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DETERMININGPARENTS ATTITUDE TOWARD CHILDHOOD VACCINATION INTARAUNI LOCAL GOVERNMENT AREA KANO STATE, NIGERIA.

MASTER THESIS

FATIMA AMINU ADAMU

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SUPERVISOR

Assist. Prof. Dr. Samineh Esmaeilzadeh

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CONFIRMATION

To The Directorate of Health Sciences Institute;

This thesis study was accepted by the jury on 26.10.2021 as a Master' s Thesis in Nursing Program of the Near East University Insitute of Health Sciences.

Head of Jury: Prof. Dr. Hatice BEBIŞ
Eastern Mediterranean University
Signature:

Member: Asst. Prof. Dilay Necipoğlu
Near East Faculty of Nursing
Signature:

Thesis Advisor: Asst. Prof. Samineh Esmailzadeh
Near East University Faculty of Nursing
Signature:

Prof. Dr. Kemal Hüsnü Can Başer
Head of Institute

Approved by Institute Graduate Studies

DECLARATION

Hereby I declare that this thesis study is my own study, I had no unethical behavior in all stages from planning of the thesis until writing thereof, I obtained all the information in this thesis in academic and ethical rules, I provided reference to all of the information into the reference list and had no behavior of breeching patent rights and copyright infringement during the study and writing of this thesis.

17/11/21

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ABSTRACT

Determiningparents Attitude Toward Childhood Vaccination Intarauni local Government Area kano State, Nigeria. Health Science, Nursing Department, Master Thesis, Nicosia 2021

Introduction;Vaccination is found to be responsible for healthier and longer lives for all, more importantly among the infants population.Parents attitudes played a vital role positively or negatively, which in turn influence child health. Parents negatives attitudes poses a great threat and triggers the burden of disease outbreak to the public health.

Aim; The aim of this research is to evaluate the effects of socio-economic characteristics and the parents attitudes toward childhood vaccination.

Materials and Method; This study used a cross-sectional and descriptive study. Data was collected using a self-dministered Questionnaire and Parent attitude on childhood vaccination scale (PACV). A total of (N=203) voluntarily participated in the study who are residents of the study area for at least a year or more.Statistical Package for Social Sciences (SPSS) 26.0 is used for analysis and evaluation.Mean±, Standard deviation, Numbers(n), Percentages(%) were used. Pearsons correlation analysis test, and KruskalWallis Varyans analysis are also used for comparison. Data were evaluated with a 95% confidence interval and p-<0.005 were accepted as the statistical significance.

Findings;Based on the research, the participants average PACV scale total score is 17.1±14.23 , the mean score of behavior sub-domain was 2.07±2.00, the mean score for safety and efficacy is 5.95±4.94 and the mean score for general attitude sub-domain is 9.03±7.24 respectively. Based on the PACV 100-point scale, 33.4% (n=68) of mothers had a 0-49 score (low vaccine hesitancy), 25.1% (n=51) had a 50-69 (medium vaccine hesitancy) and 41.3% (n=84) had a score of 70/100 score (high vaccine hesitancy).

Conclusion; A growing number of factors contributed to parents attitudes on delayed, hesitancy or refusal of vaccinations. This behaviors increases the risk of contracting Vaccine Preventable Diseases and disrupting the herd immunity. The PACV was considered as the most reliable and valid instrument to test parents attitude and it is recommended for use in order to further reliability testing. Such instrument is helpful to public health nurses during assessment as, Public health nurses/practitioner roles cannot be overestimated.

KEYWORDS; Vaccination, Immunization, Vaccine Preventable Diseases, Parents Attitudes.

ÖZET

Ebeveynlerin Çocukluk Aşilarina Karşi Tutumlarinin Belirlenmesi ULUSLARARASI Yerel Yönetim Bölgesi Kano Devleti, Nijerya. Sağlık Bilimleri Enstitüsü, Hemşirelik Bölümü,Yüksek Lisans Tezi,Lefkoşa 2021

Giriş; Aşılamaınn herkes için, daha da önemlisi bebek popülasyonu için daha sağlıklı ve daha uzun yaşamdan sorumlu olduğu bulunmuştur. Ebeveynlerin tutumları, çocuk sağlığını olumlu veya olumsuz yönde etkileyen hayati bir role sahiptir. Ebeveynlerin olumsuz tutumları büyük bir tehdit oluşturmakta ve salgın hastalıkların halk sağlığı üzerindeki yükünü tetiklemektedir.

Amaç; Bu araştırmanın amacı, sosyo-ekonomik özelliklerin ve ebeveynlerin çocukluk çağı aşılarına yönelik tutumlarının etkilerini değerlendirmektir.

Materyaller ve metod; Bu çalışmada kesitsel ve tanımlayıcı bir çalışma kullanılmıştır. Veriler, Tanımlayıcı bilgi formu ve Çocukluk aşılama ölçeğine (PACV) ilişkin Ebeveyn tutumu kullanılarak toplanmıştır. Çalışma alanında en az bir yıl ve daha uzun süredir ikamet eden toplam (N=203) gönüllü kişi çalışmaya katılmıştır. Analiz ve değerlendirme için Sosyal Bilimler İstatistik Paketi (SPSS) 26.0 kullanılmaktadır. Ortalama±, Standart sapma, Sayılar (n), Yüzdeler(%) kullanıldı. Karşılaştırma için Pearsons korelasyon analizi testi ve Kruskal Wallis Varyans analizi de kullanılmaktadır. Veriler %95 güven aralığında değerlendirildi ve p-<0,005 istatistiksel anlamlılık olarak kabul edildi.

Bulgular; Araştırmaya göre, katılımcıların PACV ölçeği toplam puanı ortalaması 17,1±14,23, davranış alt alanı puanı ortalaması 2,07±2.00, güvenlik ve etkinlik puanı ortalaması 5,95±4,94 ve genel tutum puanı ortalaması alt alan sırasıyla 9,03±7,24'tür. PACV 100 puanlık skalaya göre, annelerin %33.4'ü (n=68) 0-49 (düşük aşı tereddütü), %25.1'i (n=51) 50-69 (orta aşı tereddütü) ve %41.3'ü puan aldı. (n=84) 70/100 puan aldı (yüksek aşı tereddütü).

Çözüm; Artan sayıda faktör, ebeveynlerin aşıları geciktirme, tereddüt etme veya reddetme konusundaki tutumlarına katkıda bulunmuştur. Bu davranışlar, asi ile onlenebilir hastaliklar yakalanma ve bağışıklık bozma riskini artırır. PACV, ebeveynlerin tutumunu test etmek için en güvenilir ve geçerli araç olarak kabul edildi ve daha fazla güvenilirlik testi için kullanılması tavsiye edildi.

ANAHTAR KELİMELER; Aşılama, Bağışıklama, Aşılar, Aşı ile önlenebilir hastalıklar, Ebeveyn Tutumları, Bağışıklık.

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ACRONYMS

BCG	Bacilli Chalmette Guerine
CDC:	Centers for Disease Control and Prevention
EPI	Expanded Program on Immunization
EBP	Evidence Based Practice
FGoN	Federal Govornment Of Nigeria
DPT	Diphtheria Pertussis and Tetanus toxoid
GVAP	Global Vaccine Action Plan goal
HICS	High Income Countries
IPV	Inactivated Polio Vaccine
IPDS	Immunization Plus Days
LMICs	Low and middle-income countries
LGA	Local Government Area
MDGs	Millennium Development Goals
MenA	Meningococcalbacteria strain A
MPA	Multiphase Programmatic Approach
NDHS	Nigeria Demographic and Health Survey
NGOs	Non-Governmental Organization
NPHCDA	National Primary Health Care Development Agency
NPI	National Program on Immunization
OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugate Vaccine
PHN	Public Health Nursing
RI	Routine Immunizations
SDGs	Sustainable Development Goals
TT	Tetanus Toxoid
UNICEF:	United Nation Children's fund
VPD	Vaccine Preventable Disease
VH	Vaccine Hesitancy
WHO:	World Health Organization

CHAPTER ONE

1. INTRODUCTION

1.1 Definition of problem

Vaccination has been proven to be of great benefit in protecting the children against vaccine preventable diseases (VPDs). The benefits include; reduction in global child mortality rate from 65 per 1000 live births in 1990 to 29 in 2011 and also serve various benefits in different levels such as the healthcare providers levels, community level, governmental level and the society in general based on the literature (Arindam and Anita, 2016). Immunization is a key component of primary health care and an unquestionable human right. It is critical for prevention and control of infectious-disease flare-ups. They support worldwide well-being, security and will be an imperative apparatus within the fight against antimicrobial resistance (WHO, 2019).Decrease vaccination uptake rates have turned out to be one of the greatest public health challenges of concern today. When discussing on the issues of immunization and vaccination by health care providers, the focus is always placed on its purpose, potential benefits, side effects and its efficiency while the parents perspective is always placed on its outcome putting more emphasis on rare side effects. A growing number of factors have been found to greatly affects the parents beliefs resulting them in delaying vaccinations and some denying to accept the vaccine entirely. These attitudes poses an increasing threat to the health of the public in general and increases the chances of vaccine-preventable diseases outbreaks as well as disrupting the herd immunity. Parents decision on their children will always remain a matter of concern and highly respected as the children are indecisive, lacking the ability to decide for themselves at their early stage of life (Damnjanovic et al., 2018). The word vaccination was found from Latin `Vacca`, meaning cow, since first vaccines were made from relatively harm-less `cowpox` virus which stimulates the body to produce immunity against infectious and deadly cowpox disease. The great British physician in 1796 Edward Jenner was the first to use the word. WHO regarded vaccine as one of the measures of primary disease prevention and the most effective means of fighting against contagious diseases, especially the infant's population, been at their early stages of life makes them at increased risk of disease. Vaccine is regarded as the affordable, accessible, the most trusted and effective strategy for early prevention, and eradication of VPDs. Vaccines are immunobiological

preparations, which, when inoculated and introduced into the body system, it stimulates the host`s immunologic response, thereby fighting foreign bodies (Jovanović*et al., 2019).*

In accordance with the Nigerian Federal Ministry of Health on the routine immunization schedule recommended that, children are said to be completely immunized only when they receive; one dose of Bacillus Calmette Guerin (BCG) against tuberculosis, three dose of OPV and one dose of measles, three dose of DPT against diphtheria, pertussis (whooping cough) and tetanus toxoid within their first year of life otherwise, they are not completely immunized.But due to weak immune system and the vulnerability of children below age two, they are regularly immunized with booster doses especially of polio and measles during the national or sub-national immunization days (Duru et al., 2016). All the mentioned vaccinations are expected to be given during their first year of life, over the course of five visits, including the doses delivered at birth. According to this schedule, children aged 1—2years are said to have been completely/fully immunized. For easy tracking and scheduling of these immunizations, Nigerian government provides a health card which keeps each dose recorded to ensure better provision of the services (Ophori et al., 2014). Having received the complete doses, will aid reduction of both childhood morbidity and mortality therefore, to achieve a high levels of coverage, immunization must be a priority for all health systems (Arindam and Anita, 2020). In addition to routine immunization, mass campaigns are held in all the states of the country as an efforts to eradicate poliomyelitis and occasionally for yellow fever, meningococcal meningitis, and measles vaccines (Oku et al., 2017).In efforts to continue boosting childrens immunity against childhood infectious killer diseases, the government through NPHCDA, EPI and WHO with the support of Gavi, are striving harder on largescale community Campaigns also regarded as health education/health teaching to encourage the Communities on vaccination acceptance especially on meningitis and measles, which is found to be a fatal viral respiratory infection which increases the chances of under five years child morbidity and mortality and whose outbreak burden was experience in recent time. In order to prevent such recurrence, an increase measles vaccine coverage is needed through reaching every eligible child to be able to reach the target population irrespective of their location because “No child deserves to die from any vaccine preventable disease”In addition, Nigeria is within the meningitis belt, where the incidence rate is very high, especially in the North”, these calls for attention on increase awareness through campaign as the only route to be able to increase coverage to prevent communities from the risk of disease

outbreaks (WHO, 2019). Thus, the aim of this study is to determine the parents attitudes toward vaccination in Kano State, Northern Nigeria.

1.2 Women Role On the Family

Mothers in the Northern Nigerian setting has multi-roles such as wife, mother as well as the house-manager in the family which includes managing the domestic sectors of family and the decision making regarding health issues and other important activities of the family, especially single, divorced and widowers (Ida and Nurlaini, 2015). According to the Northern Nigerian history, the cultural traditions expected of grown women are to get married and be full-time house wives, responsible for the house chores, nurturing the children and other domestic sectors. They only attended Islamic schools mostly in the evening and are said to seek their husbands permission before they could ever live their homes. Later with the introduction of the western education in the northern region, some women were allowed to attend school. Those that were up to the level of achieving secondary and post secondary education were able to work as school teachers and some practice nursing and midwifery in their homes and clinical setting (Renne, 2004).

1.3 Significance of study

The findings of this study could be a secondary data and beneficial to future researchers who may have an interest in such field of study concerning routine immunization status and its coverage. At the end of this study, the Parents attitudes on routine immunization will be measured through Parent attitude on childhood vaccination Scale (PACV) (Opel DJ et a., 2011).This will broaden the knowledge base of people and entities like experts in public health, stakeholders, authorities, researchers and others who may find it interested.

1.4 Aim of Study

The goal of this study is to evaluate the effects of socio-economic characteristics and routine childhood knowledge and attitudes of families living in the Tarauni LGA, Kano state, on the mean scores of the Parent attitude on childhood vaccination Scale (PACV).

The dependent variable:

Parent attitude on childhood vaccination Scale (PACV) score averages

Independent variable

Socio-demographic characteristics of families.

1.5 Research Questions

(i) What is the knowledge of parents concerning Routine childhood vaccination in Tarauni LGA, Kano State?

(ii) What is the current vaccinations coverage of children 0-12 months in Tarauni LGA, Kano State?

(iii) What is the relationship between sociodemographic characteristics and the routine childhood vaccination in Tarauni LGA, Kano State?

(iv) What are the factors that influence immunization in Tarauni LGA, Kano State

2. LITERATURE REVIEW

2.1 Childhood Vaccination

Childhood immunization and vaccination is highly considered as one of the greatest public health accomplishments of 20th century, which requires coverage levels of 90 to 95% depending upon the VPDs (Sharma *etal.,* 2013).The underlying goal of the immunization schedule is to achieve effective, lasting immunity against VPDs (Umoke et al., 2021). Immunization prevents an estimated 2 to 3 million deaths yearly from DPT and measles. Although vaccine uptake rates are high, however it does not reach the recommended level by WHO which is to vaccinate 95% of children (Dube et al., 2018). According to a study, Globally, it has been recognized that childhood immunization uptake has not reach to the level where it can prevent the occurrence of VPDs. This study also suggested that childhood immunization should be considered as "mandatory" to be able to fill up the immunization gaps faced by both high- and low-income countries and to maximize the societal vaccine acceptance in order to reduce the hesitancy attitudes on immunization, in consideration of the following three reasons (N.E et al., 2018); To begin with, the failure of using compulsive measures that motivates the society on immunization benefits such as health education campaigns, requesting for vaccination documents upon child's school entrance and in other important aspects of living, Secondly is in the cases of a disease outbreak which affects not only those involved but the society in general and lastly, the instance to achieve reduction of the vaccine preventable diseases for wild polio, by maximizing the uptake to the level where transmission rate is at its minimal state and to ensure high disease surveillance. Mandatory immunization plan is seemed to be a great strategy for eliminating global polio outbreaks. With these goal growing closer, the pressure on the other countries with these situation has increased. The need for shift to mandatory immunization program worldwide appears to be advantageous and an effective strategy in the management of VPDs. Moreover, planning and implementation of a mandatory program seems to be so challenging, from all perspectives, though using such strategy may seem coercive but its merits exceed the demerits (Macdonald et al.,2018) .

VPDs are highly endemic throughout sub-Saharan Africa. In spite of appropriate vaccine availability for routine use on children, yet disparities in the coverage of immunization program persisted between and within many communities in Nigeria (Diddy, 2010). The agency

responsible and for providing guidelines on the immunization program in Nigeria is the National Primary Health Care Development Agency (NPHCDA) (Oku et al., 2017). As per history, in May 1974, the 27th World Health Assembly resolved to build on the success of the smallpox eradication program and established the EPI to ensure that all children, in all countries, benefited from life-saving vaccines (Abdalsaid, 2017). Despite the stability of immunization coverage, globally it has improved and prevented around 2-3 million infant mortality annually, according to an estimation made, 19 million infants lack access to basic vaccines as a result of inadequate funds, poverty and lack of accessibility to health care facilities. 60% of them lived in Ten countries globally and Nigeria is found to be one of those countries in 2014.We argue that in addition to the health benefits of vaccinations, their effects on education, income andtheir benefits for unvaccinated community members can be considerable and should therefore be included in calculations to establish the value of vaccinations (Till et al., 2008).

Vaccination has been proven to be of great benefit in protecting the children against vaccine preventable diseases (VPDs). The benefits include; Global reduction in child mortality rate from 65 per 1000 live births in 1990 to 29 in 2011 and also serve various benefits in different levels such as the healthcare providers levels, community level, governmental level and the society in general based on the literature (Arindam and Anita, 2016). A lot of Studies have emphasized on the long-term benefits of vaccines such as the measles vaccine which acts boosting immunological memory and averts co-infections, thereby protecting the body against other infections, and consequently improving over all health with productive outcomes from adolescence to adulthood. Systematically, it is important to the policy makers to document and keep record of the broader health, economic, and child development benefits of vaccines, not only in LMICs where there is an increase burden of VPDs with limited public resources, but also in HICs where the emergence of vaccine hesitancy exposes a great risk to benefits gained from reducing VPDs. Other benefits include;

2.1.1 Child developmental benefits of vaccine

Vaccination neglects lifetime productivity gains as it prevents diseases that can cause cognitive impairment, lead to physical handicap, or reduce school attendance (Till et al.,2008). Persistent or recurrent childhood infections during early life can lead to poor developmental mile stone, which in turn have an adversely long-term effect and outcome in their future health. Preservation

of the infant's health begins during the uterine life, therefore maintaining a sound maternal health also plays a vital role in infants' life. Maternal infections, malnutrition and birth complications, during the first trimester of pregnancy and their neonatal days of life can have lasting impact on their health. According to some existing growing literature's, vaccines exposes a great benefits to child health during developmental stages. Especially measles vaccines as its episodes poses an unwanted threat to the child's immune memory for a period of 24–36 months, thereby increasing their susceptibility to future infections (Arindam and Anita, 2016). Decrese in the rates of antibiotic resistance have been seen, as less antibiotics are used when more children are protected by vaccination against bacterial infections (Till et al,. 2017).

2.1.2 Global and Economic health benefits of vaccines

Health care system consistently mentioned financial constraints as one of the highest barrier to implementation and vaccination coverage. Such funding gaps need to be look into in order to improve immunization and decrease disease burden (Oku et al., 2017).The various and most visible benefits of vaccine includes, it averts out-of-pocket medical expenses, by preventing disease occurrence through introduction of vaccination, and the global economic costs on health treatment. Particularly for LMICs where almost all, if not all, the burden of health expenditure is out-of-pocket. An estimation made in regards to such benefits are reduced health expenses, transportation costs, and productivity gains in their analysis, and between the year 2001-2020 it is anticipated that, the vaccines would come up with both economically and social value of $820 billion (2010 US$). During 2011–2020, the estimated rate for the return of investment on the vaccines was to be up to 44 times of the initial cost (Arindam and Anita, 2016).

2.1.3Social health benefits of vaccines

Vaccines not only provide individual protection for those persons who are vaccinated, they can also provide community protection by reducing the spread of disease within a population (Walter and Rafi,2017). VPDs in the general population are likely to decrease when the vaccine coverage improves. Through community immunity an increase in the preservation and protection of the population both vaccinated and unvaccinated will be achieved. Example, is the elimination of polio from almost all countries and it's getting to complete global eradication. Infectious disease incidence are often associated with poverty, mortality and its accelerated by lack of access to

basic human needs such as clean water and sanitation among the LICs all which can be prevented through RI which has an impact to social and health equity among the populations. RIs are, thus, estimated to ward off the biggest disease burden, associated health expenditures, and the resulted losses in economic productivity in the low income societies (Arindam and Anita, 2016). Vaccination also helps in Savings of parents' productive time because vaccination avoids the need for taking care of a sick child and also improves outcomes in unvaccinated community members (Till et al., 2008). In a recent discovery in 41 Gavi-eligible LMICs found that global coverage of rota-virus, PCV and measles would likely prevent almost 13 million incidence of disastrous medical expenses which are factors that may on the other hand lead the society into poverty. New research anticipated that vaccines can also handle the global health threats such as antimicrobial resistance infections (AMR). Which if left unattended, are estimated to lead to a catastrophic problems as much as 10 million deaths annually worldwide by the year 2050, which will results to increase economical cost of US$100 trillion.35 Vaccines prevents infections that can be sensitive or resistant and also decrease the use of antimicrobial, which in turn slows the growth of AMR (Arindam and Anita, 2016). Exposure to infections has a negative effect on the global economy, thus indicating the benefits of vaccinations in the society in general (Victoria, 2015).

2.2 Immunization Coverage

Immunization program as an effective public health measures for preserving the life and protection of children against VPDs, requires high coverage rate for the effectiveness of this program. Vaccination coverage referred to as the percent of a target population that has received the given recommended dose for each vaccine within a period or information on the percent of children who are on the vaccine schedule, are up to the recommendation at their first year of age. Immunization coverage serves as an evidence whether substantial progress has been achieved (Abdalsaid, 2017). Despite the statement made by WHO, that by 2020 the coverage of target population should reach at least 90% of national vaccination coverage and at least 80% coverage in all districts, yet disparities still exist across different population sub-groups, this calls for introduction of National Expanded Program on Immunization (EPI) in 1974 by WHO and the nationalization of the program in Nigeria in 1996, with their aim of averting infant mortality globally and more especially in those countries that are still developing (Egondi et al., 2015). In

regards to Goal 4 of the MDGs which aimed to achieve a two-third drop in infant mortality rate within the period of 1990 to 2015, provided an energy to enhance immunization coverage in Nigeria. This resulted in the introduction of supplemental immunization programs and strategies such as out-reach in every ward, increase in measles campaign and immunization Plus Days (IPDs). All mentioned programs were government funded, and the donor agencies ensured that immunization were provided as home services, as vaccine implementors were provided with all needed for house to house delivery, to immunize all the eligible children (itimi et al., 2012).

In Nigeria, routine immunization coverage for all vaccines has remained poor though there has been a gradual increase in vaccination coverage from 21% of eligible children (0–11months of age) in 2003 to 25% a decade later (Oku et al., 2017). Complete child immunization course is achieved by the health system based on the estimated dropout rate indicating the number of the children who start but fail to complete the immunization process between the first and the last dose of the vaccine at their first year of age. Globally the maximum acceptable dropout rate is 10%, higher rates indicate inefficiency of the health services, lack of access of information on follow up by the mothers and a lack of outreach by the health care teams. Other contributing factors on immunization dropout include; Maternal factors and lack of possession of children immunization card (Maki et al., 2017). The National Immunization Coverage Survey in Nigeria 2010, using DPT3 coverage as key indicator of RI reported that the North East region of Nigeria is reported to have had the least coverage of 46% while the South East region had the highest coverage of 91% and these marked disparity has remained so with only about 50% of the Nigerian States in 2012 having immunization coverage of more than 80%. These unequal access to immunization services, further highlighted that the vaccination coverage is not only determined by the governmental factors but also on other factors such as parental knowledge, behaviors and attitude of mothers. Measures which are likely to improve and maintain high coverage rate include, increase need for health education, improvement of female education, and outreach reminder on follow up. In addition, periodic household surveys are useful means to support the EPI (Abdalsaid et al.,2017). Since August 2016, Nigeria recorded zero polio cases and is on the verge of polio eradication; this success rests on highly monitoring and evaluation (M&E), the deployment of digital technology, and reaching the most isolated communities. Though the country has recently made some progress in improving vaccination rates with the current coverage at 50.1% which is low. To tackle this crisis, numerous approaches were

contrived to boost immunization in Nigeria but these interventions are still faced with challenges. The Federal Government of Nigeria (FGoN) has committed itself to improve its human capital to decrease under-5 child mortality by half by the year 2030. The proposed Multi-phase Programmatic Approach (MPA) includes Improving utilization and quality of immunization which is the Intermediate Program Outcome (PhaseI) among others (Umoke et a., 2021).

Table 1. The NPI and UNICEF, (2015), Routine immunization Schedule in Nigeria

AGE	ANTIGEN
Birth	BCG, OPV0, Hep B 0
6 weeks	OPV1, pentavalent 1, PCV1, Rota 1
10 weeks	OPV2, Pentavalent 2, PCV2, Rota 2
14 weeks	OPV3, Pentavalent 3, PCV3, IPV
9 months	Measles, Yellow fever
9 months and 15 months	Vitamin A

Abbreviations; BCG - Bacillus Calmette-Guérin

- **DPT -** Diphtheria, Pertussis (whooping cough), and Tetanus
- **HepB** - Hepatitis B
- **Hib** - Haemophilus Influenza type b
- **IPV**- Inactivated Polio vaccine
- **OPV**- Oral polio vaccine

2.3 PARENTS ATTITUDES

Parent attitudes played a significant role in the life of their children, they act as proxy decision makers for theirchildren, who are vulnerable and unable to decide for themselves. Parental decision is often accompanied by limitedknowledge (Downs et al., 2008) (Zingg and Siegrist, 2012),threatening campaigns, societal norms andofficial consent (Leask et al., 2011).In thecontemporary context, parents are prompted to take an activerole in their children's healthcare (Pyke-Grimm et al., 1999),which places heavy burden on the parent. This is especially true in the realm of intensive parenting;one of the most dominant parenting styles today (Arendell,2000; Smyth and Craig, 2017). The term was coined by Hays(1996) to describe parenting style closely linked to the pressurefelt by parents, mostly women, because of their responsibilityfor all childcare related tasks, children's outcomes (intellectual,social, emotional, and health-related), and their need to protectthe child from any harm or disease.The fact that decisionto vaccinate isa socially forced choice that concerns a child's health, makes vaccine-related decisionshighly important and involving for parents. This high involvement of parents leads them to overemphasizing on the potential vaccine side effects (Damjanovic et al, 2018), example for instanceparents might overemphasize the immediate vaccineside effects, such as rashes or swelling, and use these side effectsas justification to avoid vaccinating their child (Callender, 2016).In line with this, parents makejudgement on the quality of the potentialdecision to vaccinate their child based on the consequences ofthis decision met previously by them or by the sources theyare in contact with. Therefore, this decision is specific dueto its explicit orientation toward the outcome. Some of the children cannot be vaccinated due medical conditions and vaccine unavailability, a growingnumber of children are not vaccinated or are vaccinated lately as a result of their parents'decision (Pearce et al.,2008). The resistance to be vaccinated or to delay vaccinationsdespite vaccine availability in the hospitals, has been gave rise to vaccine hesitancy. This expose a threat to the public health, as those unvaccinated are at an increase risk of contracting infection from VPDs (Dyda et al., 2020).Parental childhoodvaccine acceptance is erodingand the proportion of parentreported to have no concern on childhood vaccines remained as low as less than 25% (Opel et al, 2013). Vaccination status can only be predicted through the Vaccine Acceptance which solely depend on parental beliefs and attitudes on vaccination.

Vaccine hesitancy is a multi-layered phenomenon and it is related to various factors such as social andpsychological kind. ANumber of interventionshave been introduced to combat vaccine hesitancy, but manyare lacking in success (Sadaf et al., 2013). To better combat vaccine hesitancy andoptimize its intervention, factors associated with parents' decisionson vaccination need to be identified and examine.Vaccination services, its utilization and completion are based on the recommended schedule and are dependent on various factors (Akwataghibe et al., 2019). In recent years across the globe, growing number of parents became hesitant about vaccines, due to misconceptions, fears of side effects and over looking the enormous health and economic benefits the vaccine provide(Walter and Rafi,2017). This resulted some parents chosen not to vaccinate their children, rather chosen their children to be become infected rather than vaccinating them,such attitudes becomes the reason behind why the world still suffers from the incidences of VPDs. Exposure to infections has a negative effect on the global economy, thus indicating the benefits of vaccinations in the society in general. Understanding the parents attitudes, feelings on vaccination and addressing their concerns is an important strategy to improve immunization acceptance and its coverage (Victoria, 2015). These misinformed parents, tends to be more protective of their children, making them to become hesitant to vaccinate and some even to the extent of becoming totally resistant of all the vaccines, this greatly contributes to unvaccinated population, this behavior has led to recurrent occurrence of VPDs across the country. Oddly enough, in some communities health-care providers are also found to be showing vaccine hesitancy and resistance attitudes. Like other parents, they perceive the vaccination program otherwise, chosen the risk of infection, preparing their children to develop immunity naturally against infections rather than accepting vaccination, whereas others believe that vaccination causes antibody formation, which affects the immune system. Moreover, it has been proven in many studies that environmental factors such as living with people in support of immunization also resulted in positive attitudes towards vaccination (Matta el al., 2020). A Research suggested that the attitudes of the primary-care providers can be a measure in promoting the vaccine acceptance in most hesitant parents, through establishing a trustworthy rapport, giving a nonjudgmental environment and been as transparent as possible with information, with supportive open communication, this way the parents may feel safe and use this opportunity to verbalize their concerns (Victoria, 2015).

Parental vaccine acceptance is ranging from vaccine-receptors to vaccine-hesitance to vaccine rejectors. According to the literature there are three different spectrum of parents attitudes towards vaccination, which are; those who take proactive measures and accept all vaccines know as acceptable parents, those who have many concerns but partially accept some vaccinates known as hesitant parents, and those who refuse all vaccines also known as refused parents, these category are seen to have shown decrease immunization coverage and expose the public to a threat of disease burden (Dyda et al., 2020).

2.3.1. Vaccine Acceptance Parents

Accepting parents are those who take proactive measures and accept all vaccines known as acceptable parents. This parents puts their trust and have no doubts on health-care providers and health services, therefore their children are found to be fully immunized. This group of parents are said to have a high influence in their committee such as convincing and influencing those around them (Victoria, 2015).

2.3.2. Hesitant Parent

Vaccine hesitancy referred to as an attitude, behavior or a state of being in dispute about vaccine acceptance. This attitude does more harm than good resulting in detained acceptance or rejection of vaccines in spite of its availability in the hospital setting and the immunization centers(Dyda et al,.2020). Vaccine-hesitant parentsthus differ from non-parents in their perception regarding thedangers of vaccines, risk of side effects, and protective benefits.Similarly, the perceived danger of vaccines is associated withthe reluctance to vaccinate (Wilson et al., 2008), and it hasbeen suggested that this can play an important role in parents'actual decision on mandatory childhood vaccination (Sportonand Francis, 2001). It is important to detect who are VH, what are their concerns to be able to understand and plan the effective measures to minimize the hesitancy attitudes (Bianco et al., 2019).Hesitant parents are those who choose alternate vaccines and refuse some due to their beliefs and fears on immunization and that their children immunity would become overloaded with many vaccines and its side effects are severe and of great risk(Victoria,2015). Vaccine hesitancy attitudes of parents on vaccine acceptance has been recognized as a growing global problem, so to maintain the success of vaccination, high uptake rates are needed (Dube et al., 2018).Vaccine hesitancy iscomplex, shaped by multiple psychological, ideological and contextualfactors. It is thus imperative to build skills that integrate

knowledgeand expertise from intellectual fields outside of the traditionalscope of vaccination programme and research, such as sociology,psychology, and education (S Cooper et al, 2018).

2.3.3. Refusal Parent

This are extremist, those at the extreme end of the spectrum who refused all the vaccine. Some of these attitude are govern by religious and cultural beliefs in some groups such as the Amish in the US. This parents are having trust issues with the government, the regulatory bodies, health-care system as well as the clinical researchers and the pharmaceutical companies on the vaccine safety. They rather, have more trust on alternative medicine prepared from natural sources in a special way and used most often in minimal quantity, which helps to re-institute health more than modern clinical practitioners (Victoria, 2015). All such beliefs aroused from misconception and from previous personal/social experiences on the vaccine reactions.Often these parents' convictions to not vaccinate are insurmountable. A higher number of sources of information has been related to such parent attitudes such as use of anecdotal cases are one of the key forms of communication on the topic of vaccination, particularly among vaccine refusal and hesitant groups which most of the time becomes problematic (Damnjanovic et al., 2018).

2.4 Barriers to Vaccination Uptake

Immunization program is one of the effective public health measures considered for preserving the life and protection of children against VPDs (Matta et al., 2020), Yet so many factors greatly contributes to poor RI performance including; Poor delivery of services, insufficient supply chains, poor communication, misinformation, maternal factors, funding gaps, insufficient human resources, accountability issues, weak governance and low demand for health services, (Oku el al., 2017).

2.4.1 Parents/ Caregiver Factors;

Parents understanding of immunization as the first line of action against VPDs and one of the most effective health benefits available to their children for decreasing under-5 mortality is highly needed, to guarantee their children's full protection , caregivers/mothers need to be mandated to taking the provided vaccines at the right time. Due to much engagement, customs, and tradition as Nigeria is a multicultural region, they missed many opportunities which in turn lead to childhood mortality (Umoke et al,.2021). Parental/caregiver negative attitudes and

perceptions on immunization act as barriers that hinders the progress of getting their child access and utilize vaccine services accordingly and which some of the attitudes were found to be modifiable (forget-fullness, long waiting time, lack of trust and misconception). Parents knowledge deficits on immunization was the most commonly reported factor affecting vaccine implementation and acceptance. lack of parental awareness and access to information on immunization appeared to be a significant contributor that decreases the rate of immunization coverage children in sub-Saharan Africa (J.Bet al, 2020). A study showed that, a child born to a mother with deficient knowledge on immunization happened to be partially or not immunized as required. Other non-modifiable factors were found to be extrinsic such as, financial constraints, place of residence , religion, occupation, size of the family, migration, male partners' support, and mothers emotions of feeling ashamed of being a single mother (Bungura el al., 2020). Parents often perceive vaccinating their children more risky than not vaccinating them, and as willingness to take risks is associated with making obligatory medical decisions, it is expected to find the same connection in parents, with those less willing to take risks to be more vaccine hesitant (Damnjanovic et al.,2018). The role of male partners in the decision was also a powerful barrier. Male partners were found to being often against vaccinating the children. The decision making is generally a joint decision between both partners and its emphasized that mothers were responsible of taking their children despite their husband disapproval and denial of basic social and financial support necessary. Occupation and place of residence also hinders immunization as such children of non working mothers and those living in the urban not rural areas were found to have more access to immunization. Being a single mother is also very challenging, poor mothers often fell stigmatized and bullied from the health care workers and other women for not showing up in a nice clothing (Bungura el al., 2020).

2.4.2 Health Care Factors;

Health service factors are key drivers of immunization utilization and yet part of the factors /barriers affecting immunization (Akwataghibe et al., 2019). Certain factors, however, were not directly linked to the parents'/caregivers' inability to completely vaccinate their children. Health system barriers are the inherent factors that prevents the progress of vaccine delivery and its related services where necessary. Such factors include, inadequate funding, ineffective cold chain, limited human resources, lack of regular supplies and distribution of vaccines; inadequate

infrastructures, and long distances in distributing facilities from families. Vaccine shortage and difficulty in transportation were consistently reported to significantly hamper immunization program. Some facilities were reported to have been sharing vaccine refrigerators with the closest health centers as a result of poor maintenance and working condition of theirs. Staff limitation a factor, often in which only one staff is responsible in conducting vaccination sessions in the catchment population (Bangura et al., 2020). The most frequently reported factor is the shortage or unavailability of vaccines. Vaccine availability is the backbone of any immunization program, therefore its shortages hamper all the efforts to reduce vaccine hesitancy in Nigeria and also leads to lack of trust between the health care workers and the society because the shortage portray a negative image on the importance and unpreparedness of the vaccination program. The mostly reported reasons behind the shortage include inadequate funding, the rising cost of vaccine development, vaccine licensing. (Ophori et al.,2001) reported that in 2001, even though the required funds for the purchase of vaccines by the National Programme on Immunization (NPI) was approved, only 61 % was ever released. This is but one of the many causes of the vaccine shortage in Nigeria. Hospital delivery was regarded as one of the highest factor that increases the chances of vaccine uptake, certain health policies hinders these process such as workers not working on weekends and during public holidays. Therefore, babies born in such periods have to wait, until working days before the child could get vaccinated. Parents/caregivers often prolong this delay due to forgetfulness, other child or mothers sickness etc. Other factors such as long waiting time are also a matter of complain by mothers .These long waiting periods are compounded by the fact that vaccinations services are not available all the time, hence, there is an accumulation of outstanding families wishing to get their children vaccinated. Consequently, these parents/caregivers may become reluctant to attend any future vaccinations because they do not see the need to spend hours in a queue for a vaccine that is not guaranteed to be available in the end . Sometimes, these vaccination visits were set for morning periods, when the parents/caregivers are unavailable due to work, thus making it nearly impossible to attend (Adogo, 2021) .

2.4.3 Political Factors

Political support existed as a significant trigger to the population on immunization program sponsored by the primary health care management. It is noted that there is a chance of increase

rate of RI if the policy makers provides necessary support during campaigns. Political support during mass campaigns varied across states and tends to be more strong in areas where the political leaders gave mandates to improve their vaccination coverage (Oku et al., 2017).The influence of politics also plays a vital role on vaccine hesitancy example, the Polio vaccinations boycott in North-Western Nigeria in 2003 was a result of lack of government commitment and the highly centralized leadership of the EPI, Following public pressure from religious and political leaders, the governments of these northern states prohibited the implementation of the polio vaccination sponsored by the Nigerian federal government. The pressure was exacerbated by the Christian-Muslim tensions in Nigeria, as well as ignorance about the aggressive polio-vaccination campaigns at the time (Efiong et al., 2017). Moreover, the aforementioned pressure was due to the misinformation that the polio vaccines were contaminated with drugs meant to sterilize Muslim women, and as a result, there was an outbreak which spread to twenty countries and three continents (Afiong et al., 2017). Nevertheless, polio has since been eradicated in Nigeria . Moreover, an issue of favoritism also existed in the appointments of leaders in health organizations, which is based on political influence not based on requirement due to the fact that corruption is endemic in Nigeria, leading to appointment of severely incompetent leaders . However, reasons behind such problems lies with the inability of the federal, state, and local government, to give necessary attention to the success of the program. Issues such as lack of health awareness programs; programs that highlight the benefits of health-promotion seeking behavior and the utilization of health services, for example, prenatal care. Despite immunization policies in place, they have simply been ineffective. This is a result of the over-politicization of these health bodies as well as insufficient public cooperation. Additionally, the lack of commitment by the government is evident in that there exist no long-term arrangements to ensure a consistent stock and supply of vaccines (Adogo, 2020).

2.4.4 Community level factors

The attitudes of community stakeholders is discussed in some rural communities, on how it affects the success of the program, the community leaders happened to be demanding of the vaccinators in exchange for immunization services despite their awareness on its benefits and the risk behind lack of vaccinating. Their believe, was that the health workers were funded well for the services, so they sabotage the activities if their mission is fulfilled. Often, but not all the time,

community gatekeepers were also reported to have prevented the immunization campaigns to take place and urged that the government should provide other basic needs before the campaigns could take place (Afiong et al., 2017). This are rare incidence but was often seen in hard-to-reach areas where people felt marginalized. Some communities were found to reject the immunization campaigns, due to their fear on polio campaigns, despite their awareness about the campaigns, which they heard through radio messages, they pose questions about immunization campaigns generally. Some communities accepts RI but rejects the campaign. Their concern was that, they do visit the clinic for vaccination but for the campaign,why does it have to be in their houses.These makes them become suspicious. The traditional and religious leaders also have an impact both negatively and positively but their cooperation and support also plays a vital role as the leaders serve as advocates in the delivery of announcements in their worship places, this helps greatly in tackling of the hesitancy behaviors in certain households and communities (Oku et al., 2017).

2.4.5 Health Facility Location Factor

Location of health facility is found to be a factor that prevents access to immunization as those children who were partially immunized happened to be far from health facility while those whose children fully immunized reported otherwise. Health facility distance and lack of accessibility negatively influence immunization and when situated not far from the communities it positively influence health (Umoke et al., 2021). Another study reported, that health facilities are recommended to be within walking distance in the society to ease access and increase vaccination coverage (Akwataghibe et al., 2018).

2.5 PUBLIC HEALTH NURSING

Nursing is a patient centered profession, responding to different health challenges in the health care system. Health professionals work as a team, communicate, share and transparency on information is advocated (Austvoll and Helshet, 2012). Among the various health care system, Nurses are the largest group of health care workers and the most important part of client environment that contact with diverse segment of the population (Tinker et.al.2011). Nurses have much greater responsibilities and autonomy and enjoy an increasingly collaborative relationship with physicians and other members of the healthcare team(Mercer, 2019).

Public health nurses (PHN) plays a significant role in providing and improving care not only in the hospital and ambulatory treatment facility but also extends to community-based care and even the care performed by family members. The essential goal of public and community health nurse has always been a healthier communitythrough health promotion, protection and ensuring disease prevention with the use of evidence based practice (EBP), social, and public health sciences (Grunbach et al., 2004). PHN also receive information from the National guidelines and the National Institute of Public Health, to ensures communication of accurate information to the population as well as conducting self research. Public health nurses gain, assess, apply and integrate new knowledge to assist clients in decision making process (Austvoll and Helshet, 2011). Apart from acute care work setting, public health nurses also work in several settings such as home care setting, nursing homes, schools, religious centers as well as recreational centers (Judith et. al, 2010 page 3). PHNs are skilled at translating health messages to vulnerable populations, building rapport with families, and responding to clients concerns (Tinker etal, 2011).During the early 20th century, public health nurses in eastern U.S. developed staffing immunization clinics, with the aim of protecting the society from contracting infectious disease such as polio and tuberculosis in the year 1900. In 1918, they saved various lives from influenza outbreak by administering vaccines at public immunization clinics. PHN plays the role of an advocate for increased access and awareness of immunization (Maura, 2021) and also intercede between the society, policy makers and health care workers on immunization programme that frequently fail to reach particular populations because of weak health systems,inadequate storage capacities, and political apathy (Gostin et al.,2019). Public health nurses also provides education and counselling on immunization to families, using ways in which affect parents attitude and worked to balance efforts in provision of accurate information and minimizes any negative misconceptions and misunderstanding that may psychologically affects the clients as much as possible (Mark et al, 2019). ANA stronglyurges Nurses to be vaccinated as well due to their exposure to disease, to prevent cross contamination between health care workers, their families and loved ones. The CDC are responsible in monitoring vaccine safety and offers online resources to help healthcare professionals communicate accurate information to their patients (Maura, 2021). A study mentioned how in some part of the world public health nurses are solely relayed on, on management, training and supervision of immunization programme, as public health nurses also act as Nurse manager, nurse educator and nurse clinician. Nurses as a whole

are involved in all of these activities, to a greater or lesser extent in countries around the world and have a critical role to play in increasing immunization reach and ensures little or no fear possible to their clients (Bajnok, 2018).

3.MATERIAL AND METHOD

3.1.Study Design

A descriptive cross-sectional survey was used in this study in between July to November 2021.

3.2. Study Setting

This study is conducted in Tarauni Local Government Area (LGA) of Kano state. The area is among the eight LGAs that formed Kano metropolis; the populous (4194635) and largest (499Km2) urban centre in Northern Nigeria**.** In 2019, the projected population of the LGA is **329,430** and covers an area of 28Km2. This area is chosen due to their increase population, it is a public health challenge to increase the knowledge of the people and change the low immunization rate in the community and the state as a whole.

3.3 Study Population and Sampling

Based on the sample size recommended by Krejcie and Morgan (1970) in their table for determining sample size from a given set of population. 384 samples of respondents are used for a population which is equal to or greater than 100,000 as a representative for the entire population. Therefore, a total of the 384 out of the 2019 projected population of 329,430 of Tarauni LGA is considered as the sample size for the study with the addition of 15% possibility of non-response making 442 sample sizes.

3.4 Inclusion criteria

Only Women of child bearing age 18-45years with a healthy children 0-12 months during the study.

3.5 Exclusion Criteria:

Women of child bearing age with children 0-12 month, but the children are receiving treatment for other ailment at the time of the study.

The dependent variable:

Parent attitude on childhood vaccination Scale (PACV) score averages

Independent variable

Socio-demographic characteristics of families

Lastly, English language will be used for questioning and interpretation to Hausa language (local language) for the benefit of non-English language speakers. Professional jargon's will be avoided for better understanding and to prevent the occurrence of communication gaps.

3.6 Data Collection Form

3.6.1 Data Questionnaire.

The questionnaire form (Appendix 1) is directed to obtain relevant and reliable information.The completion of the questionnaire takes at-most 10/15 minutes. Data was collected between October to November 2021.The questionnaire consist of 33 questions. The form was divided into sections. First section comprises of 16 questions on the respondent's socio-demographic characteristics, second section comprise of 5 questions on parents knowledge on immunization,third section with 6 questions on the immunization coverage of children from 0-12 months 6, the forth section on the factors influencing routine immunization, the fifth and sixth on accessibility to health facility and utilization of immunization services 3 questions each. Data was collected successfully.

3.6.2 The Parent attitudes on childhood vaccination scale (PACV)

Itis a survey developed by DJ Opal et al (2011) (Appendix 2). The purpose of the survey was to accurately assess and evaluate parental vaccine hesitancy by the parents.PACV is a self-administered survey that reads at a sixth-grade level and can be completed in less than 5 minutes. It contains 15 items under 3 sub-domains from the amalgamation of the existing scale;

A) **Behavior;**questioned parents behaviors and decisions regarding childhood vaccination. The questions were on a 3-point scale''Yes (2), No(0), Don't know(excluded)(1) responses''.

B) **Safety and efficacy;** questioned parents concern on the safety of the vaccines on a 2- point scale (0=Not at all sure, 10=Completely sure) and a 5-point scale ‘’Strongly agree(2), Agree(2), Not sure(1), Disagree(0) and Strongly disagree(0).

C) **General Altitudes; general attitudes;** questioned attitudes on parental concerns and level of hesitancyon a 5-point scale‘’Strongly agree(2), Agree(2), Not sure(1), Disagree(0) and Strongly disagree(0), 3-point scale scale’’Yes (2), No(0), Don’t know(excluded) and a 2-point scale’Do not trust at all(0) and Completely trust(0).

8 demographic items were included with the PACV (parental age, educational level, marital status, race or ethnicity, relationship to child, number of children in the household, household income, and whether the child eligible for the study was the firstborn). The PACV was scored by assigning a numeric score of 2 for hesitant response, a score of 1 for response of items“don’t know or not sure” (except in the case of the 2 behavior items “Have you ever delayed having your child get a shot for reasons other than illness or allergy?” and “Have you ever decided not to have your child get a shot for reasons other than illness or allergy?” for which the “don’t know” responses were excluded as missing data because they likely reflected poor recall rather than immunization hesitancy), and a score of 0 for items answered with a non-hesitant response. The total raw score was converted to a scale ranging from 0 to100 (Table 2) using simple linear transformation and accounting for missing data (Omolade et. al, 2016). In this study the Cronbach alpha is found to be 2.74.

Table 2. PACV Scoring interpretation

Interpretation of PACV Scale	
Total score	**PACV score category**
0-49	Low parental vaccine hesitancy
50--69	Medium parental vaccine hesitancy
70-100	High parental vaccine hesitancy

3.8 Data Analysis

The analysis of data from the responses of the questionnaire, is done statistically by using "Descriptive Statistics". Descriptive statistics such as ratios, percentage, Pearson correlation test, Arithmetic mean, standard deviation and tables will be employed to assess the quality of responses towards achieving the study's objective. Data will be appropriately recorded, edited and manually cleaned to ensure accuracy and consistency. Coded data will be analyzed with the use of SPSS version 26.0 for analysis and evaluation.

3.9 Ethical Considerations

In order to conduct the research, authorizations were gotten from the Near East University Ethics Committee IRB(YDU/2021/92-1362) (Appendix 4) and the Near East University Faculty of Nursing in written form, permission were obtained from Dean of Nursing faculty.

3.10 Study Limitations

The data obtained from the result of this research are limited to only mothers/caregiver of child bearing age with healthy children (0-12months) at the time of the study. This study cannot be generalized, as a result of the ongoing pandemics COVID-19 which requires distancing and the burden of cholera endemics currently ongoing in the some part of Nigeria,including the study area, which limits alot of mothers participation.

4.RESULTS

After application of questionnaires,this study have discovered 203 responses out of a total of 422 sample. The results is obtained based on the feedback gotten from the able participants who actively took part in the assessment using the two forms administered to them.

Table 4.1; **Distribution of Child Socio-demographic characteristics**

Variables	**n=203**	**%**
Child Age		
0-6months	83	40.9%
7-12months	120	59.1%
Child Sex		
Boys	97	47.8%
Girls	106	52.2%
Place of delivery		
Home	119	58.6%
Hospital	84	41.4%

Table 4.1, shows distribution of the participants child data, The Child age shows 40.9%9 (n=83) for children 0-6months of age and 59.1% (n=120) for those of 7-12months of age. Child sex are 47.8% (n=97) were males and 52.2% (n=106) were females which are the majorities. Child's place of delivery also shows that 58.6% (n=119) children were delivered in the hospital setting while 41.4% (n=84) were delivered at home, with those delivered in the home as the majority.

Table 4.2 Distribution of Mothers Socio-demographic Characteristics N=203)

Variables	Number(n)	Percent(%)
Respondents		
Mothers	203	100
Age		
18-29	98	48.3
30-45yrs	105	51.7
Tribe		
Hausa	72	47.7
Fulani	36	23.8
Yoruba	36	23.8
Others	7	4.6
Religion		
Islam	150	73.9
Christianity	53	26.1
Marital status		
Single	27	13.3
Married	104	51.2
With a partner	15	7.4
Widowed	19	9.4
Divorced	38	18.7
Educational status		
Illiterate	60	29.6
8^{th} grade	13	6.4
High school graduate	38	18.9
2yrs certificate	50	24.6
4yrs degree	42	20.6

Occupation		
Civil servant	40	19.7
Housewife	95	46.8
Trader	20	9.9
Health workers	48	23.6
Income		
$30,000 or less	186	91.9
$30,001-50,000	12	5.9
50,001-75000	5	2.5
Race		
Black	203	100
Total	**203**	**100**

Distribution of socio-demographic characteristics of mothers 100% (n=203). Their age is 48.3% (n=98), for the category 18-29years, and 51.75 (n=105) for 30-45years category. The tribes which are four groups are Hausa with 47.7% (n=72), for both Fulani and Yoruba are 23.8 (n=36) and for others its 4.6% (n=7). For religions, Islam showed 73.9% (n=150) while Christianity is 26.1% (n=53). As shown in the table, their marital status is Single with 13.3% (n=27) the group of married women and the majority have 51.2% (n=104), the group of mothers living with a partner have7.4% (n=15), while the group of widowed women shows 9.4% (n=19) and lastly the group of divorced women showed 18.7% (n=38). The distribution of educational status for those with No formal education also referred to as illiterate showed 29.6% (n=60), those with 8th grade or primary school education with 6.4% (n=13), those with some high school but not graduates showed 24.6% (n=27), those that are graduates of high school showed 5.4% (n=11) and those with some college education or 2years degree showed 24.6% (n=50). Those with a 4years college degree showed 15.3% (n=31) while those with more than 4years educational level showed 5.4% (n=11). The distribution of the participants occupation showed

19.7% (n=40) for civil servants, house wives as the highest among all showed 46.8% (n=95), while Traders also known as business women shows 9.9% (n=20) and those that are health workers showed 23.6% (n=48). The participants income for those receiving $30,000 or less is 91.9% (n=186), while those receiving $30,001-50,000 has 5.9% (n=12) and those receiving 50,001-75000 showed 2.5% (n=5). As participants race happened to be all black, it showed 100% (n=203).

Table 4.3. **Knowledge of Mothers on Routine Childhood Immunization.**

	Character	Response	N=203	%
1.	Have you ever heard of immunization program	Yes	**160**	**78.8**
		No	43	21.2
2.	What are your sources of information	Health workers	**50**	**24.6**
		Radio	**83**	**40.9**
		Television	7	3.4
		Newspapers	17	8.4
		Friends	3	1.5
		Husband	1	0.5
3.	Do you know why immunization is carried out?	Yes	**88**	**43.3**
		No	115	56.6
4.	Do you know any type of vaccine	Yes	**146**	**71.9**
		No	57	28.1
5.	Do you have any idea on the benefits of immunization	Yes	**75**	**36.9**
		No	128	63.1
6.	Has any information been given to you about postpartum vaccination program?	Yes	75	36.9
		No	120	59.1
7.	During the past years, have you taken any of your child for vaccination	Yes	**117**	**57.6**
		No	86	42.4
8.	Did your older children fall sick after receiving a vaccine	Yes	**90**	**44.3**
		No	113	55.6
9.	Do you think the sickness was an allergic reaction to the vaccine	Yes	**67**	**33.0**
		No	136	67.0
10.	Has your lifecycle ever prevented you to receive a vaccine for your child	Yes	**116**	**57.1**
		No	87	42.9
11.	Did you ever disagree with the choice of vaccine or vaccination recommendation by healthcare workers?	Yes	107	52.7
		No	96	47.3
12.	Do you think some vaccines has more benefits than others	Yes	112	55.2
		No	91	44.8
13.	Has your imam/pastor ever advocated against vaccination?	Yes	81	39.9
		No	122	60.1
14.	Did you follow your imam/pastor's advice on health-related issues?	Yes	**118**	**58.1**
		No	85	41.9
15.	After receiving accurate information on immunization, would you consider immunizing your child?	Yes	113	55.7
		No	90	44.3

Table 4.3, shows distribution of parent's knowledge on immunization. Most of the parents are aware of the immunization program Yes 78.8% (n=160), and No 21.2 (n=43) are not aware of the program. 36.9% (n=75) of parents knows the benefit of immunization, while 63.1% (n=128) does not know the benefit. 43.3% (n=88) of the parents know why immunization is carried out and 56.6% (115) doesn't know why it is carried out. Most of the parents knows some type of vaccines 71.9% (n=146) and 28.1% (n=57) does not know any type of vaccine. During the past, 57.6% (n=117) of participants have taken their children for immunization while 42.4% (n=86) didn't take their children for immunization. 44.3% (n=90) of the parents mentioned their children fell sick after receiving vaccination and 55.6% (n=113) of parents said their children didn't feel sick. Few of the parents believed their children sickness was an allergic reaction from the vaccine 33.0% (n=67) and most of them 67.0% (n=136) didn't have such believe. Most of the parents 57.1% (n=116) mentioned life-cycle had prevented them from vaccinating their children while some 42.9% (n=87) were able to vaccinate their children. Most parents 58.1% (n=118) mentioned to accept their religious leader's advice on health-related issues while 41.9% (n=85) didn't take their advice. Lastly, 55.7% (n=113) of parents mentioned that they would vaccinate their children in future while some 44.3% (n=99) didn't.

Table 4.4. Table showing the immunization coverage of children 0-12 months

	Characteristics		*n*	*%*
1.	Is your child immunization card available?	Yes	128	63.1
		No	75	36.5
2.	Assessment of immunization status	Fully Immunized	56	27.6
		Partially Immunized	58	28.6
		Not immunized	**89**	**43.4**
3.	Is your child fully immunized	Yes	73	36.0
		No	130	64.0

Table 4.4, showed the distribution of immunization coverage of children. 63.1% (n=128) of the respondents mentioned that their children immunization card is available, while only 36.5% (n=75) are not with the card. On assessment of the children's immunization status, majority 43.4% (n=89) are discovered to be totally not immunized, 28.6% (n=58) are partially immunized and only 27.6% (n=56) are fully immunized. Participants responses on if child is fully immunized are, for Yes responses 36.0% (n=73), and for No responses is 64.0 (n=130).

Table 4.5 Distribution of PACV Scale Sub-domain Mean, Std Deviation, Min and Max.

	PACV Sub-Domains	Min	Max	Mean± SD
1.	Behavior (2)	0	6	2.07±2.00
2.	Safety and Efficacy (5)	0	10	5.94±4.94
3.	General Attitudes (8)	0	16	9.03±7.24
	Total	**17.04±14.18**		

The PACV sub-domain mean scores for the Behavior domain is 2.07±2.00. Safety and Efficacy domain arithmetic mean 5.95±4.94. The last domain mean is 9.03±7.24. The PACV sub-domain total mean score is 17.04±14.18 respectively.

Table 4.6. PACV scale score category

Overall PACV Score		Frequency(n=203)	Percent (%)
Low vaccine hesitancy	0-49	68	33.4
Medium vaccine hesitancy	50-69	51	25.1
High vaccine hesitancy	70-100	84	41.3

Table 4.6, showed the average score for VH for all mothers based on the PACV 100-point scale, 33.4% (n=68) of mothers had a 0-49 score which indicates low vaccine hesitancy, 25.1% (n=51), had a 50-69 medium vaccine hesitancy and 41.3% (n=84) had a score of 70/100 had a higher vaccine hesitancy.

Table 4.7 Comparison of Some Socio-demographics and PACV ScaleMean Scores

		Get all shots							
Some Socio-demographics		**Yes**		**No**		**Don't know**		**r***	**p**
		n	**%**	**n**	**%**	**n**	**%**		
Age	18-29	50	27.0%	41	17.3%	7	3.4	0.001	**0.003***
	30 and more	31	15.2	67	33.0	7	3.4		

Mann-Whitney*

The table showed the distribution of correlation between mothers age and if their child has got all the shots p->0.003(t-0.001), we can conclude that a statistically significant difference is seen respectively.

Table 4.8Comparison of Mothers Educational status and Get all shots

		Get all shots							
Socio-demographics		**Yes**		**No**		**Don't know**		**t**	**p**
		n	**%**	**n**	**%**	**n**	**%**		
Educational status	Illiterate	18	8.8	40	19.7	2	1.0	0.008	0.017
	8th grade	4	2.0	8	3.9	1	0.5		
	High School	17	8.3	23	11.3	2	1.0		
	2 years Cert	20	9.9	25	12.3	5	2.4		
	4yearsdegree	26	12.8	12	5.9	4	1.9		

Kruskal-Wallis*

Table 4.8 showed the distribution of correlation between mothers educational status and if the child has got all the shots and no statistically significant difference was seen p->0.017(t-0.008).

Table 4.9 Comparison between Mother's Educational status, Occupation and their level of Vaccine hesitancy.

		Level of Hesitancy									
Socio-demographics		**Not at all hesitant**		**Not too hesitant**		**Not Sure**		**Somewhat Hesitant**		**Very Hesitant**	
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Educational status	illiteracy	1	0.5	1	0.5	0	0.0	15	7.3	21	10.3
	8t grade	14	6.9	10	4.9	2	1.0	3	1.5	12	5.9
	High Sch	5	2.4	11	5.4	3	1.5	3	1.5	16	7.8
	2 years cert	6	2.9	15	7.3	0	0.0	17	8.3	12	5.9
	4 years degree	16	7.8	13	6.4	6	2.9	6	2.9	5	2.4
t- 15.8 / p-0.015											
Occupation	House wives	18	8.8	19	9.3	3	1.5	19	9.3	36	17.7
	Civil servant	14	6.9	10	4.9	6	2.9	6	2.9	4	2.0
	Health workers	17	8.3	18	8.9	0	0.0	7	3.4	6	2.9
	Traders	3	1.5	3	1.5	2	1.0	8	3.9	4	2.0
	r-16.5 / p-**0.001***										

Kruskal-Wallis*

Table 4.9 Showed the distribution of correlation between mothers educational status with level of hesitancy and there is no statistically significant difference p->0.005(t-15.8) and the distribution

of mothers' occupation and level of vaccine hesitancy and a statistically significant difference is seen p-<0.005(r-16.5).

Table 4.10 Comparison of Educational status, Occupation and Parents Delay on getting their child a shots

		Delayed shots						t	p
Socio-demographics		**Yes**		**No**		**Don't know**			
		n	**%**	**n**	**%**	**n**	**%**		
Educational status	Illiterate	43	21.1	17	8.3	0	0.0	41.9	**0.000***
	8th grade	12	5.9	1	0.5	0	0.0		
	High School	19	9.3	14	6.9	0	0.0		
	2 years Cert	10	4.9	40	19.7	0	0.0		
	4 years degree	15	7.3	25	12.3	1	0.5		
Occupation	Civil Servant	17	8.3	22	10.9	1	0.5	21.6	**0.000***
	Housewives	59	29.0	34	16.7	2	1.0		
	Trader	11	5.4	9	4.4	0	0.0		
	Health Workers	11	5.4	37	18.2	0	0.0		

Kruskal-wallis test*

Table 4.10 showed the comparison of educational status and parents delay on getting a shot. A statistically significant difference is seen p-< 0.005(t-41.9). Correlation between occupation and delay on getting shots showed a significant difference p-value < 0.005(t-21.6).

Table 4.11 Comparison of Mother's Age and their Trust with their child's Doctor.

		Trust child's Doctor					
Socio-demographics		**Completely trust**		**Not at all trust**		**U**	**p**
		n	**%**	**n**	**%**		
Age	18-29	56	27.5	42	20.6	4305.0	0.021
	30>	42	20.6	61	30.0		

Mann-Whitney U*****

Table 4.11 showed the distribution of comparison between mothers age and their trust with their childs doctorand there is no statistically significant difference p->0.005(U-4305.0).

Table 4.12 Comparison of Mother's Educational Status and Trust with Child's Doctor

		Trust child's Doctor					
Socio-demographics		**Completely Trust**		**Not at all trust**		**t**	**p**
		n	**%**	**n**	**%**		
Educational status	Illiterate	33	16.2	27	13.3	21.4	**0.002***
	8^{th} grade	2	1.0	11	5.4		
	High School	16	7.8	22	10.8		
	2 years Cert	30	14.8	20	9.9		
	4 years degree	25	12.3	17	8.3		

Kruskal Wallis*

Table 4.12 showed the comparison between mothers educational status and their trust with their child doctorand a statistically significant difference p-<0.005(t-21.4) is seen.

Table 4.13Distribution of Factors Affecting Childhood Vaccination

	Characteristics	Response	*n*	*%*
1.	Why is your child not fully immunized?	Lack of access	20	9.9
		Not available	19	9.4
		Not necessary	20	9.9
		Husband disapproval	27	13.3
		Doesn't prevent disease	15	7.4
		Child is not sick	3	1.5
		It causes disease	26	12.8
2.	Do you have access to immunization centers in your community?	Yes	162	79.8
		No	41	20.2
3.	Which facility do you utilize for routine immunization services	Public	175	86.2
		Private	28	13.8
4.	Do you pay for immunization services?	Yes	28	13.8
		No	175	86.2
5.	Do you remember any events in the past that discouraged you from vaccinating your child?	Yes	99	48.8
		No	104	51.2
6.	Do you know anyone who rejects a vaccine because of religious or cultural reasons?	Yes	122	60.1
		No	81	39.9

Table 4.11, shows a distribution of the reasons children are not immunized Lack of access to vaccination accounts for 9.9% (n=20), lack of vaccine availability with 9.4% (n=19), those not considering the vaccination acceptance not necessarily has 9.9% (n=20). Those having husband disapproval accounts for 13.3% (n=27), those believing that vaccination doesn't prevent disease accounts 7.4% (n=15), whole some that mentioned that their child is not sick are 1.5% (n=3) and lastly those believing that the vaccination causes disease accounts for 12.8% (n=26). Participants that have access to immunization centers are 79.8% (n=162) and those without access are 20.2% (n=41). Majority of the participants used public health facility 86.2% (n=175) and only 13.8% (n=28) used public facilities.

5.DISCUSSION

5.1 Descriptive Results

This cross-sectional study gives an insight on the parent's attitudes toward childhood vaccination with the use of a self- administered questionnaire and parents attitudes on childhood vaccines scale (PACV). Numbers of parents have become vaccine hesitant (VH), due to misconceptions and fears on side effects and not putting into account the enormous health and economic benefits the vaccines provide (Walter and Rafi,2017). Indeed, to address VH in a constructiveway, it is first crucial to measure the perspectives of thosewho do not vaccinate or delay vaccinations for their child. It is alsoessential to understand the reasons why children are under- orunvaccinated in a particular setting to be able to deal with VH (Victoria, 2015).

This study examined the female parents to determine their attitudes towards vaccination (table 4.2,) which was same as another study were only mothers' knowledge, attitudes, beliefs, vaccine hesitancy and acceptance were studied (Dube et al, 2018). Most of the study participants were Hausa Fulani by tribe, which was as a result of the region "Northern Nigeria" where most of the citizens are Hausa Fulani practicing Islamic religion 73.9% (n=150) (Aliyu, 2006). Educational status of mothers which played an important role in decision of vaccine acceptance showed most of the participants has no formal education 29.6% (n=60) as seen in another study by (Abdulrahim et al., 2019). As shown in another study, parents' knowledge and awareness were at the top factors hindering vaccination in most of the LIC in 2014 and 2015 with the rate of 23-11% and even lesser rate in LIMC 15% in 2016. This reason was also found in HIC with relative consistency of 28%, 31% and 29% in 2014, 2015 and 2016 respectively (S. Lane et al. 2018). Multiple factors are said to hampered the vaccination acceptance, this study discovered some factors to be the top three, Parents/Care giver factors such as religious and cultural beliefs, Political Factors as well as the health care factors. Every society cannot attain to the highest level of health without the collaboration of these three factors, which contradicts with another study where the overall top three factors affecting vaccination were seen as, Parents awareness/knowledge, vaccination risk/benefits and lastly religious, cultural and socio-economic factors (Sarah et al. 2018). Delivery settings also determine the child's possibility of getting vaccinated, it is always seen that children delivered at the hospital setting, in comparison with those delivered at home are having more advantage and a higher vaccination coverage (Chidebe

et al.,2018). Delivery setting significantly promotes child health as the health care workers ensures provision of all necessary care as needed and also emphasize on follow-up visits at the time of discharge. Parents delivering out of the hospital setting might have missed the opportunity of access to prenatal classes which also include awareness on vaccination resulting in vaccination delayed (CDC, 2013). Other studies revealed how parents' positive beliefs on vaccination had resulted to positive attitudes which in turn improves child health (Dube et al., 2018). However, such settings where negative beliefs are observed, communication of information on which vaccines needed, for whom and when is crucial at the disposal of public health professionals. Mothers found to be unaware and those with negative attitude about vaccination were more likely to have defaulter children than mothers who had positive attitude (Abdulrahim et al., 2019). A summary from 15 published literature reviews or meta-analyses, showed a result that examined the measures with which VH can be reduced and will promote vaccine acceptance by simply provision of adequate information, campaigns, community education/awareness on the vaccine safety and efficacy. By so doing, this may mean increase in understanding the benefit and need to deviate the negative thoughts, fears and vaccine hesitancy behaviors resulting in growth of vaccine acceptance and decrease vaccine dropout rate. Health education is an important weapon to fight against unhealthy life style and it is sufficient to change the community perception on vaccine attitudes (Corace and Garber, 2014). However, provision of too much information may lead to confusions to parents on decision making, Therefore, it is very important to use effective approaches in addressing the VH behaviors such that communication gaps are prevented and approaches that not only enhance vaccine acceptance, but also decreases misunderstanding (Dube et al., 2018). In this study, 55.7% (n=113) of the parents mentioned that after receiving adequate information on immunization, they will consider vaccination their children in future.

This study discovered immunization coverage to be poor, due to increase parents' hesitance attitudes that resulted in their children not receiving the vaccines as recommended. Factors found to be hampering the vaccination coverage other than parents' attitudes are, lack of accessibility to health facility, lack of vaccine availability in the clinic during visit as well as health facility distance (Chidebe et al., 2018). A study suggested some possible measures which are likely to improve and maintain high coverage rate, increase need for health education, improvement of maternal education, and outreach reminder on follow up. In addition, periodic household surveys

are useful means to support the EPI. Putting into account attention on these measures may positively influence vaccine acceptance (Abdulbasid et al., 2017).

5.2. Parents Attitudes about Childhood Vaccine. PACV (15 items)

The PACV scale subdomain total mean score is 17.04±14.18 (Table 4.4). The total Cronbach alpha value in this study was found to be α= 2.14. Based on mothers' response on the PACV scale, the average score for mothers with low vaccine hesitancy is 33.4% (n=68) on a score ranging 0-49/100, 25.1% (n=51) for mothers with medium vaccine hesitancy ranging from 50-69/100 and 37.9% (n=77) for mothers with high vaccine hesitancy level 70-100. In comparison with other study in Malaysia that used the PACV instrument which showed that, 12% of parents were also vaccine-hesitant (Mohd et al., 2017). Another study conducted in the US also showed very high vaccine hesitant behaviors of parents 26%, on influenza vaccination for their children. Another cross-sectional study in Italy, showed some parental attitude of children, aged 2-6 years using the PACV with a high level of vaccine hesitancy with 35% of the parents with a score of 50 or higher on the scale (Napolitano et al., 2018). To date, the PACV is the only approved valid and reliable survey instrument that can be used to examine and determine the level of parent's hesitancy behaviors and predict their decision on their child vaccination. While other studies identified various determinants of mothers' intention to vaccinate their children as 'parents' perception on the health benefit of vaccination their children and a low level of score of VH (Dempsey et al., 2011) (Wheeler et al., 2013).

5.3 Discussion of Correlation Analysis between Socio-Demographic Characteristics and the PACV Scale

The distribution of correlation between mothers age and if their child got all the shots showed a statistically significant difference p-<0.005(r-0.001) , while no relationship was not found between educational status and getting all the shots p-value >0.005 (t-0.008). In relation to another study, which contradicts our study, where higher parental knowledge showed significant difference in comparison with vaccine attitude, thus better attitudes influenced parents positively towards childhood vaccination as well as the child health (Matta et al., 2020). In addition, other studies conducted to assess parents' knowledge on immunization, the study found parents to have sufficient knowledge on immunization which reduces the hesitant behaviors seen in our study (Zagminas et al., 2007). Another study, one third of the parents reported their childhad an

adverse reaction from avaccine and more than halfbelieved that it is safer to administer less than three vaccines atone time. Undoubtedly, VH is linked to safety issues which greatly contributes to the hesitancy behaviors (Marti et al, 2017). Our most notable finding is that most of the mothers are Housewives 17.7% and they are found to be very hesitant, due to lack of awareness and knowledge on vaccination while it is interesting that a difference in seen comparison of mothers occupation with the level of vaccine hesitancy, where 8.3% of the mothers are not at all hesitant as they are aware of its benefits as part of the health care team and only 2.9% among them were found to be very hesitant. This contradicts another study, whichreveals maternal occupation having no difference in association with immunization status of children p->0.005 (Duru et al, 2014). Currently VH is receiving unprecedented attention world wide, initiated by WHO, identifying it as a priority issue, as a growing number of the populations in Africa are deliberately delaying and refusing to follow the vaccine schedule as recommended which is a great to the public health (Cooper et al, 2018).

On the other hand, the inconsistency seen betweenPACV score and vaccination refusal/delay could be explained by thefact that VH is considered a complex and context specific issue,and its determinants could vary among different countries.Hence,there may be other additional factors among parent that the PACV scale did not capture in our study setting. Thus thorough research is needed in the future to explore the situation (Bianco et al, 2019). Additionally, there is a scarce of the validated tools to measure the VH in African regions, though recently WHO has appealed to the national governments to incorporate a programme that can measure such attitudes. As lack of the measuring tool is also seen as a barrier and filling of such gaps are necessary. There is thus a need to developnew ones, for application in Africa to help to monitor VH trends over time, enhance the comparability of researchresults, and facilitate more evidence-informed interventions (Cooper et al, 2018).

5.4 Factors Affecting Childhood Vaccination

Despite all efforts in promoting child health through vaccination yet, several factors fare found to have have been hindering the immunization implementation and acceptance as seen in another studies (Adogo, 2020). This study also found some modifiable factors to be lack of access to vaccination accounting for 19.9% (n=20), lack of vaccine availability with 9.4 (n=19) %, those considering the vaccination acceptance not necessary has 9.9% (n=20), those believing that the

vaccination causes disease accounts for 12.8% (n=26), with husband disapproval predominating other factors 13.3% (n=27). Other factors mentioned in some studies are; parents' beliefs and behaviors, past immunization experiences, vaccine schedules as well as vaccine unavailability (Prince et al., 2020). A study by Bangura also described two main factors hindering vaccination as individual barriers such as confronting parents/caretakers' factors (waiting time, forgetfulness, mistrust, myths and misconceptions), and health systems factors as irregular vaccine supply and distribution, ineffective/broken cold chain, limited human resources and inadequate infrastructure (Bunguru et al., 2020). Another qualitative study conducted on factors affecting immunization implementation in Nigeria, categorized the factors into groups and sub-groups as Health care system factors (financial constraints, inadequate equipment's), Human resources factors(health care workers shortage, lack of qualified personnel, poor health workers attitude) and Political factors and Community level factors which are the community members/leaders attitudes and the involvement of religious leaders which is highly influential and was found to facilitate the delivery of information through campaign programme in their communities, this contributes to achieving high immunization coverage (Oku et al., 2017).

Despite all the various factors mentioned, research has shown that some interventions are available to improve the vaccination acceptance rates (Anderson, 2014). Such as provision of awareness to parents during home visits, community outreach and campaigns provided by public health personnel's, also provision of evidence on the safety and efficacy of vaccines will facilitate vaccine acceptance as mostly lack of trust have been frequently reported.There is plenty of research showing that the mass-media are widely used for information seeking in the general population,particularly the Internet, where misinformation and inaccuratedata are now widespread although health care practitioners, policy makers and the Scientific journals kept opposing (Bianco et al, 20118).

6.CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study offered an insight on potential determinants of VH among parents. A total of 203 parents voluntarily participated in the study. The study aim is to determine the parent's attitude towards childhood vaccination, the study used the PACV scale to study the parents' attitudes. Findings discovered the average score for low VH as 33.4% (n=68) in a score ranging from 0-49/100, medium level vaccine hesitancy 25.1% (n=51) ranging from 50-69/100 and 37.9% (n=84) for mothers who showed high vaccine hesitancy level 70-100. The study has found a statistically significant difference in comparison of age and get all shots p-<0.005 and no relationship was not found between educational status and getting all the shots p-value >0.005. Immunization status of children were found to be negative as only 27.6% (n=56) are fully immunized out of the total (n=203) children and those completely not immunized 43.4% (n=89) showed the highest proportion.

6.2 Recommendations

Childhood Vaccination is required to be legally recommended on every child prior to school entrance even if medical or non-medical exemptions were allowed.

Immunization can be proved through raising awareness and creating community-based campaign to be able to reach out to vulnerable groups of mothers and the hesitant groups to clear the myths and misconceptions. This will increase parents' knowledge thereby, achieving high immunization coverage rates which aids in improving the child's well-being.

Communication gap is found to be among the factors hindering immunization acceptance, this gap has to be cleared through imposing communication skills training on Health Care workers to become competent to enable clear communication to be able to serve their responsibilities as expected.

Community participation is one of the key roles to improve immunization through reaching the community leaders in the mosque and churches as religious leaders are highly influential and respected in their societies.

The federal and state government have to improve the health care system through administration of district health services, as well as tailoring interventions to overcome perceived obstacles, provision

of free health care services, access to high quality vaccines, maintenance of cold chain and recreation of competent and skillful health workers that can satisfy the societal needs.

Forgetfulness been found to played a major role that hinders vaccination coverage, this can be modified through reminders on the next vaccine schedule and can be counterproductive to those who are already hesitant.

Public Health Nurses are recommended on continuous education (CE) and make use of research to become professionally competent, especially on environmental health, communicable diseases, emergency preparedness, risk reduction and disaster management as well as having culturally competent skills as they are dealing with individuals of different cultural backgrounds.

Policy makers and public health authority needs to increase accessibility, reducing the length of waiting time, emphasizing on the need for antenatal and hospital delivery, girl-child education, and family planning should be enhanced.

Nurses plays a vital role in monitoring, evaluating and provision of information, such responsibilities increased the need of nurses in the hospital and non-ambulatory settings.

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APPENDIX -1

Dear respondents,

I am a Master`s student Department of Public health Nursing, Health Sciences institute Near East University Cyprus, conducting research on "Determining the parental attitudes toward Routine childhood vaccination in Tarauni LGA of kano state, Nigeria". Your participation is important and completely voluntary as you may choose to leave anytime. Completion of this form implies your consent as all information obtain shall be strictly confidential and shall not identify you personally. Thanks for your participation

FATIMA AMINU ADAMU

INSTRUCTION;Tick as appropriate please

SECTION ONE. **SOCIODEMOGRAPHIC CHARACTERISTICS**

1. Respondent (i) mother ( ) (ii) father ( ) (iii) caregiver( )
3. Gender; Boys ( ) (ii) Girls ( )
4. Age ----------
6. Tribe; Hausa ( ) Yoruba ( ) Fulani ( ) Others{specify}-------
7. Religion; Islam ( ) Christianity ( ) Others{specify} -------
8. Occupation; Civil servant ( )House wife ( )Trader ( )Health workers( )

Child biodata

9. Child sex; M ( ) F( )
10. Child Age; 0-6months( ) 7-12months ( )
11. Place of delivery; Home( ) Hospital( ) other----------

SECTION TWO. KNOWLEDGE OF PARENTS ON ROUTINE CHILDHOOD IMMUNIZATION

		Yes	No	Others (Specify)
1.	Have you ever heard about immunization program			
2.	Do you know why immunization is carried out?			
3.	Do you know any type of vaccine			
4.	Do you have any idea on the benefits of immunization			
5.	Has any information been given to you about postpartum vaccination program?			
6.	If yes, from who do you receive the information			
7.	During the past years, have you taken any of your child for vaccination			
8.	Did your older children fall sick after receiving a vaccine			
9.	Do you think the sickness was an allergic reaction to the vaccine			
10.	Has your lifecycle ever prevented you to receive a vaccine for your child			
11.	Did you ever disagree with the choice of vaccine or vaccination recommendation by healthcare workers?			
12.	Do you think some vaccines has more benefits than others			
13.	Do you trust the healthcare workers for information			
14.	Has your imam/pastor ever advocated against vaccination?			
15.	Did you follow your imam/pastor's advice on health-related issues			
16.	After receiving adequate information on the benefit of immunization, would you consider immunizing your child in the future			

SECTION THREE. IMMUNIZATION COVERAGE OF CHILDREN 0-11 MONTHS

3.1 Is your child fully immunized? Yes ( ) No ( )

3.2 If no why? Have no access to it ( )Not available in the clinic ( ) Do not consider it necessary ( ) Husband disapproval ( ) Others {specify}…….

3.3 Is your child immunization card available? Yes ( ) No ( )

3.4 Where did your child get his/her vaccine? Private Hosp ( ) Primary H/care centre ( )

3.5 Assessment of immunization status from the card.

Fully immunized ( ) Partially immunized ( ) Not immunized ( )

SECTION FOUR. FACTORS INFLUENCING ROUTINE IMMUNIZATION

1. Why is your child not fully immunized? My child is not sick ( ) Does not prevent my child from getting disease( ) The services are not affordable ( ) The vaccine causes disease( ) Others {specify}……

2. Do you have access to immunization centers in your community? Yes( ) No ( )

3. Which facility do you utilize for routine immunization services

Private ( ) Public( )

4. Do you pay for immunization services (i) Yes( ) (ii) No ( )

5. Do you remember any events in the past that would discourage you

From getting a vaccine(s) for your children? Yes ( ) No ( )

6. Do you know anyone who does not take a vaccine because of religious or cultural reasons?

Yes ( ) No ( )

SECTION FIVE: ACCESSIBILITY TO HEALTH FACILITY

1. Do you have a health facility in your area? Yes ( ) No ( ) Undecided ( )

2. How long does it take to reach a health facility? 1 ? 2 km( ) 3 - 4 km( ) >4 km( )

3. What is the means of transport to reach the health facility?

By car ( ) By motorcycle ( ) By bicycle ( )

4. Do you have outreach immunization services in your area?

Yes ( ) No ( ) Undecided ( )

SECTION SIX: UTILIZATION OF IMMUNIZATION SERVICES

1.The immunization services in your area, are they regular and reliable?

Yes ( ) No ( )

2. Are you reminded on follow up for the next dose or vaccine?

Yes ( ) No ( )

3. Do you encounter problems with health care workers during immunization implementation?

Yes ( ) No ( ) If yes, what are the problems……

APPENDIX- 2

When filling out the survey, please answer each question with the child whose appointment is today in mind. The answers to these questions will help us improve how doctors and nurses talk to parents about childhood shots.

Please check only one answer to each of the questions below.

1. Is this child your first born? ☐ Yes ☐ No

2. What is your relationship to this child?

☐ Mother ☐ Father ☐ Other _____

3.Have you ever delayed having your child get a shot (not including seasonal flu or swine flu (H1N1) shots) for reasons other than illness or allergy?	**Yes**	**No**	***Don't***	***Know***
		2	0	excluded

4. Have you ever decided not to have your child get a shot (not including seasonal flu or swine flu (H1N1) shots) for reasons other than illness or allergy?	**Yes**	**No**	***Don't***	***Know***
		2	0	excluded

5.How sure are you that following the recommended shot schedule is a good idea for your child? Please answer on a scale of 0 to 10, where 0 is *Not at all sure* and 10 is *Completely sure*.

Not at all Sure									**Completely sure**	
0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**0**	**0**	**0**

6. Children get more shots than are good for them.

Agree	Strongly Agree	Not Sure	Not Agree	Strongly Disagree
2	2	1	0	0

7. I believe that many of the illnesses that shots prevent are severe.

2	2	1	0	0

8. It is better for my child to develop immunity by getting sick than to get a shot.

2	2	1	0	0

9. It is better for children to get fewer vaccines at the same time.

2	2	1	0	0

10. How concerned are you that your child might have a se3rious side effect from a shot?

Not at all concerned	Not too concerned	Not Sure	Some What Concerned	Very Concerned
0	0	1	2	2

11. How concerned are you that anyone of the childhood shots might not be safe?

0	0	1	2	2

12. How concerned are you that a shot might not prevent the disease?

0	0	1	2	2

13. If you had another infant today, would you want him/her to get all the recommended shots?

Yes	No	Don't Know
0	2	1

14. Overall, how hesitant about childhood shots would you consider yourself to be?

Not at all hesitant	Not too hesitant	Not Sure	Some what hesitant	Very hesitant
0	0	1	2	2

15. I trust the information i receive about shots.

Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
0	0	1	2	2

16. I am able to openly discuss my concerns about shots with my child's doctor.

0	0	1	2	2

17. All things considered; how much do you trust your child's doctor? Please answer on a scale of 0 to 10, where 0 is *Do not trust at all* and 10 is *Completely trust.*

Do Not Trust at all										**Completely Trust**
0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2	2	2	2	2	2	1	1	0	0	0

The last questions are about you. Please check only one answer to each question.

18. How old are you?

☐ 18-29 years old

☐ 30 years or older

19. What is your current marital status?

☐ Single

☐ Married

☐ Living with a partner

☐ Widowed

☐ Separated

☐ Divorced

20. What is the highest level of education that you have reached?

☐ No formal education/illetrate

☐ 8th grade or less

☐ Some high school, but not a graduate

☐ High school graduate or GED

☐ Some college or 2year degree

☐ 4year college degree

☐ More than 4-year college degree

21. What is your approximate household income?

☐ $30,000 or less

☐ $30,001-50,000

☐ $50,001-75,000

☐ $75,001 or more

22. How many children are in your household?

☐ One

☐ Two

☐ Three

☐ Four or more

23. What is your race/ethnicity? Please check all that apply.

☐ White

☐ Black or African American

☐ Hispanic/Latino

☐ Asian

☐ Native Hawaiian or other Pacific Islander

☐ American Indian or Alaska Native

☐ Other: _____

APPENDIX 3

YAKIN DOĞU ÜNİVERSİTESİ
BİLİMSEL ARAŞTIRMALAR ETİK KURULU

ARAŞTIRMA PROJESİ DEĞERLENDİRME RAPORU

Toplantı Tarihi : 24.06.2021
Toplantı No : 2021/92
Proje No :1362

Yakın Doğu Üniversitesi Hemşirelik Fakültesi öğretim üyelerinden Yrd. Doç. Dr. Samineh Esmaeilzadeh'in sorumlu araştırmacısı olduğu, YDU/2021/92-1362 proje numaralı ve **"Assessment of Routine Childhood Immunization in Tarauni Local Govt Area Kano state, Nigeria."** başlıklı proje önerisi kurulumuzca online toplantıda değerlendirilmiş olup, etik olarak uygun bulunmuştur.

Y

Prof. Dr. Rüştü Onur
Yakın Doğu Üniversitesi
Bilimsel Araştırmalar Etik Kurulu Başkanı

APPENDIX 4.

15/05/021

REQUEST SEEKING FOR PERMISSION TO USE PARENT ATTITUDE SCALE (PACV) IN MASTER THESIS

Fatima

Thanks for your email and interest. Happy to have you use the PACV. Attached is the survey, scoring instructions, and related material. Please cite accordingly. Best

Doug Opel MD, MPH
Department of Pediatrics
University of Washington School of Medicine
Seattle Children's Research Institute
(p) 206-987-6894
(f) 206-884-1047

From: FATIMA_AMINU ADAMU <20204259@std.neu.edu.tr>
Sent: Saturday, May 15, 2021 4:12 AM
To: Opel, Douglas (UW-External) <djopel@u.washington.edu>
Subject: REQUEST SEEKING FOR PERMISSION TO USE PARENT ATTITUDE SCALE(PACV) IN MASTER THESIS

Near East University

Near East Boulevard ZIP: 99138
Education Palace, Nicosia/TRNC
Mersin 10_TURKEY.

Dear Sir

I am a Master Student Public Health Nursing Department, Near East University Turkish Republic of Northern Cyprus. I will be writing my thesis on Routine Childhood immunization Kano state, Nigeria. I found a scale "Parent attitude about childhood vaccine (PACV)" useful from your journal "Development of a survey to identify vaccine-hesitant parents.

I wish to enquire if the scale can be used as an assessment tool for African countries as well, if yes, i will look forward to your consent to use the scale for my thesis and i wish to get the compete scale for better assessment and if not, i will appreciate it if you can direct me where necessary.

I hope my request will be given due consideration.

Thank you,
Fatima Aminu Adamu (NIGERIAN).

APPENDIX 5

CURRICULUM VITAE

PERSONAL DETAILS

Name;	Fatima Aminu Adamu
Date of Birth;	06/02/1993
Place of Birth	Kano state, Nigeria
Nationality	Nigerian
Email Address	Zahraalamin93@gmail.com
Tel;	**+905338850380**

EDUCATIONAL LEVEL

Master	Near East University TRNC	2021
Undergraduate	Near East University TRNC	2020
High School	Kano Capital School Nigeria	2011

DETERMININGPARENTS ATTITUDE TOWARD CHILDHOOD VACCINATION INTARAUNI LOCAL GOVERNMENT AREA KANO STATE, NIGERIA.

ORİJİNALLİK RAPORU

%11	%8	%7	%
BENZERLİK ENDEKSİ	İNTERNET KAYNAKLARI	YAYINLAR	ÖĞRENCİ ÖDEVLERİ

BİRİNCİL KAYNAKLAR

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2	www.tandfonline.com İnternet Kaynağı	%1
3	Prince Christian Ifeanachor Umoke, MaryJoy Umoke, Chioma Adaora Nwalieji, Festus Okechukwu Igwe et al. "Investigating Factors Associated with Immunization Incompletion of Children Under Five in Ebonyi State, Southeast Nigeria: Implication for Policy Dialogue", Global Pediatric Health, 2021 Yayın	%1
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