them, causing them to make poor choices for their children (Hamsen, 2013).

2.1.9 Research Paradigm

Paradigm includes "the practices that define a scientific discipline at a certain point in time." (Kuhn, 1977). He further dictates that a paradigm spell out: what is observed and measured; the questions we ask about those observations; how the questions are

formulated; how the results are interpreted; how research is carried out and what equipment is appropriate.

Paradigms contain all the distinct, established patterns, theories, common methods and standards that allow us to recognize an experimental result as belonging to a field or not Martyn and Lyndsay (2008).

An example of a paradigm, selected for this study, is the interpretative paradigm. It is concerned with the believe in the socially constructed multiple realities. That is truth and reality are created not discovered. It is also subjective in nature because Individuals interact with each other and society to ascribe meaning to concepts and different social phenomenon. This paradigm is mediated by our senses. (Adil & Khalid, 2016).

This study is conceptualized within the interpretative paradigm using Cognitive Meta theory approach. Qualitative methodology is adopted for this study using Information processing theory as a theoretical frame work in the information behavior of hesitant women regarding measles vaccination in Minna, Niger State.

2.2 Theoretical Framework

Due to the nature of the problem under investigation, information processing theory was used as a theoretical frame work in this study. The information processing theory was developed in 1956 by American Psychologist, George A. Miller. The theory was developed when it was realized that any attempt to study the mental process was geared toward observable behaviour alone (Behaviourism). The propounder therefore, investigated the idea that at a time, the human mind could hold only 5 to 9 chunks of information. A chunk according to the author could be words, digits or people's faces. The results from the analysis show that the human mind receives stimulus, process it, store it and then responds to it. These concepts became the basis for all the subsequent theories of memory.

The information processing theory is therefore a learning theory that focuses on aspects of memory encoding and retrieval of information (David, 2015). Furthermore, the information processing theory is also an approach to the cognitive development of a human being, which deals with the study and the analysis of the sequence of events that occur in a person's mind while receiving some new piece of information (Thadani, 2018). Information processing theory is a reigning orientation nowadays that describes the processes, through which learning occurs, especially on the aspect of memory, encoding and retrieval. This theory deals with the human brain, it studies and analyses series of events that occur in one's mind when they receive new information, such as decision making which guide their behaviours. This theory claims that the human mind is very similar to that of computers, as far as information processing and analysis is concerned. It also states that any new piece of information that enters the brain is first analyzed and then put through the test of several benchmarks before being stored in some vestibules of the memory (Thadani, 2018). Furthermore, Researchers following an informationprocessing approach often presume that information is processed (received, stored, recoded, transformed, retrieved, and transmitted) in stages and that it is stored in specific places while being processed. One goal within this framework, then, is to determine what these stages and storage places are and how they work (Sage, 2018)

In line with the computer metaphor, theorists of information processing assume that people, like computers, are information processors, that is to say the mind works like the computer. And, literatures exist to support the statement. For instance, McLeod, (2009) asserted that cognitive psychology compares the human mind to a computer, suggesting that we too are information processors. Similarly, David (2015) opined that the human

mind operates similar to a computer or an information processor. Thadani (2018) also compared the information processing in humans to that of a computer model. The researcher however, feels that should be the other way round; the computer operates like the brain. This is because the human brain existed before the computer and all operations carried out by the computer are controlled by the brain, ranging from taking in input, processing and releasing the output. Collinsworth (2018) supported the idea by stating that the "computers can emulate humans". Furthermore, Garbhe (2017) affirmed that artificial intelligence which is a way of making computer a controlled robot or software think intelligently in a similar manner the intelligent humans think. By and large, the basic blueprint of the theory is that humans process the information received rather than merely responding to stimuli (Thadani, 2018).

2.2.1 Principles of Information Processing Theory

The key principles guiding the information processing theory are:

- The assumption of a limited capacity of the mental system is the first principle of information processing theory. This means that the quantity of information encoded, stored, and retrieved are restricted in some very important ways. These restrictions or bottlenecks occur at different points in the course of information flow or processing.
- 2. The second principle is that a "control mechanism is required" for dealing with stimuli. A stimulus here represents the encoding, transformation, processing, storage, retrieval and utilization of information.
- 3. The "two-way flow of information" is the third principle; this explains the interaction between new information and stored information (Huitt and Stacey, 2003). It can be demonstrated with a bottom-up or top-down processing or a combination of the two. Bottom-up processing is based on the belief that

perception involves starting with an incoming stimulus and working upwards until a representation of the object is formed in our minds. This method proposes that our perceptual experience is based entirely on the sensory stimuli that gathers using only data that is available from our senses. In Cherry (2019) perception serves as an agent which the brain attempt to match with the stored knowledge in order to create meaning about the world

- 4. Top down processing on the other hand is the inverse of the bottom up processing. Sensory receptors receive information from the environment, which is then combined with previously stored information about the world which we have built up as a result of experience. (McLeod, 2018)
- 5. Finally, a fourth principle generally accepted by cognitive psychologists is that the human organism has been genetically prepared to process and organize information in specific ways.

For this study, the third principle of information processing will be adopted. As it will enable the researcher have an in-depth knowledge of the information stored in the memory of hesitant women and also the type of information given to them which led to their change in behaviour.

2.3 Review of Empirical Studies

Alfakil and Siddiek (2013) investigated that reading comprehension is attained through successful interaction between the reader and the text. This interaction is the major factor that plays the most important role in comprehension. Accordingly, background knowledge will be of primary importance for EFL readers. So schema-based, pre-reading activities should be used for activating such background knowledge. It is assumed that prior knowledge activation requires pre-reading activities. The present study, aims at investigating the role of activating background knowledge in reading comprehension

through text previewing. In this study a previewing strategy called THIEVES is used to verify this hypothesis. The researchers hypothesize that if students preview a text before reading it, they are likely to understand its content better. In order to investigate this, we conducted an experimental study using a t-test as a statistical measure of the data. We arrived at the conclusion that previewing a text through THIEVES as a prior knowledge activator - facilitates better comprehension. We found a positive correlation between previewing a text through THIEVES as a prior knowledge previewing a text through THIEVES as a prior knowledge.

From the above, the researcher used the same theory and also the third principle of information processing which focuses on the relationship between background knowledge and information processing. However, it differs from the former study because the objectives are not the same. The former is related to reading comprehension while the present study aims at determining how the two variables, the prior knowledge and new information bring about a change in behaviour.

Fatima *et al.* (2012) investigated the effect of Information Processing Approach in Enhancing Achievement in Chemistry at Higher Secondary Level. The aim of the research was to know if the information processing approach technique in teaching chemistry was effective in Higher Secondary School classes. The researchers constructed a questionnaire and constructed an achievement test to two levels for the pre-test and posttest. Results proved that the two groups of students were equal in their academic performance before the implementation of the program. Also, the traditional approach seems to be a one way process where as the information processing approach is a two way communicating and interacting medium between teacher and learner. Most importantly, the information processing approach enhances the achievement of learners

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in chemistry and the performance of experimental group students in learning chemistry has considerably improved after the implementation of the program.

The similarity between this study and the earlier study is that the same approach (information processing) was adopted, however, the methodology differs as the researcher intends to use grounded theory. The mode of application of the theory also differs as the former study applied it to teaching while the present study will relate it to change in behaviour of parents which led to hesitancy.

Arcand and Nantel (2012) carried out a research titled Uncovered the Nature of Information Processing of Men and Women Online: The Comparison of Two Models Using the Think-Aloud Method. The paper compares two models predicting gender differences in information processing to determine if either of the models is more pertinent to goal-oriented Internet searches. To gather the most relevant material to test the hypotheses, a qualitative data was collected using the concurrent verbal protocols method. Data was collected and analyzed to study cognitive processes; concurrent verbal protocol (also called think-aloud) was also a useful approach because it allows cognitive processes to be traced as subjects report their thoughts while performing a task. Findings proved that on average, women exerted more effort in comprehending the information on the website than men. They also exerted more comprehension effort in processing the product-related information than men. It also revealed that men and women did not differ in the proportion of item-specific thoughts. However, women verbalized more relational thoughts than men. This study adds to our understanding on how gender, a key segmentation variable in marketing, influences how consumers process and respond to information presented on the internet.

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This is similar to the present research because they both adopted qualitative research, however, they differ in the sense that the present study intends to dig out the reason behind parental hesitancy to vaccination while the former dwells on gender in relation to information processing.

Lah *et al.* (2014) focused on the Cognitive Strategy in Learning Chemistry: How Chunking and Learning Get Together. The rationale behind the study was to examine variations in chunking strategies utilized by the students when learning the Periodic Table of Elements in the Form Four Chemistry syllabus. The researcher gave the students an assignment to:

memorize and understand twenty elements in the periodic table with reference to their p roton number;memorize and understand forty elements in the Periodic Table referring to periodic table location; memorize and understand forty monatomic ions; memorize and understand cations and anions with different charges;memorize and understand fourteen common polyatomic ions;andfinallytomemorize and understand Metal Reactivity Serie s and Electrochemical series. A qualitative data collection technique wasused involving six mixed ability learners via purposive sampling. Three data collection techniques wer e utilized with the main data obtained from interview and supported data gained from ob servation and document analysis. Findings proved that students applied varied chunking strategies, of which, three patterns prevailed at Short Term Memory level: similar chunking, mixed chunking, and characteristic chunking.

This finding is in line with Miller's (1956) assertion that the chunking of large unit of in formation to several smaller ones helps to reduce learners' cognitive load in the learning process. The findings are significant in understanding how learners learn, and further assists teachers in selecting the most appropriate teaching strategy that enables students of various cognitive levels to learn and practice effective cognitive strategies.

The research is similar to the present work as it entails studying the mind of individuals (cognitive approach), also, the nature of research i.e. qualitative research is the same and the sampling techniques employed are the same. However, the research differs from the present research as it intends to know the cognitive approach to which information is processed in the brain which led to the change in behaviour of women.

Rebecca Dahm conducted a research in 2015. The focus of the paper was on cognitive strategies and their underlying processes. The research project was implemented by five lower secondary school teachers with students from year seven, aged twelve to thirteen, throughout the year 2011 - 2012 in the regions of Limousin and Aquitaine (France). These students have studied one foreign language (L2 English) for four years. Out of the total sample of 136 students, only 88 are included in the study, as they are perfectly monolingual in their family environment .To be able to understand the implemented strategies, twenty-two groups of four were set up. Peer-to-peer explanations of a linguistic feature are said to be beneficial for second language. Results show that students mainly resort to comparison and translation strategies, while strategies of inferencing and deduction seem to be more difficult to implement. The results also showed that the strategies of comparison and translation mainly relied upon the conscious mobilization of declarative knowledge, whereas strategies of inferencing and deduction also required procedural knowledge, which is more difficult to mobilize. Furthermore, there was a proof that deduction strategy was transferable as students sometimes build upon their knowledge of grammatical rules. The fact that they were sharing this knowledge with their peers in the group turned their procedural knowledge into explicit declarative knowledge.

Brown, (2015) conducted a research using Information Processing Theory to Teach Social Stratification to Pre-Service Teachers. The purpose of this study was to determine if using a simulation to teach social stratification could improve college students' knowledge of culture and knowledge of effective instructional practices. The research design for this study was an exploratory mixed methods design. The participants included 23 members of an introductory diversity course, which was held during the fall semester. The results indicated the pre-service teachers felt the simulation allowed them to apply the classroom content within a direct learning experience. The pre-service teachers could see the application of a specific theory or concept (e.g., information processing theory) instead of just reading about it in a book or hearing a lecture during class. In turn, this exposure to such methods would increase the likelihood of implementation into the P-12 classroom; therefore, their future students can benefit from the years of educational research. Thus, the theory can be put into practice.

Imdad *et al.* (2013) did a research that was aimed at describing rates of religious vaccination exemptions over time and the association with pertussis in New York State (NYS). They used religious vaccination exemptions reported via school surveys of the NYS Department of Health from 2000 through 2011, reviewed by county, and the changes were assessed against incidence rates of pertussis among children reported to the NYS Department of Health Communicable Disease Electronic Surveillance System. Results show that the overall annual state mean prevalence (\pm SD) of religious exemptions for \geq 1 vaccines from 2000-2011 was 0.4% \pm 0.08% and increased significantly from 0.23% in 2000 to 0.45% in 2011 (P = .001). The prevalence of religious exemptions varied greatly among counties and increased by >100% in 34 counties during the study period. Counties with mean exemption prevalence rates of \geq 1% reported a higher incidence of pertussis, 33 per 100 000 than counties with lower exemption rates, 20 per 100 000, P <

.001. In addition, the risk of pertussis among vaccinated children living in counties with high exemption rate increased with increase of exemption rate among exempted children (P = .008). They finally concluded that the prevalence of religious exemptions varies among NYS counties and increased during the past decade. Counties with higher exemption rates had higher rates of reported pertussis among exempted and vaccinated children when compared with the low-exemption counties. More studies are needed to characterize differences in the process of obtaining exemptions among NYS schools, and education is needed regarding the risks to the community of individuals opting out from recommended vaccinations.

Similarly, Wombwell *et al.* (2014), stated that the United States has experienced an increase in measles activity, the most since the elimination of the virus in 2000. The measles infection occurs in unvaccinated individuals. Communities and individuals choose to not vaccinate for a number of reasons, primarily religious and philosophical. Objections based upon religion most often centre on the use of aborted human fetus tissue used in the rubella component of the combined vaccine products, and animal derived gelatins used in vaccine production. Objections among religious communities may also not be faith based, rather in some cases concerns related to lack of safety and efficacy of the vaccination result in refusal.

A study was conducted by Henderson (2017) to investigate the Metacognitive, Bottomup and Top-down Strategies in second language listening. The research aimed at Listening Comprehension which is the centrepiece of learning a language and is also the most difficult modality for student success. Four participants were selected with varying degrees of second language listening ability; two good listeners and two weak listeners. Qualitative research methods including three data sources: interviews, students' listening notes and teacher observations were triangulated to explore how learners progressed with language listening strategy instruction. Findings revealed that, all the participants gained from the listening strategies instructions. Although the weak listeners in this study showed no improvement in their scores, they all, especially these weak listeners, gained the strategy of listening, as evidenced by the increasing awareness of their own listening process, forming a better listening habit and gaining confidence in listening. The results also showed that learners at different learning stages used top-down and bottom-up processing differently.

Brunson, (2013) conducted a research on how parents make decisions about their children's vaccinations. The objective of the study was to develop an understanding of the general process parents go through when making decisions about their children's vaccinations. Interviews were conducted with U.S.-born parents living in King County, Washington who had children ≤ 18 months of age. These interviews were recorded and transcribed verbatim. Grounded theory, particularly as described by Charmaz, informed both the data collection and analysis in the study. Following the tenants of this approach, the initial recruitment of parents was purposeful to ensure a sample of parents who made all types of vaccination decisions and who were also diverse in terms of age, education and income; characteristics suggested play a role in vaccination decision-making. Interviews with parents at this stage were open-ended and focused on how parents reached their vaccination decisions. Interviews were conducted with 15 mothers and 3 couples. The findings of this research suggest that the process of parents' vaccination decision-making is complex, but that a general process does exist.

Findings revealed that through the application of grounded theory, a general decisionmaking process was identified. Stages in this process included: awareness, assessing and choosing, followed by either stasis or ongoing assessment. The greatest variation occurred during the assessing stage, which involved parents examining vaccination-related issues to make subsequent decisions. This research suggests that three general assessment groups exist: acceptors, who rely primarily on general social norms to make their vaccination decisions; reliers, who rely primarily on other people for information and advice; and searchers, who seek information on their own, primarily from published sources

In conclusion, the researcher recommended that interventions must be targeted based on how parents assess vaccination, in addition to other topics of interest such as parents' knowledge, attitudes, beliefs or levels of hesitancy.

The similarity between this study and the current study is that they both use the same methodology which is grounded theory; however, the former used grounded theory as described by charmaz while the later will adopt grounded theory as described by straussian.

Garcia, (2018) did a research on vaccine refusal dilemmas. The focus was on this current issue of the decreasing immunization rates in children. Children are a vulnerable population and rely on their parents to make healthcare decisions for them. The thesis addressed the parents' standpoint on immunizations, the providers' standpoint on the situation, and the sources of vaccination information available, then determine vaccine refusal dilemmas that may result. The main population of focus will be paediatric patients including their families and their providers. Dilemmas associated with vaccine refusal and/or hesitancy will include present and existing issues as well as possible and future problems that may be seen. The thesis also covered possible ethical dilemmas that may come into play when the physician chooses to discontinue care for a client who is not vaccinated. There are many dilemmas that can result from parental vaccine refusal, but dismissing families from practice will not amend nor bridge the gap for those same parents to understand the providers' standpoint. The study therefore recommended that it is important to keep those lines of communication open to better understand the concerns that parents have regarding vaccinations.

Eskola *et al.* (2015) made a review on how to deal with vaccine hesitancy. It was based on the concerns about vaccine hesitancy and its impact on vaccine uptake rates and the performance of national immunization programmes, the Strategic Advisory Group of Experts (SAGE) on Immunization Working Group on Vaccine Hesitancy. They carried out a review, and proposed a set of recommendations directed to the public health community, to WHO and its partners, and to the World Health Organization (WHO) member states. The final recommendations issued by SAGE in October 2014 fall into three categories: (1) those focused on the need to increase the understanding of vaccine hesitancy, its determinants and the rapidly changing challenges it entails; (2) those focused on dealing with the structures and organizational capacity to decrease hesitancy and increase acceptance of vaccines at the global, national and local levels; (3) and those focused on the sharing of lessons learnt and effective practices from various countries and settings as well as the development, validation and implementation of new tools to address hesitancy.

The research is geared towards the same goal which is to ensure children are adequately vaccinated and ensure a generation free of vaccine preventable diseases. However, based on the recommendations by SAGE, this research will help achieve the first objective which is "focused on the need to increase the understanding of vaccine hesitancy, its determinants and the rapidly changing challenges it entails", specifically it will deal with how mothers process information in their memory which guides their decision making on whether to vaccinate their children or not.

Fatemi and Vahedi (2014) investigated the Effects of Top-down/Bottom-up Processing and Field-dependent/Field-independent Cognitive Style on Iranian EFL Learners' Reading Comprehension. The objectives of the study was to find firstly, whether FI learners would perform better when taught through top-down or bottom-up reading instruction model; secondly, whether FD learners would perform better when taught through top-down or bottom-up reading instruction model. Two intact classes including 40 Iranian freshmen EFL students with the same level of reading proficiency tested through reading section of TOEFL test participated in this study. One class was randomly assigned to top- down reading instruction model and the other to bottom- up approach. The study consisted of three stages. At first stage, Group Embedded Figure Test (GEFT) was administered to determine the distribution of subjects along the spectrum of FD/ FI in each group. Then, the treatment was run and finally, both groups received a reading comprehension posttest. The data were analyzed using two independent samples t-tests. The results revealed that FI learners outperformed their FD counterparts in bottom- up group. Moreover, the results showed that FD learners were more successful than FI ones when taught through top- down reading instruction model. The findings of this study can also help language learners by encouraging them to learn more about their own individual cognitive styles and hence, improve their strengths and overcome their weaknesses. In light of these findings, the researchers offered recommendations for further research and for EFL reading educators. It needs to be emphasized that this study used only Witkin et al. (1971) FD/FI as an indicator of cognitive style. Other cognitive style inventories could be used to examine the interrelationship between reading skills and cognitive style in a broader context.

From the above review, it is glaring that the top down and buttom up processing of information are crucial to how human beings learn. This has to do with the relationship between their background or prior knowledge and stimulus. The similarities between the research and the present study are that they adopted the same principle (3rd principle of information processing) which states that there are two ways flow of information. However, the former was related to learning in the classroom context while the later will be specifically related to learning in relation to changes in behaviour.

Hailikari et al. (2009) studied the relevance of Prior Knowledge in Learning and Instructional Design. The research's sole objective was to determine how different types of prior knowledge (declarative and procedural) impact students achievements and how prior-knowledge assessment can be used as an instructional design tool. A questionnaire was developed based on the prior-knowledge model, which distinguishes between declarative and procedural knowledge. One hundred and fifteen pharmacy students were tested prior to beginning 4 successive basic science courses and then prior to beginning a pharmaceutical chemistry course. Regression analysis was used to determine which type of knowledge was the best predictor of students' achievement. The 4 course instructors were interviewed and their comments analyzed. Results revealed that the Prior Knowledge from previous courses significantly influenced students' achievements. Procedural Knowledge was especially related to students; achievements. Instructors and students had mainly positive reactions towards the prior-knowledge tests. The researchers however concluded that Students' prior knowledge should be taken into consideration in instructional design and curriculum planning. Furthermore, the results of prior-knowledge assessments may be used as a tool for student support in addressing areas of deficiency. The researcher recommended that the instructors should help students develop an integrated knowledge framework and move beyond factual knowledge. This may be done by building on students' existing knowledge and helping them see interrelations between the courses and the ideas presented.

The similarity between the two sides studies is the use of prior knowledge as the major variable in the research. While the differences is that this study used prior knowledge to determine students' achievements while the later study used prior knowledge to determine change in behaviour of hesitant women.

Danae et al. (2017) investigated the influence of prior knowledge structures on website attitudes and behavioural intentions. The study investigated the types of prior knowledge an individual has prior to exposure to a persuasive attempt (New Information). This study extends these knowledge structures by distinguishing between objective and subjective topic knowledge conceptualizations. Specifically, this study examines empirically how an individual's different knowledge structures, held prior to exposure to a web-based intervention, influence subsequent website attitudes and behavioural intentions. The UK's National Health Service (NHS) Live Well website relevant to weight control is used as the web-based intervention in this study. Results suggest that agent (i.e., NHS) knowledge is the most important predictor of website attitudes, while both agent and persuasion knowledge are associated with behavioural intentions to take weight control actions. They used a 3 (choice: healthy eating vs. lose weight vs. no click [control group]) \times 2 (BMI: healthy vs. unhealthy) experimental design in the form of a self-completed online The researcher collected data with the help of an internationally questionnaire. recognized consumer panel (Qualtrics Consumer Panels). Each of the panelists in the database received an invitation by e-mail to participate in the survey. We used quotas to ensure a balance between gender and age groups. The data collection included three stages, with the term "weight control" being defined as "both weight loss and management practices" at the beginning of the survey, before data collection started.

First, the pre-exposure stage measured respondents' objective and subjective knowledge, agent knowledge, and persuasion knowledge, to understand how these knowledge

structures of the target prior to exposure to the intervention may affect responses to and outcomes of the intervention. In the second stage, participants were asked to choose one of the following: the "healthy eating" page, the "lose weight" page, or neither page. This was called the exposure choice stage, where respondents self-reported their behaviour/choice of website. Third, the post-exposure stage of the questionnaire measured respondents' attitudes toward the NHS website and their resulting behavioural intentions to control their weight. During this stage data were collected from all the participants, namely those who chose to look at specific web pages and those that chose neither web page (in other words the non-exposure/control group). The results also reveal that the distinction between objective and subjective weight control knowledge is essential given their differential effects on agent and persuasion knowledge. Goal frames, as indicated by the choice between the "healthy eating" and "lose weight" Live Well Intervention web pages, are found to moderate the identified Knowledge-Attitude-Behaviour links. Theoretical contributions, implications for practice and public policy and future research directions are discussed. Future research could explore if/why prevention-focused messages may be more effective than promotion-focused messages, regardless of message frame and if/why discouraging unhealthy behaviours rather than promoting healthy ones may be more effective in fighting the obesity epidemic.

Heidemarie (2016) conducted a research on the eradication of measles: the remaining challenges. Measles Virus (MeV) infections cause long-lasting memory B and T cell impairment, predisposing people susceptible to opportunistic infections for years. A rare, but fatal long-term consequence of measles is subacute sclerosing panencephalitis. Fifteen years ago (2001), WHO has launched a programme to eliminate measles by a worldwide vaccination strategy. This is promising, because MeV is a human-specific morbillivirus (i.e. without relevant animal reservoir), safe and potent vaccine viruses have

been sufficiently produced since decades for common application, and millions of vaccine doses have been used globally without any indications of safety and efficacy issues. Though the prevalence of wild-type MeV infection has decreased by >90 % in Europe, measles is still not eliminated and has even re-emerged with recurrent outbreaks in developed countries, in which effective vaccination programmes had been installed for decades. The authors discussed the crucial factors for a worldwide elimination of MeV: (1) efficacy of current vaccines, (2) the extremely high contagiosity of MeV demanding a >95 % vaccination rate based on two doses to avoid primary vaccine failure as well as the installation of catch-up vaccination programmes to fill immunity gaps and to achieve herd immunity, (3) the implications of sporadic cases of secondary vaccine failure, (4) organisation, acceptance and drawbacks of modern vaccination campaigns, (5) waning public attention to measles, but increasing concerns from vaccine-associated adverse reactions in societies with high socio-economic standards and (6) clinical, epidemiological and virological surveillance by the use of modern laboratory diagnostics and reporting systems. By consequent implementation of carefully designed epidemiologic and prophylactic measures, it should be possible to eradicate measles virus globally. As the closely related morbillivirus of rinderpest could be successfully eliminated out of the cattle on a global scale.

2.4 Summary of Literature Review

The literature review focused on the human behaviour approach to studying women hesitancy to vaccination. It depicts that human behavioural approach has to do with the totality of human behaviour in relation to how they acquire and process information. The information processing approach of human behaviour that was adopted is particularly helpful for assessing problems in acquiring, remembering and recalling information. Vaccine hesitancy which has been seen as a barrier to immunization success was also discussed. Some of the reasons that led to women hesitancy include religious beliefs, personal beliefs, safety concerns and need for additional information. Several efforts have been put towards reducing vaccine hesitancy to vaccination especially measles as a disease to no avail.

The literature reviews also showed how the information processing theory that was adopted as the theoretical framework was used by other scholars in different field of knowledge and also the results. The literatures show that information processing theory enhances the learning and performance of individuals especially in relation to how information is acquired, processed and how it leads to a change in behaviour.

The literature review further showed how to deal with vaccine hesitancy. For instance the final recommendations issued by SAGE,(2014) fall into three categories: first, those focused on the need to increase the understanding of vaccine hesitancy, its determinants and the rapidly changing challenges it entails; secondly, those focused on dealing with the structures and organizational capacity to decrease hesitancy and increase acceptance of vaccines at the global, national and local levels; and thirdly, those focused on the sharing of lessons learnt and effective practices from various countries and settings as well as the development, validation and implementation of new tools to address hesitancy.

Some relevant empirical works both locally and internationally were also identified and reviewed. The studies were mainly on vaccine hesitancy and the information processing approach. From the available literature, it is apparent that majority of the studies were conducted outside Africa. A few of these studies were carried out in Nigeria. The obvious implication is that Africans and Nigerian scholars in particular have not contributed significantly to the issue of vaccine hesitancy. It goes further to suggest that the issue of vaccine hesitancy in relation to eradication of childhood killer diseases have therefore not

been properly invested on. It is also glaring that lots of studies have been conducted with regards to vaccine hesitancy but none have used the cognitive approach to information processing to study the reasons for women hesitancy. This study therefore is expected to fill this gap.

CHAPTER THREE

3.0

RESEARCH METHODOLOGY

3.1 Research Design

The study adopted qualitative research method using case study design. Martyn and Lyndsay (2016) defined qualitative research as a "research method used extensively by scientists and researchers in studying human behaviour, opinions, themes and motivations." Basically, there are five types of qualitative research: ethnography, narrative, phenomenological, grounded theory and case study (Saura, 2015). For this research, grounded theory will be adopted as a methodology. This is because grounded theory will enable the researcher to achieve her primary objective which is to generate a substantive theory grounded in the data that will spell out the reason for women hesitancy to vaccination in Niger state.

The case study has the advantage of enabling the researcher to understand the phenomenon in real life situation by utilizing naturally existing information sources such as information behaviours, people and their interactions with other people. According to Zucker (2009), case study must have five components. The research questions, its units of analysis, a determination of raw which data are links to propositions and criteria to interpret the findings. The most appropriate question for this type of case study research design is 'what, how and why'. The second component is to define the purpose of the study clearly. The purpose of this case study is to investigate the reason for women hesitancy in Niger State. The third component is unit of analysis. The unit of analysis is the person or object from which a researcher collects data. It covers the "whom" and "what" that are studied (Striky, 2019). The unit of analysis in this study were individuals (women). This is because the researcher will be interested in investigating the behaviour, attitudes or

opinions of hesitant women to vaccination. The fourth component is to connect data to preposition. As data will analyse, the researcher matches patterns that appear in the data to the theoretical proposition of the case study. The fifth component is the criteria for interpreting findings, the researcher extractes meaning from the findings to determine the recommendation for practice and future research.

3.2 Population of the Study

Population is the largest group of potential participants who share some attributes in a study. For this study the population comprised of hesitant women in Niger state. However, due to the infinite nature of the population of hesitant women in Niger state, it is almost tedious, if not impossible to sample all of them.

3.3 Sample and Sampling Technique

Sample size can be defined as the number of observations taken from a population through which inferences for the whole population are made. For this research the sample size is fifteen (15) i.e the researcher attained theoretical saturation at the fifteenth interview. The strategy was resolved at, based on the systematic review research work of Thomsom (2011) where grounded theory was used as a research methodology.

In order to get participants for the study, the researcher adopted purposive sampling. Purposive sampling is a type of non-probability sample for selecting the population in a qualitative research. Purposive sampling was resolved at because the researcher deliberately selected participants that met the selection criteria of the research study (i.e. the participant must be a hesitant mother with at least a child below the age of 5 years and must also be a resident of Niger state) and also found suitable to answer the research questions. The technique also enabled the researcher to gather sufficient information necessary to answer the research questions.

3.4 Instrument for Data Collection

This study used concept mapping technique and semi structured interview guide to collect data. Concept map is a graphical representation of a phenomenon that provides a holistic representation of a concept, shows connections and relationship among data. It was used as an instrument because it is one of the methods of effectively discovering prior knowledge. Semi- structured interview is also a qualitative method of inquiry that combines pre-determine set of open questions with the opportunity for the interviewer to explore valuable information from the context of participant's experiences. Semi-structured interview is open, allowing new ideas to be brought up during the interview as a result of what the interviewee says (Edward & Holand, 2013). The interviewer in semi-structured interview will have an interview guides prepared, which is an informal grouping of topics and questions that the interviewer can ask the target respondents.

The researcher used semi-structured interview because it offered the hesitant women freedom to talk and express their ideas in their own terms. During the interview, the researcher observed body language, tone or level of emotional intensity; the researcher also included such observations in the field notes or memos, which became part of the artifacts of the study along with the transcripts of the interviews. Concept mapping was also used as it enabled the researcher to retrieve all the prior knowledge of respondents.

3.5 Rigor in Qualitative Research

Rigor in qualitative research has to do with the ability to determine if the conclusions drawn by researchers are trustworthy. It is also a term used synonymously with validity and reliability in qualitative research. The trustworthiness of the study was determined using the best criteria for ensuring rigor proposed by Lincoln and Guba (1985). Elements of rigor in this research include; credibility, dependability, confirmability and transferability. However, for this study, only two will be utilised.

3.5.1 Credibility

To ensure credibility in this study an outside party who possesses a master's degree and has participated in at least one other qualitative research project, who is also familiar with the coding process was included to peer review the interviews and ensure that potential categories were not overlooked. This offers two key advantages. First, multiple investigators enhance the creative potential of the study. Second, the convergence of observations from multiple investigators enhances confidence in the findings.

3.5.2 Dependability

In this study, audit trail was used to achieve dependability. The researcher presented detailed and step by step explanation of the research process undertaken, as well as providing the main instruments used to gather empirical data.

3.6 Data Collection Procedure

The data of the study was collected using interview and concept mapping. The researcher sought consent and where applicable sent letters to the interviewees as well as interview guide for the participants on how the researcher wants the interviews to be and assuring the interviewees of their privacy for the discussion and their names not to be mentioned in any situation.

The interview commenced according to the schedule with respective individuals at their convenience and thirty minutes time was given to every respondent. The participants were briefed on the nature and purpose of the study as well as the procedure and criteria for participation. Privacy, confidentiality and anonymity involved in the research as well as

the benefit of the research, was also carefully explained to the participants. The participants were given cardboard sheets to create concept map in order to achieve certain objectives, which was followed by an interview. The interview took place with the aid of a tape recorder, and jotters to take points during the sessions. The researcher ensured there was zero interference in the course of the interview. This was achieved by scheduling the interviews after closing hours from their shops, and places of work. Some respondents also recommended their homes as venue to ensure there was no disturbance. The researcher spent one week conducting the interview. Both the researcher and the interviewees attained absolute concentration while the interview questions followed. The individuals responded to the questions, by creating concept maps where necessary, gave suitable answers and also stated their reasons and the researcher also asked them follow up questions so as to have a better understanding of their responses.

3.7 Method of Data Analysis

The process of data analysis means that the researcher creates meaning from the raw data gathered. Data analysis involves a number of stages namely; data management; generation; interpretation and presentation (Creswell, 2009, Yin, 2009). In this study, data was analyzed using inductive thematic analysis, because it enabled the researcher to identify, analyse and interprete patterns within the data collected from participants. The process of thematic analysis as described by Braun & Clarke (2006) and adopted in this study is as follows:

Familiarizing yourself with your data

This involved familiarizing self with the data collected by reading and rereading the data very well. It is ideal to read through the entire data set at least once before you begin your coding, as your ideas, identification of possible patterns will be shaped as you read through.

Generating Initial Codes

This phase then involves the production of initial codes from the data. The process of coding is part of analysis, as you are organizing your data into meaningful groups.

Searching for Themes

This involved making a long list of different codes you have identified across your data set. It included, sorting the different codes into potential themes, and collating all the relevant coded data extracts within the identified themes. Essentially, the researcher started by analysing the codes, and considered how different codes may combine to form an overarching theme. It was helpful at this phase to use visual representations to help the researcher sort the different codes into theme.

Reviewing Themes

This stage involved refinement of the themes. Some themes collapse into other themes, whereas some themes will be broken into smaller themes. This means that there is the need to read all the collated extracts for each theme, and consider whether they appear to form a coherent pattern. If the candidate's themes appear to form a coherent pattern, then move on to the second level of this phase. If your candidate themes do not fit, you will need to consider whether the theme itself is problematic, or whether some of the data extracts within it simply do not fit there – in which case, you would rework the theme; create a new theme, find a home for those extracts that do not currently work in an already-existing theme, or just discard them from the analysis.

Defining and Naming Themes

At this point, define and further name the themes that you will present for your analysis, and analyse the data within them. "Defining and naming" means identifying the "essence" of what each theme is about (as well as the themes overall), and determining what aspect of the data each theme captures.

Producing the Report

This phase is the final analysis and write-up of the report. The task of the write-up of a thematic analysis, whether it is for publication or for a research assignment or dissertation, is to tell the complicated story of data in a way which convinces the reader of the merit and validity of the analysis.

CHAPTER FOUR

4.1 DATA ANALYSIS AND DISCUSSION OF RESULTS

4.2 Data Analysis/Presentation

The interview responses produced three hundred and eighty four (384) narratives; these 384 narratives were highlighted and recorded in the coding sheet as open codes. The open codes were collapsed according to related codes, resulting to 28 subcategories. The subcategories were then further collapsed into seven (7) emergent categories. These emergent categories are described below

4.3 Description of Emergent Categories

There are seven (7) categories explaining the reasons for women hesitancy to measles vaccination in Niger State. (1) Measles as a disease (2) Immunization being medicinal (3) other activities that do not require medicine. (4) No knowledge. (5)Vaccination as injection (6) Conflicting information (7) Close ties (8) Mass media. The categories emerged from the data discussed below:

Research Question 1. What is the Prior knowledge of hesitant women about measles?

The first objective of the study was to explore the prior knowledge of parents about measles in Minna, Niger State. The purpose was to have an in-depth knowledge of what hesitant women know about measles. In realizing this objective the researcher asked participant questions through interview. From the participant response one (1) category emerged which is:

(1) measles as a disease.

4.3.1 Measles as a disease

This category depicts the prior knowledge of the respondents about measles. Based on their narratives measles is a disease. That is to say, it is an abnormal condition that affects children in whatever age. This category has 5 subcategories which are discussed below:

4.3.1.1 Disease as an act of God

Some respondents believed measles to be God sent i.e measles as a disease was sent by God to children at a particular time. A respondent stated that: "It is the people that God loves that He tests. So children that contract measles disease are loved by God" Another respondent explained that "Mealses is a disease that God sends to children"

4.3.1.2 Dangerous disease

Respondents were aware of measles as a disease that causes harm, deformity, or even death. To support this explanation, here are some statements from the participants: It is a terrible disease that causes many different bad things in the body of a child, such as blindness and deafness? Another respondent made a typical assertion that "Truly, it does make a child go deaf and blind and gave an example of a boy called Yahaya, who is blind and sings together with ALA. The respondent also said that he knows someone here in Minna too, who is deaf as a result of measles infection. The respondent continued to observe that before the infection, he spoke well, but ever since he afflicted by the disease, he became deaf.

4.3.1.3 Epidemic disease

This sub category describes the understanding of some participants about measles. Some participants reason that measles is an epidemic disease due to the nature of how it spreads rapidly within a short time. Based on the narrative of some participants measles disease moves with air or follow the air. That is, it spreads when there is contact with an infected child For instance a participant mentioned that "My son was the first to contact measles in this village, and within a very short time the disease spread round the locality. This has led to enmity between me and some of my neighbours till today". Another respondent argued that

"What! Wallahi (by God) if you go to the village with this disease, you will not be able to drink water. People will say that you have brought an epidemic, you will be cursed; and you will be prevented from going out, because people will feel as if they should kill you, especially when your children survive the disease while theirs do not survive it. Then you will be in trouble as your entire generation will be disliked"

4.3.1.4 Disease of children

This sub category describes measles as mostly the disease of children. As virtually all the respondents mentioned that measles basically affects their children. To support this statement, a respondent stated that "all my nine children contracted measles disease and none of them died"

4.3.1.5 Communicable disease

To some respondents, measles disease follows the air/evil spririts. So, when an individual is associated with a person that has the disease, the person could become afflicted with it too. Measles according to the participants, is a disease that can easily be contracted through body contact. Also, a statement from another participant supported the above statement "When a child plays with an infected child or sleeps in the same room with an infected child he contracts the disease: Measles is a dangerous disease which moves with air/evil spirits and that is why when it strikes in an area, Hmm! Only God's intervention

can protect one's children. I don't like it at all, at all. Because it took away my Yusuf named after my beloved father".

4.3.1.6 Causes of measles

As far as some respondents were concerned, measles does not just occur, it has a cause which is heat or the air. Some participants believe that measles is caused by extreme or prolonged heat. When the weather becomes unbearable and the air is not circulating at all, the body strives to cool itself which affects the entire body system. A participant stated "the disease is caused by extreme heat". Others stated it was caused by air i.e jinns or evil spirits. Some respondents also stated that the diseases occur when air carries the disease from one house to another or one child to another. A participant stated that "when air carries the disease and blows it towards your house, your children contract it"

4.3.1.7 Seasonal disease

This sub category depicts the understanding of some participants about measles as a seasonal disease. That is a disease that occurs at a particular period of the year. Based on the responses of the participants, the illness often occurs in either heat season, the interval between rainy and harmattan seasons or before the outset of rainy season. A respondent stated "I give my children local concoction daily to prevent measles during the heat season because that's the time the disease normally surfaces" Another respondent lamented "the brief period between heat season and harmattan, is the time fruits break their pods, it scares us parents because it is usually accompanied by intense heat which leads to diseases such as measles"

4.3.1.8. Disease with traditional curative measures.

This sub category describes the measures respondents use in confirming that child has measles and how the disease is cured. All the measures they highlighted were unorthodox. The unorthodox has to do with the traditional methods parents use in curing measles. Most people don't believe in the modern methods of curing measles so they tend to embrace the local means. "Sometimes we will be asked to go and fetch Tridax Procumbens. It's a plant that sprouts from the ground, boil it for the sick child and give him to drink. Then you pound part of it and be using it to bathe him very early in the mornings, or we go to the fish-sellers and obtain the oil they use in frying the fishes, then we ensure that the child drinks it and uses it to rub his entire body. If fish oil is not available we simply soak the head of fish (which ever type either fresh or dry) soak it for some minutes and give the child to drink. By the grace of God, the child will be healed. Non-chill cocacola drink is also used to cure measles".

4.3.1.9 Disease with symptoms

This sub category explains that prior knowledge includes the signs or features that make a parent aware that their children have measles. Based on their narratives, there are certain signs they see or the child complains of that make them suspicious that the child has measles. Respondents complain often that when some of the sense organs are infected, it depicts that the child has measles disease. Some of the sense organs they mentioned are eye, ear, tongue, skin and nose. The respondents also stated that when a child starts showing signs or complains that their internal organ is making them uncomfortable, it might be a symptom of measles. Some internal organs mentioned are; General body ache, child complains of internal body heat, swollen parts of the body and even convulsion. A respondent narrated: "Well, how we ascertain is that the child usually starts with fever, then his eyes will be bringing out tears non-stop, he will be so abnormally weak and be sneezing a lot. The first sign is usually sneezing then fever. The fever of measles is different. The child's body will be very hot often, his eyes will be red and his lips will be full of rashes, and if it is mere signs of sickness, these signs do not manifest. Too much tears will also be falling from the eyes as the child becomes powerless. That's how we conclude that it is the one and we begin to treat it. Thereafter, after like two or three days, it will go, that's when we will know that it's measles". Another respondent also narrated: "One of my children, Nazir, it got to the extent that the disease protruded his stomach, wallahi, it protruded his stomach so big that he had to be given the head of fish soaked in water to drink before it subsided."

Research Question 2. Prior Knowledge of Parents about measles Immunization

The second objective of the study was to determine the prior knowledge of parents about measles immunization. From the response of the participants three categories emerged which clearly explained their knowledge. These categories are listed below:

- 1. Immunization being medicinal
- 2. Other activities that do not require medicine.
- 3. No knowlege

4.3.2. Immunization being medicinal

This category explains the knowledge hesitant women have about measles immunization. Respondents thought of immunization as medicines given to children to protect them against measles disease. Respondents who have idea or one or more methods of preventing the disease narrates that they are medicines given to a child so that he doesn't contract measles disease. It has one sub category.
4.3.2.1 Traditional medicines

This sub category highlights some of the local methods parents use in preventing their children from measles attack. Different respondents have different methods they believe are very effective. A respondent narrated." Drinking medicine from that pot you are seeing close to the fire (points to a pot) is mandatory for every child in this family, first thing every blessed day. It contains more than 10 varieties of leaves which prevent so many diseases including the measles you earlier mentioned. Another respondent said: "During the heat season, I give my children onion syrup to prevent them from measles attack"

4.3.3 Other activities that do not require medicine

This category explains other activities parents do to prevent their children from contracting measles. Such as prayer and proper ventilation. It has two sub categories

4.3.3.1 Prayer

This sub category represents respondents who have firm belief that with God nothing is impossible. They put their complete trust and confidence that with prayers, measles disease can be prevented. A respondent assured "There is nothing impossible with God. I don't give my daughter anything to prevent any disease except prayers, I pray to the Lord I worship to prevent her from all diseases including a dangerous disease like measles"

4.3.3.2 Ventilation

This sub category of respondents believes measles can be prevented via proper ventilation. That is by laying a child under the tree during heat season, opening doors and windows and not congesting children inside the same room. A respondent narrates that since the disease is caused by heat, exposing the child to air is one method of preventing it. That is to say, opening doors and windows for cross ventilation to take place or spreading the child under a shield. Another respondent also narrates: "The major causes of measles is heat, since heat is the cause, one way of preventing it is to expose the child to air. That way he will not contract the disease."

4.3.4 No knowledge

This category comprises of respondents who have no knowledge on immunization for measles and they do not care to ask. It has one sub category

1. I don't know and I don't care

4.3.4.1 I don't know and do not care

Some parents indicated total ignorance about measles immunisation. Respondents bluntly do not use anything as measles immunization. They do not have a single idea on how to prevent measles and they do not use any preventive medium. They confessed "Nothing, sincerely, I do not use anything to prevent my children from contracting measles. However, it has a cure, so no point taking any preventive measures".

Research Question 3. What is the prior knowledge of parents about measles vaccination?

One of the objectives of this study is to determine the prior knowledge of parents about measles vaccination. From the narratives of the participants, two (2) categories emerged as itemized below;

- 1. Vaccination as injection
- 2. Lack of trust

The above listed categories are discussed below

4.3.5 Vaccination as injection

This category depicts the prior knowledge of some participants about measles vaccination. Based on their responses, measles vaccination is an injection that affects a child as he grows. They argued that injection doesn't give the desired results and has an alternative preventive approach. Others were of the view that since the disease is curable, preventing it is needless.

4.3.5.1 Injection given on the arm

This sub category highlights the respondents' knowledge about vaccination for measles as an injection health workers administer on the arm. A respondent insisted that "It is an injection given on the armpit. That is all I know".

4.3.5.2 That it is harmful.

Respondents under this sub category revealed that vaccines for measles are harmful and followed by many complications. They mentioned increase rate of caesarian section when women are in labour, sterility in men, infertility in women, and also associated the growth of cancerous cells as some of the effects of vaccination. A respondent narrates "Vaccines are dangerous, nothing can convince me to accept vaccination. It has serious effects on children's health, the effects don't surface until the child approaches adolescence age. Before, women at forty- fifty gave birth on their own, but nowadays you see a girl of 18, 20 years taken to the hospital for caesarean section. It is as a result of these vaccines, also nothing causes sterility in men, except vaccination. Hmm! (she sighs) Even the children been vaccinated know it is harmful to their systems that's why they cry a lot when vaccinated. I just detest it and that's all" An old woman narrates, " my second grand daughter was vaccinated once, and it resulted to serious problem. Because the child was fainting on and on. On the day the vaccine was administered, she fainted more than six times. We had to rush her to the hospital. I was so scared"

4.3.5.3 That it is not effective

This sub category explains the opinion of parents regarding measles vaccination as not being effective, that is, it is not actually preventing the disease. Others lamented that there is completely no significant difference between a vaccinated and an unvaccinated child. A respondent pointed out that "I have never taken my children for vaccination but my neighbour does, she once took her child for immunization and the next day they had to rush the child back to the hospital, because she had measles". She further added "I don't think vaccines are working". Another respondent complained that "I do not vaccinate my children, my sister does, yet both of our children contracted the disease".

4.3.5.4 That it has alternative preventive measure.

Respondents under this sub category believe there is a more reliable means of preventing measles, that is, vaccination is not the only method of preventing measles disease. They were of the view that, there are other methods people employ to ensure that their children are safe. A respondent said: "Hmm! (sighed) talking about my knowledge of measles, vaccination (laughed) vaccination is not the only option. I have so many ways of preventing the disease, I mentioned them earlier like onion syrup, Tridax preocumbens, amongst others".

4.3.5.5 Non -belief in prevention before cure.

Respondents in this sub category did not believe in prevention in whatever method. They were of the opinion that a disease must surface first before they looked for its cure. Some respondents opined that there's nothing like prevention before cure. It did not even make sense at all. "That is one of the reasons I do not vaccinate my children. When the disease comes, we look for its cure".

4.3.5.6 Vaccination as injection they do not trust

This sub category of respondents have trust issues with vaccination. In fact they do not guarantee its reliability. Respondents in this category were not confident in vaccines and its inventors.

They revealed that they do not trust the white men who invented the vaccines let alone the vaccine itself. In relation to this, a respondent stressed: "the white man will never give you something without taking something in return, if they vaccinate your child to prevent measles, then you should be rest assured of contracting a more serious disease as the child grows". Another respondent also argued that: "I learnt these vaccines are very expensive, they cost millions of naira, yet the white man gives it to us free of charge for a disease that does not occur always, yet, common Paracetamol which costs 150 naira that cures headache or temperature rise in children, which is a frequent illness of children, cannot be given for free in the hospitals. If your money remains 20 naira, those nurses will not give you the drug, but when it comes to vaccines, they even plead with us, just to convince us. I choose not to be deceived. I repeat, I choose not to be deceived, there is something to it".

Research question 4. What information is given to hesitant women about measles vaccination?

The fourth objective of the study was to explore the type of information hesitant women in Minna received about measles. There, questions on the information they were given and those that gave them the information were asked. From their responses, one (1) category emerged.

(1) Conflicting information

4.3.6 Conflicting information.

This explains the information communicated to parents about measles vaccination. Respondents narrates that they receive good and bad information about measles vaccination. It has two sub-categories.

(1) Measles vaccination is good

(2) Measles vaccination is bad

4.3.6.1 Measles vaccination is good

This category explains the information respondents' get about measles vaccination as very good because it prevents a child from measles disease and also reduces the intensity of the disease if it eventually occurs. A respondent narrates "Trully, they said that measles vaccination prevents children from contracting the disease and if the child contracts the disease, it won't be severe".

4.3.6.2 Measles vaccination is bad

This category explains the information communicated to respondents about measles vaccination. The respondents narrate that they receive negative information i.e. the information they receive are not in favour of vaccination for measles. A respondent narrates: "(Harshly) my ustaz kicks against vaccination, he told us not to allow our children to be vaccinated because it causes harm to children, it makes the children highly uncomfortable." Another respondent explains "My husband doesn't like any discussion that has to do with vaccination, he has negative impression about it".

Sources of information communicated to hesitant women about measles vaccination.

Part of the objective of this study was to determine the sources in which respondents received information about measles vaccination. From the narratives of the participants, four categories emerged as listed below;

- 1) Close ties
- 2) Sanatorium
- 3) Mass media
- 4) Social media

4.3.6.3 Close ties

This category portrays narratives related to the sources in which they get information about measles vaccination and it consists of one (2) sub-categories:

Family and friends

The narratives of the participants clearly pinpointed out that hesitant women considered their relatives and friends as a source of information as stated by a participant: "Tab! We use to have information through many means; when we attend naming ceremonies, or weddings. In fact, I recently learnt coca-cola cures measles when I went for my sisters naming ceremony and so many women around testified it works very well; you see, coke is sweet, every child enjoys taking it, unlike vaccination. I rather give my child coke to drink than vaccinate."

Spouses

Respondents in this category are mostly in purdah. They have no access to the mass media i.e television or radio or any source of information except from their spouses. They relate: "me and my co-wives don't have any source of information as we do not have TV or Radio in this house. I have been married for over thirteen years and I haven't stepped a foot into the market. So where will I get information? It is only when our husband comes back from work that we hear news. Or if he luckily allows us to attend gatherings"

4.3.6.4. Sanatorium

This category presents narratives of participants that health practitioners are among the available sources of information about vaccination in the study area, and it has one (1) subcategory which is:

Health Practitioners.

This subcategory describes how health practitioners are considered source of information on vaccination for measles by the participants as pronounced by themselves: "I also get information from the health workers, my friend was in labour so I accompanied her to the hospital, as I was at the waiting room where ante-natal was taking place, the health workers were stating some of the importance of measles vaccination, that it prevents measles disease and so many other diseases that might affect a child".

4.3.6.5. Mass media

This category portrays mass media as a source of information for hesitant women in Niger state. Some respondents mentioned radio and television to be the source through which information reach them. It has one category.

Radio and Television

The narrative of the participants clearly show that television and radio are the source of information that is available to them. A respondent said: "the source in which we normally got information is through Radio". Similarly, another respondent stated "Yes, there are many sources in which we get information like television and radio".

4.3.6. Social media

This category depicts social media as a source of information for respondents in Niger state. Some respondents stated that they receive information through phones. It has one category; phone

4.3.6.1 Phones

Hesitant women in Minna Niger state, get information through audio recording, phone calls and video clips about measles immunization from their phones. Such information are either in support or against immunization. A respondent mentioned: "We met at a friend's daughter's wedding, a woman's son excreted on her cloth, she had to bathe the child and change his cloth and diaper, fortunately, another woman in the same room saw a scar on the child's arm. She enquired what caused it and she was told it's as a result of vaccination. That was how vaccination became the topic of discussion at that wedding. Some were in support of vaccination while others were against it. Some women even showed us messages they received on watsapp against vaccination. Others had short videos and audios. It was a heated argument as we could not convince each other."

Research Question 5. What are the sources and types of information parents receive about measles?

The fifth objective of the study was to uncover where hesitant women received information about measles and the type of information they received. The objective was to have an indepth knowledge of the information given to them.in realizing this objective, the researcher asked the participants questions. From the participants, two categories surfaced. (1) Social Network (2) Mass media

Sources of information parents get about measles.

This category portrays narratives related to the sources in which hesitant women get information about measles disease. It has two categories

Close ties

Mass media

4.3.7 Close ties

This explains the sources where hesitant women receive information about measles. Respondents narrated that they got their information from their close relatives, or when they meet with friends in social gatherings. It has one category

4.3.7.1 Family and Friends

This sub category comprises of respondents who revealed that they received information about measles from their spouses, relatives, and friends especially at the time of its outbreak. A respondent narrated. "We heard information about measles from our relatives and good friends mostly when there was outbreak of the disease in an area". Another respondent also said: "When my first child contract the disease, then I was a first time mum and my mother in-law was staying with me. She was the one who gave me awareness of measles as a killer disease. She also asked me to keep my baby away from the infected child else, my baby would contact the disease"

Information from Close ties

This category explains the type of information hesitant women receive from social network. They were told measles vaccination is a disease from God that can be prevented and cured through various orthodox and unorthodox means. It has sub categories:

4.3.7.2 Measles is a God sent disease

This sub category of respondents considers measles as a God sent disease. They don't believe it has a cause; rather they consider it a disease God sent to children at a particular time. A respondent revealed. "From my mum, I learnt measles is a God sent disease".

4.3.7.3 Measles is communicable

This sub category comprises of respondents who said they were told measles was a highly contagious disease i.e. through body contact with an infected child, one can easily get infected. Respondents ascertained: "I can still remember vividly, when my Azara had measles and I informed my mum, she told me to isolate the sick child from other children else all of them would be infected.

4.3.7.4 Measles can be prevented

Hesitant women revealed they were told measles could be prevented. That is, there are procedures to follow to ensure children do not contract measles. These procedures are orthodox and unorthodox in nature. Respondents said they received information on so many ways of preventing a child from measles attack such as the use of onion syrup and Tridax procumbens. A respondent said: "last year when there was outbreak of measles in my area, I was told to give my children Tridax procumbens to prevent them from contracting measles. Some other people asked if I took my children for vaccination and I told them bluntly, its not an option".

4.3.7.5 Measles is curable

There were respondents who also confidently said they received news on how to cure their children from measles without visiting the hospital. They used unorthodox methods such as Tridax procumbens. Respondents narrated that they learnt there were so many traditional concoctions used in curing children when infected by measles. They mentioned that they were told non- refrigerated coca cola drink, dissolved yeast, soaked head of fresh fish and other methods could be used in curing measles.. A respondent revealed: "(swears with God) Wallahi! I learnt coca cola is used in curing measles, palmwine too, even scent leaf juice. And all those that mentioned it at my cousin's naming ceremony ascertained that they are effective. (Laughs widely), if you want to learn about new things, just attend ceremonies. That's our parliament".

4.3.7.6 Measles has symptoms:

This also depicts hesitant women receive information on the various signs that show a child has measles. For instance, it makes the child unable to breathe well, causes internal body ache, and even convulsion. A respondent mentioned that "My neighbour's son barely takes a week without having convulsion; his mother said he had the problem since he contracted measles". Another respondent narrated: "My sister almost gave me high blood pressure some years ago. She called me crying that her only son was having difficulty in breathing as a result of measles attack. I told her to give him pure honey, so that the disease would not seize the boy's voice. And luckily he survived" Another respondent also narrated: when we talk amongst ourselves, we normally discuss some of the signs our children show when they contract measles, so from there we also get information".

4.3.8 Mass media

This category portrays mass media as the sources of information for measles to hesitant women. Some respondents mentioned radio and television to be the source through which information reach them. It has one category:

4.3.8.1 Radio and Television

The narrative of the participants clearly shows that most often they receive information about measles through the television especially during the heat season when there is often measles outbreak. A respondent said: "During the heat season, there is usually a broadcast that there is measles outbreak in so area especially in the headlines".

Information from mass media

Hesitant women in Minna, Niger State, narrated that they were told measles disease is a dangerous disease that can be prevented through immunization. They revealed that the information emarnated from the radio and television.

4.3.8.2 Measles is a dangerous disease

This sub category of respondents said they were told measles is a very dangerous disease because it causes permanent disability in children. It causes deafness, blindness and even death to children. A respondent revealed: "I recently learnt measles caused the death of Fai'da, the third child of Mama Ummi, after a few days, Yusufa contracted the disease, but with timely intervention, he survived".

4.3.8.3 Measles is contagious in nature.

Hesitant women revealed they were told measles is a highly communicable disease over the radio and television when health workers were creating awareness. A respondent revealed. "... even on radio, health workers talk ill about measles disease, they say it is highly communicable."

4.3.8.4 Measles can only be prevented

Hesitant women revealed they were told over the mass media that measles disease can be prevented through vaccination. A respondent said. "They also make announcements that when we take our children for that injection (vaccination) they will not contract measles". Respondents under this category mentioned that they were informed that measles can be prevented by vaccination. A respondent narrated. "... and also vaccination which was invented by the white men is said to prevent measles". Another respondent also stated: "during the heat season" we hear campaigns that there is measles outbreak and therefore we should take our children for vaccination to prevent them from getting infected. Its long time effects are the reasons why I detest it".

4.3.8.5 Measles has symptoms

Hesitant women are also told over the mass media about the signs that depict that a child is infected with measles disease. Such signs are, high fever, rashes all over the skin, runny nose. A respondents revealed. "I mentioned the symptoms earlier, the symptoms we were told on radio is not different from the ones we get from our family and friends"

4.3.8.6 Measles is seasonal

Hesitant women also revealed the information they receive about measles to include the season when the disease occurred most often. It's during the heat season. Respondents under this category narrated that they learnt over the mass media that measles was on the outbreak and such information only get to them during the heat season. A respondent narrated: "most often during the heat season, we learn measles in on the outbreak from the news on radio, so as parents, we take precautions to prevent our children".

4.4 Discussion of Findings

Research Question 1: What is the prior knowledge of parents about measles?

Women that are hesitant to measles immunization in the study location considered measles as a 'disease'. The notion of disease in the context and situation of the study participants refers to a situation in which the internal and external organs of a child functions abnormally. Therefore, it is not surprising that participants considered measles as a disease because measles has exhibited the characteristics of what 'disease' is within the cultural and cognitive understanding of the participants in the setting.

Culturally, the study location is composed of multi-linguistics and multicultural ethnic groups. comprising of Gbagyi, Nupe, Hausa and Dibos. As culturally diverse as the study location is, they do share a common understanding of what disease is. For instance, from a cultural perspective, they do share a common understanding that a disease is anything that affects a child's wellbeing. Similarly, from cognitive perspective, each culture learns or receives information and knowledge in regard to disease from their parents which is passed on through lineage.

In summary, the understanding of measles as a disease is not in question. Hesitant women consider it as not only a disease, but a dangerous and epidemic one. This is because in their existing knowledge the disease spreads with air/spirit (iska). This might be due to their experience on how the disease finds its way into houses within the same locality. In addition, Northern women question the scientific explanation of viral infection as their social ontological belief associates it with God or spirits (Abdullahi, 2013). So, any disease caused by evil spirit is considered dangerous and difficult to cure. In fact, if there is negligence on the side of the parents, they might lose the child. Hesitant women for example considered measles as a dangerous disease because it threatens the life and

wellbeing of those they hold close to their chests (children). Interestingly, the action of hesitant women does not portray that. If it is actually a dangerous disease, they will not be selective in the measures taken to prevent and cure the disease. However, considering their religious and cultural upbringing, where there is belief in Qadr (predestination), one should not be surprised at their being lackadaisical in accepting alienated inventions.

What appears interesting from the study is that even though participants consider measles as dangerous; they do not subscribe to the idea of treating the disease using orthodox health procedures. Rather, they are more comfortable with applying traditional health procedures in managing the disease. Top on the list of traditional health procedures for managing measles is to use herbs and other known preventive approach/techniques.

The reason why study participants favour the use of herbs rather than orthodox medicine is as a result of information that is passed to hesitant women from generations to generations that the use of herbs is more effective than the orthodox medicines.

Research Question 2. What is the prior knowledge of parents about measles immunization?

One of the prior knowledge of hesitant women about measles immunization is their belief in the use of traditional medication for preventing measles. Hesitant women observed, appreciated and took advantage of the great diversity of plants available in their immediate locality. Since most of the plants grow around their homes. They therefore explored and used them for medicinal purposes especially in preventing measles. Some of the herbs are taken alone such as *Tridax Procumbens* or combined with other herbs to form a concoction (collection of herbs boiled in a clay-pot). One reason why they are adamant about all other preventive mechanisms may be because of their believe in the efficacy of the plants or because it is a cheap resource. Using concoction such as those mentioned earlier is not uncommon in the African society. As it has been estimated by the WHO that 80% of the world population presently use traditional medicines for some aspect of primary health care. Similarly, Chukwuocha (2014) in his studies, unveiled that among mothers in eastern Nigeria there is a high prevalence of home management of diseases among caregivers of under-five year old children.

From an informational perspective therefore, it can be understood that hesitant mothers are well informed about traditional medicament in the context of their social and cultural setting for the treatment and management of measles. However, it appears that the knowledge and information hesitant women have is in contrast to the orthodox medical knowledge about measles immunization. In this sense, when there is a contradiction between traditional indigenous knowledge and orthodox scientific knowledge, a serious problem is bound to occur. This problem can be described as cognitive conflict and is one of the factors that explain hesitant women to refuse information about measles vaccination.

Research Question 3. What is the prior knowledge of parents about measles vaccination? Hesitant women in Minna, Niger state, disclosed their prior knowledge of measles vaccination to be an 'injection'. Injection in this case, refers to using a syringe to diffuse drugs into their children's hands. They also considered measles to be an injection because most form of vaccination like BCG, measles, yellow fever meningitis, tetanus, are administered via injection by using syringe to pass the drugs. Furthermore, hesitant women are also aware that injection is mainly meant for someone that is sick. That is someone who is infected by a disease or illness which makes him unconscious, or vomits a lot and cannot take solid drugs is given injection. Unfortunately, measles as a disease within their cultural setting detests injection, this is because according to their believe and cognitive knowledge, when a child is infected with measles and takes any type of injection, it causes severe complications such as aggravating the number of rashes on the skin, causes disability and even death. This creates some form of cognitive instability in them as they are not clear why they should take their healthy children for injection (vaccination) when it is believed that injection is meant for only the sick.

Another prior knowledge of hesitant women in regards to measles vaccination is that measles vaccination is 'harmful'. The reason why they consider measles vaccination to be harmful is as a result of the information they received from different sources that vaccination causes sterility, cancer, infertility, increased rate in caesarean section and other long term effects that manifests as a child grows. The sources in which hesitant women receive such information includes: peer groups, parents, and religious clerics. However, the information received from the aforementioned groups are not based on any proven scientific evidence but rather on personal reasoning or beliefs.

Furthermore, the inhabitants of Minna town comprises of diverse multi-cultural groups; Nupe, Hausa, Gbagyi, and other minority tribes such as Bussa, Kadara, Dibbo and kambari. Even though the diverse multi-ethnic groups have differences in some ways, it is very interesting to note that they have common understanding in regards to the idea that children have natural instincts of detecting harm and that is why mothers from these multi-cultural ethnic groups believe children could feel the dangers of vaccination. This led to their belief of why children abhorred it and when it's administered on them, react to it's by either crying excessively, developing high fever, or even convulsing. This weakens mothers' morale about measles vaccination. Thus, their hesitancy.

Also, hesitant women fear the content of syringe used on their children. This fear escalates because they believe measles vaccination causes pain, dizziness, and permanent scars on

children. In addition, the mystery of the content further makes it difficult for them to believe vaccination is actually safe. As Akoum's (2019) research work revealed that one of the biggest reasons why parents refuse vaccines is due to safety concerns. Besides, hesitant women's prior orientation that injection is not better than tablet and only those who are not fit to take tablets should take injections adds to their confidence that measles vaccination is actually not safe. As a result, they resolve to an alternative measure, which is the use of herbs of which they are sure its content and source. The alternative measure (traditional concoction) was also accepted because it is needle free, harmless, easily delivered to the system, and socially acceptable, unlike measles vaccination.

From Orthodox medical point of view, measles vaccination makes children have the following side effects; injection site reactions (pain, redness, swelling or lump), fever, rash, headache, dizziness, joint or muscle pain, nausea, vomiting and diarrhoea. Extreme cases include; mental changes such as confusion, seizure, easy bleeding. (Cunha, 2017). Therefore, the fact that children experience severe side effects was interpreted by hesitant women in this study setting to be unnecessary since it causes harm. Thus, from an informational angle, hesitant women misinterpreted the severe side effects of measles vaccination as repercussions of the vaccine. And as such share their misunderstanding with significant others that measles vaccination is harmful, dangerous, and detrimental to the wellbeing of kids, therefore should be avoided at all costs.

Hesitant women in Minna, Niger state, are aware of measles vaccination but they do have conflicting knowledge with the orthodox medical view. They are aware that the white men invented vaccines but the invention of the white men always has a give and take concept. For instance, if they provide vaccines to prevent diseases, they ensure the vaccines' effectiveness doesn't just stop there but also does harm so that that they will have further patronage. However, the orthodox knowledge of hesitant women about measles vaccination is that it prevents measles disease. Thus, the contrast in their awareness is due to the believability of hesitant women in the sources of information. This in turn, has a relationship with strong and weak tie theory that claims that people tend to believe more on information emanating their close relations rather than from their acquaintances. This further buttresses the fact that hesitant women in Minna, Niger state, believe more in the information that comes from their family and friends rather than from health officials or mass media.

Research Question 4

Research question 4. What information is given to hesitant women about measles vaccination?

Hesitant women in Minna, Niger state, receive conflicting information about measles vaccination. The conflicting information are; they were told that measles vaccination is good, on the contrary they were told that measles vaccination is bad. In addition, these conflicting information came as a result of the sources where the information originated. For instance, those who told them that measles vaccination is good are health workers who are highly educated and lives in the metropolis. On the other hand, they were told by their peers, and significant others, that measles vaccination is bad for their children's wellbeing. This creates a scenario known as cognitive dissonance. Cognitive dissonance is a situation where an individual is faced with two conflicting information which leads to feelings of mental discomfort. To reduce the discomfort and restore mental balance, Cherry (2020) proposed some steps an individual can take, they are; rejecting or ignoring conflicting information, reducing the importance of the conflicting information, or changing the conflicting cognition. Furthermore, the conflicting information received by hesitant women affects the rate at which information is accept. They predominantly

accepts information from their close family circles rather than their acquaintances such as health officials. This is strongly in consonance with the strong tie theory which is of the proposition that family and friends or close relatives are more influential than their acquaintances.

What are the sources and types of information hesitant women receive about measles?

Findings from the study revealed that hesitant women receives measles information from different non-documentary sources such as;

Mass media: Hesitant women receives information from radio and television which are generally considered as part of the mass media. In modern culture, most information in circulation originates from the mass media. For this reason, the mass media is the major source of information for the majority of the population in most countries. In this regard, hesitant women are not left out in the trend as they are exposed to information in different forms and formats, such as; jingles, short drama, images, and songs via radio, television and bill boards. These formats were developed to persuade, change their beliefs and broaden their horizons about measles. However, all efforts from these sources do not yield much results as hesitant women do not completely trust the sources of the information. They rather believe in their prior knowledge, assumptions or personal experience. This is in line with limited-effects theory, which argues that the media exerts a negligible influence because people generally choose what they watch or read based on what they already believe.

Close ties: In this research, hesitant women trust those that share ties with them for information more than any other source. Networks of individuals such as family, friends, spouses, religious leaders, traditional healers, neighbours, and customers are more significant, reliable and influential sources of their information about measles. Such information are disseminated through interpersonal rapport, regardless of location. In addition, hesitant women recently began to rely on information/communication through face to face conversation, phone-calls or social media platforms such as whatsapp, Facebook. Furthermore, findings also revealed that most of the information sprout from personal beliefs/assumptions, prior knowledge, testimonies, and references from religious books. Some are even through trial and error or guess works. As a result, they share a common knowledge of measles.

Sanatorium/ Health workers are also one of the sources through which hesitant women receives measles information. From the research findings, it was glaring that health workers do not wait for hesitant women to visit them at their clinics/hospitals.. They believe it is very essential for individuals especially parents to be knowledgeable about health information. In this regard, they take a step further; by following individuals to their various environments to disseminate measles information via campaigns and organising events such as child's day week. For example, on 23rd February 2018, the Niger State Primary Health Care Development Agency, engaged in a meeting with the 25 local government chairmen about measles vaccination campaign. Though, the campaign was just for 6 days, as it began on 1^{st and} ended on 6th of February, 2018. During the campaign; temporary vaccination spots were developed to ensure every child in the community was reached; emirs, religious leaders, down to district heads were also engaged to mobilize the community. In fact, findings revealed that some hesitant women were followed to their doorsteps to sensitize them, and encourage them to release their children for vaccination. Furthermore, Childs' day week was organised by the Niger State government on January 2020 to sensitize people about measles and encourage them to accept vaccines. However, despite all these efforts by health officials, and the

government; Niger state recorded an outbreak of measles barely 5 months after the last sensitization. In fact, 13 of the 25 local governments. Niger state were struck with measles disease in June 2020, Bosso and Chanchaga which are part of the case study were inclusive. Findings also revealed that the health workers are very active in the mass media disseminating measles information.

However, hesitant women from their own end have serious trust issues (with the health workers); as a result, they do not only shut their ears but their doors at the sound and sight of health practitioners. They believe health workers have been brain-washed by the white men to convince them to accept, adopt their behaviours and their inventions. This makes it difficult for the health workers to establish an interpersonal rapport, talk more of getting them informed. In fact, some hesitant women featured in this research work revealed how extreme their spouses went with them regarding health workers visiting their homes to discharge information. Their spouses said they are cursed, anytime a health practitioner knocks on their door and they listen to him/her. However, the researcher observed that such women were in purdah. But the interesting part was these particular set of women still get information directly from health workers when the village community head seeks their assembly at his residence or village square for the dissemination of health information.

The type of information received by hesitant women are:

Measles as a disease: From the research findings, it was evident that hesitant women received information about measles as a "disease". They were informed that measles was not just a mere disease but a communicable and dangerous one. This is as a result of how it spreads, the symptoms and complications .Globally, measles has been a life threatening disease of children, as a result, the World Economic Forum (2020) listed it among the 5

of the world deadliest infectious diseases. In addition, hesitant women in Minna, Niger state, were informed that measles as a disease was God sent and caused by heat or air. However, from the narratives and observations of the respondents, hesitant women are not too sure of the actual cause of measles. Though, WHO (2019) announced that measles is actually viral in nature. Unfortunately, the hesitant women in Minna, Niger state, do not believe the explanation of WHO that measles is a viral infection. These women rather believe every disease including measles is from God. In fact the term "viral" does not exist in their language. So, since they don't even know what a virus is; all their thought is that measles is a God sent infection. As a result, they proffer solutions in preventing and curing the measles disease such as; head of fish, ashes, Tridax procumbens, Cocacola drink, prayers, and concoctions. However, from orthodox stand point, viral infections can only be prevented but cannot be cured. So, measles as a disease involves three things, a viral disease, that has no cure, but can be prevented via vaccination and that is why vaccination is highly encouraged. Nevertheless, measles can be clinically managed as WHO (2019) made known that supportive care can be given to a child that is infected with measles disease through proper nutrition, sufficient fluid intake to replenish loss fluid via WHO-recommended oral rehydration solution, antibiotics to treat infections, and vitamin A supplements.

From an **informational perspective**, the fact that hesitant women in Minna, Niger state, do not view measles as a viral disease that is incurable has informational implication. As such this **information has been passed on from generation to generation** within the society for donkey years.

To change the information received by hesitant women that has been alive from time immemorial, health information professionals should swing from the normal **informative learning process** which has proven ineffective from the findings and embrace the **transformative learning processes.** This will motivate hesitant women to think deep, rate the accuracy of their core beliefs/ assumptions and arrive at conclusions that will change their cognitions/mindsets.

Research Question 6. How does the information communicated to parents by orthodox health workers contradict the information given to them by family and friends?

Information from family and friends	Information from health professionals
Measles is curable	Measles is incurable
Prevention is at will	Prevention is vital
Measles is caused by heat/air	Measles is caused by a virus
Measles has alternative preventive	Measles can be prevented by vaccination
measures	alone
Immunization and vaccination are the	Vaccination is a type of immunization
same	
Vaccination is harmful	Vaccination is safe.

From the table above, it is evident that the information hesitant women receive from their family and friends do not tally with the one delivered by health workers. This contradiction led to their hesitancy. In addition, the research findings show that the information received from health workers does not coincide or relate with the prior knowledge of hesitant women, as a result, they are put in a state of cognitive dissonance. Cognitive dissonance is a term used to describe a situation when an individual is confronted with two or more contradictory belief, idea or information. When hesitant

women are in such state, they are forced to look for a way to balance their cognitions by doing either of the following:

- 1. Adding more supportive information or belief from family and friends since their information is consistent with their prior knowledge. This will enable the information outweigh the information received from health workers
- 2. Disregard/reduce the importance of the information coming from the health workers.
- 3. Change the information to make the relationship between the two cognitions consonant.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Hesitant women in Minna, Niger state, are fully aware of measles as a dangerous disease. However, they do not subscribe to using orthodox medicines for curing the disease. Rather, they prefer the use of several traditional medicaments as a form of preventing and curing measles disease. They also believe measles vaccination to be an injection that is harmful to the wellbeing of a child, on the other hand, they receive information that measles vaccination is safe. This makes the information about measles vaccination conflicting.

Hesitant women in Minna, Niger state, receive information from radio and television (the mass media). They also receive information from their close ties such as family and friends. Health workers are not left out as another a source of information to them, during campaigns or events such as child day's week. Furthermore, these women receive varying types of information about measles such as measles is a disease; that is dangerous, communicable, preventable, and has lots of symptoms. In addition, hesitant women are told measles is caused by extreme heat/air and is accompanied by lots of complications especially when it affects children during the heat season. A surprising finding from the study shows that information is also communicated to these women that measles is a viral disease. On the contrary, findings from the study revealed that hesitant women do not believe measles to be a viral disease. Another key finding from the study is that hesitant women do not believe measles is incurable.

Finally, data in this study indicates the reason behind women hesitancy to measles vaccination in Minna, Niger state, which is the contradiction between two concepts. The

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prior knowledge of hesitant women about measles vaccination and the new information they receive about measles vaccination.

5.2 **Recommendations**

Based on the findings from this study the following recommendations are made:

- 1. Measles information passed to mothers should be aimed at changing the prior cognitive perspective of mothers on its:
- a. causes;
- b. symptoms;
- c. those at risk;
- d. how the disease is spread;
- e. how it can be prevented;
- f. possible complications;
- g. where to seek clinical assistance.

However, a change in cognition requires some mental processes to take place. The first step is to design communication messages to ensure that the message is noticed by the intended recipient. This strategy should be focused on making sure that the potential recipient pay attention to the message. Following this principle, any measles information designed in Minna, Niger state, must therefore bring out specific strategies to ensure that mothers pays attention to the measles' message. Some of the strategies to ensure "cognitive attention" include culture and data sensitive strategies.

To shape the cognition of hesitant mothers in regard to measles, such culture sensitive strategies that can be used are learning strategies through the use of storytelling, quotations such as cultural proverbs carefully selected that will prompt them to attach emotional significance to the next information. Other examples include; asking thought provoking-questions, using humor, referring to events/occasions either recent or historical, personal interest, and previous speeches where applicable. While that of data sensitive strategy should center on empirical data sets such as using startling statistics. An example of culture sensitive strategy includes beginning an enlightening programme by stating that "Do you all know that despite the natural bond between a mother and her child, measles can put them asunder?" This information will not only wake the mother's conscience, but will also unconsciously sieve unnecessary perceptions around them. By so doing, the measles information intended to be passed on to them will be salient among other cognitions.

The second is to ensure the designed messages to be communicated about measles is encoded and stored in the recipient's memory. This strategy as a basic process of learning can be used to shape the cognition of hesitant mothers. It can be implemented by ensuring the communicated messages are understood and remains in their memory permanently. Adopting this process, any measles information to be repackaged for mothers in Minna, Niger state, must employ specific cognitive strategies that will enable the analysis, synthesis, or transformation of measles information into the permanent memory of the recipients. Such strategies include: repetition, summarization, use of mnemonics, acronyms, elaboration, organization, annotation, imagery, guessing meaning from context, transformation and rehearsal. For example, disseminating information on the symptoms of measles should entail arranging the symptoms to form an acronym such as: Dr. FIRST (Dry cough, runny nose, fever, inflamed eyes, rashes, sore throat, tiny spots in the mouth).This will enable the permanent retention of the symptoms of measles in the memory of the recipients. Also, constant repetition such as repeating the sentence "measles can be prevented by immunization" more often in the course of communicating measles information will enable the message have permanent space in the memory of the recipients.

- 2. Before any information about measles is communicated to parents it should take cognizant of their prior knowledge. This is in line with the cognitive learning theory that encourages learning to be rooted on prior knowledge.
- 3. From an informational perspective, in order to reduce the resistance to measles vaccination, there is the critical need to understudy the vaccine cognition of parents to determine the cognitive perspectives and then design communicative learning strategy for measles vaccination in the context and situations of MINNA.
- 4. Information professionals should develop communication strategies that will enhance effective dissemination of measles information. These strategies should be carefully selected and implanted to cripple the conflicting information communicated to them and also change their cognitive perception about measles vaccination. For instance, organizing talk shows, seminars or conferences with district heads, clergies, and some strong ties such as heads of households in Minna, Niger State. The aforementioned set of people should in turn disseminate unified and verified information directly to these women on behalf of health workers. This will ensure that the information to is transmitted to these women be in conformity with the information from health professionals. Thus, eliminating the conflict.
- 5. To change the information received by hesitant women about measles that has been alive from time immemorial, health information professionals should swing from the normal **informative learning process** which is ineffective from the findings and embrace the **transformative learning processes.** This will motivate hesitant women to think deep, rate the accuracy of their core beliefs/ assumptions

and arrive at conclusions that will change their cognitions/mindsets about measles disease.

6. To reduce the contradictory information communicated to hesitant women, in Minna, Niger state, it is highly recommended to use transformative learning approach. As hesitant women are given new information about measles, this learning process will enables them to compare and evaluate their thoughts or experiences. Through critical reflection and thinking, they begin to question themselves about their previous knowledge and examine things from a new perspective which will possibly lead to the modification of their worldviews.

Also, health information professionals should develop numerous cognitive strategies aimed at changing the mind-sets of hesitant women, family members, and other social networks so that the information offered to them will not only override their prior knowledge but also be consistent with the information shared among themselves. Strategies such as; making emphasis, use of mnemonics, cues, try-outs, elaboration, imagery for memorisation, and proper organisation could be adopted. This will enable hesitant women personally develop internal practices necessary for changing their cognitions about measles vaccination.

5.3 Contribution to Knowledge

- Even though hesitant women believe in the efficacy of the herbal medicines. Used in curing measles disease, unfortunately, it appears they are not well informed about the dose and the dose regiment for the treatment of measles. The lack of being informed about the dosage and dosage regiment is critical for designing measles information services and measles information programs.
- 2. The study also has:

- a. Conceptual contribution to knowledge
- b. Pragmatic contribution to knowledge
- a) The conceptual contribution is:

The study has identified theoretical constructs in form of categories and sub categories that explains factors responsible for measles vaccine hesitancy among mothers in Niger State. The theoretical constructs represent conceptual contribution to knowledge as it can be used to develop hypothesis for statistical generalization.

b) Pragmatic contribution is:

The pragmatic contribution is that the study has identifies: categories and sub categories that can be used to design context specific measles information behavioural program that is suitable for hesitant mothers in Niger state, Nigeria.

5.4 Suggestion for further studies.

There is need for future research that understudy the reason for women hesitancy to vaccination as a means of eradicting childhood killer diseases using socio cognitive approach in Nigeria.

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APPENDIX A

INTERVIEW GUIDE

Research question 1: what is the prior knowledge of parents about measles?

Share with me what you know about measles

Research question 2: what is the prior knowledge of parents about measles immunization?

Tell me what you know about measles immunization

Research question 3: what is the prior knowledge of parents about measles vaccination?

Share with me what you know about vaccine for measles?

Research question 4: What information is given to mothers about measles vaccination?

Share with me the information communicated to you about measles

Share with me the information communicated to you about measles vaccination?

Research Question 5: What are the sources and types of information parents receive about measles?

Tell me the type of information you heard about measles and those that give you the information?

Research question 6: How does the prior knowledge of parents about measles vaccination contradict their knowledge about measles?

Tell me your understanding of the information communicated to you about measles

Tell me your understanding of the information communicated to you about measles vaccination

APPENDIX B

DATA ANALYSIS STEPS



APPENDIX C

CONCEPT MAPS

APPENDIX D

CATEGORY AND SUB CATEGORY BY FREQUENCY OF DATA ANALYZED.

Category	Sub-category	Frequency
Measles as a diseases	1. Disease as an act of	3
	God	28
	2. Dangerous disease	20
	3. Epidemic disease	4
	4. Disease of children	15
	5. Communicable disease	15
	6. Causes of measles	7
	7. Seasonal disease	15
	8. Disease with traditional	15
	cutrative measures	18
	9. Disease with symptoms	68
		57
	Group Total	215

Table 4.1 Prior Knowledge of Parents about Measles

Category	Sub-category	Frequency
Immunization being	1. Traditional medicines	15
medicinal		
Other activities that do	1. Prayers	5
not require medicine	2. Ventilation	2
No knowledge	1. I don't know and I don't	4
	care.	
	Group Total	26

Table 4.2: Prior Knowledge of parents about measles Immunization

Table 4.3 Prior knowledge of parents about measles vaccination

Category	Sub-category	Frequency
Vaccination as injection	 Injection on the arm That is harmful Not effective That has alternative preventive measure Non-belief in prevention before cure Vaccination as injection they do not trust. 	6 17 4 11 4 9
	Group Total	51

Category	Sub-category	Frequency
Conflicting information	 Vaccination is good Vaccination is bad 	9 11
	Group Total	20

Table 4.4 Information communicated to hesitant women about measles vaccination

Table 4.5 Sources of information communicated to hesitant women about measles

vaccination

Category	Sub category	Frequency
Close ties	1.Family and Friends	15
	2.spouses	4
Sanatorium	1.Health practitioners	5
Mass Media	1.Radio and Television	12
Social media	Phones	6
	Group total	42

Category	Sub category	Frequency
Close ties	1.Family and Friends	15
Information from close	a. measles is a God sent	
ties	disease	
	b.measles is communicable	
	c.measles can be prevented	
	d. measles is curable	
	e.measles has symptoms	
Mass media	Radio and Television	15
Information from mass	Measles is a dangerous	
media	disease	
	Measles is contagious in	
	nature	
	Measles can only be	
	prevented	
	Measles has symptoms	
	Measles is seasonal	
Group total		30

Table 4.6. Sources and type of information hesitant parents receive about measles.