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ASSESSMENT OF THE FACTORS AFFECTING THE IMPLEMENTATION OF IMMUNIZATION PROGRAMMES IN KADUNA SOUTH LOCAL GOVERNMENT AREA, KADUNA STATE

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ABSTRACT

The study is an evaluation of the factors influencing the implementation of immunization programmes in Kaduna South Local Government Area, Kaduna State. The study's specific goals were to describe the factors influencing immunization programme implementation, determine the level of knowledge of mothers/caregivers on vaccine preventable diseases in children, identify the factors influencing immunization programme implementation, and determine ways to improve immunization programme implementation in Kaduna South LGA, Kaduna State. The descriptive survey design was used in this study. A total of 6427 mothers/care givers were sampled using a simple random sampling technique. The data collection instrument is a 45-item structured questionnaire designed to elicit responses to the study's research questions.Three experts validated the instrument in terms of face and content validity, and a test re-test was used to determine the instrument's reliability coefficient, which was 0.84. The researchers and three trained research assistants collected the data for the study, and mean statistics were used to analyse the data relating to research questions 1-4. Based on the study's findings, the following recommendations were made: The government should rethink methods of raising awareness in order to change people's negative perceptions and practises about RI, collaborate with Mass Education to improve parents' literacy levels, and create convenient adult education classes to improve mothers' educational status. The government should direct resources toward girl-child education in particular.

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INTRODUCTION

Immunization is one of the most essential public health interventions and cost-effective measures to reduce infant mortality and morbidity linked with paediatric infectious illnesses, according to the World Health Organization (WHO, 2009). Immunization is another effective approach for reaching out to vulnerable groups (WHO, 2009). Immunization is projected to prevent 2 to 3 million deaths worldwide each year (WHO, 2009). The WHO's Expanded Program on Immunization (EPI), which was established to improve equal access to routine immunisation (RI) services, celebrated its 40th anniversary in 2014. (CDC, 2015). "Vaccines have the capacity not just to save, but also to alter lives," according to the WHO (2009), "providing children a chance to grow up healthy, attend school, and better their lives."

Based on neonatal, postneonatal, infant, childhood, and under-5 mortality rates, children and infants in North West Nigeria are more likely to die than children in any other Nigerian region (National Population Commission Nigeria [NPCN] & ICF Macro, 2013). Rural infant mortality is 43% higher (86 deaths per 1,000 live births) than urban infant mortality (60 deaths per 1,000 live births), and the urban-rural divide is even more pronounced in the under-5 mortality category (NPCN & ICF Macro, 2013). South West Nigeria has a low rate of 90 deaths per 1,000 live births, whereas North West Nigeria has a high rate of 185 deaths per 1,000 live births. Nigeria is part of a group of five countries that includes India, the Democratic Republic of Congo, Pakistan, and China. Millennium development targets that are related (WHO, 2015). Vaccine-preventable diseases are a major cause of morbidity and mortality, with an estimated 4 million people dying each year from diseases for which vaccinations are available (WHO, 2015). Pneumonia and diarrhoea disease account for roughly 34% of the 10.4 million fatalities among children under the age of five worldwide (WHO, 2015).

Many of these deaths could be avoided with adequate immunisation. Invasive pneumococcal illness is responsible for the mortality of 826,000 children aged 1 to 59 months worldwide, whereas rotaviruses are the most common cause of severe diarrhoea in young children (WHO, 2015). According to the WHO (2015), an estimated 527,000 children under the age of five die each year from vaccine-preventable diseases, the majority of whom live in low-income countries.

Despite global improvements in universal immunisation and oral rehydration therapy for diarrheal illness, given Nigeria's human and environmental resources, childhood mortality remains high. Despite the adoption of a primary health care plan in Nigeria aimed at increasing immunisation rates, coverage remains low (Ngowu, Larson, & Min, 2008). Through a cross-sectional survey conducted in 85 villages in all 10 administrative wards of the LGA between January and June 2008, Abdulraheem and Onajole (2011) reported on reasons for incomplete vaccination and factors for missed opportunities among Nigerian children less than one year of age in Awe local government area

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(LGA), Nasarawa State. By 9 months, only 37.2 percent of mothers/caregivers had completed RI schedules for their children.

In 1978, Nigeria implemented the Expanded Programme on Immunization (EPI) as a method to enhance child health. The programme has been running in all regions and districts since 1985. (GHS annual report, 2002) Although EPI was first used in Nigeria in 1978, it was not fully implemented until 1986, when the Head of State proclaimed a National Mass Immunization Program against measles. Since then, EPI activities have been a focal point for public health initiatives at the regional, district, sub-district, and institutional levels. EPI is part of the Disease Control Unit at the national level, along with other programmes that are directly under the Directorate of Public Health. The EPI service is integrated into the public sector at the regional level.

LITERATURE REVIEW

An Overview of Immunization History

Before the 16th century, it is thought that some type of vaccination was established in India or China (Lombard, Pastoret, Moulin, 2007). Ole Lund, a scholar, says: "The earliest documented occurrences of vaccination date from the 17th century in India and China, when powdered scabs from smallpox patients were employed to guard against the disease. Smallpox used to be a frequent disease all across the world, with 20 percent to 30 percent of affected people dying. In the 18th century, smallpox was responsible for 8% to 20% of all deaths in numerous European countries. Inoculation is thought to have begun in India around 1000 BCE." (Lund and colleagues, 2005).

Vaccination campaigns have spread over the world since then, sometimes mandated by law or regulation. Aside from smallpox, vaccines are currently used to prevent a wide range of diseases. During the 19th century, Louis Pasteur refined the process, expanding its application to include killing anti-anthrax and anti-rabies compounds. Inoculation was the optimistic selection of a less virulent form of the disease, and Jenner's vaccination required the exchange of a new and less harmful disease for the one protected against. In commemoration of Jenner's discovery, Pasteur coined the term vaccination as a generic term.

The activity should have predated Jenner's description of a successful method based on consistency.

The Alma-Ata Declaration of the International Conference on Primary Health Care (PHC), issued in September 1978, required and expressed the need for immediate action by all governments, health and development workers, and the global community to safeguard and promote the health of all people. In addition, declaration eight (point four) of the same document re-emphasized the need of promoting mother and child health, including family planning and immunisation against major infectious

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illnesses, among other things. Immunization is the process of exposing an individual to an agent called an Immunogen that is aimed to strengthen his or her immune system against the agent. Artificial active mmunisation has been found as the single most critical element that determines whether or not a person is healthy.

Goals four and five of the United Nations Millennium Development Goals (MDGs) focus on reducing child mortality through child survival interventions and improving maternal health in general, which recognisesimmunisation as a critical component in reducing vaccine-preventable diseases. If the Millennium Development Goal 4 (MDG 4) for child survival is not achieved by 2015, an estimated forty million children's lives will be lost (Human Development Trends, 2004). Because vaccine–preventable diseases account for approximately a quarter of global under–five mortality, vaccination can help to achieve MDG 4 significantly (World Health Organization, 2004).

Immunization and Vaccination in Nature

Immunization, also known as vaccination or inoculation, is a method of stimulating resistance in the human body to specific diseases by using modified or killed microorganisms such as bacteria or viruses. These treated microorganisms do not cause disease; instead, they cause the body's immune system to develop a defence mechanism that keeps the disease at bay. When a person who has been immunised against a disease comes into contact with the disease-causing agent, the immune system is able to respond defensively almost immediately. (2008, Microsoft Encarta). In other words, it is the administration of antigenic material (a vaccine) to induce adaptive immunity to a disease in an individual's immune. In a broad sense, artificial induction of immunity works by 'priming' the immune system with a 'immunogen' in order to protect against infectious disease. Immunization is the process of stimulating an immune response through the use of an infectious agent. Vaccinations involve the injection of one or more immunogens, which can come in a variety of forms. Some vaccines are given after a patient has previously been exposed to a disease. After a youngster was bitten by a rabid dog, Louis Pasteur administered the first rabies vaccination. Following this, it was discovered that proper post-exposure prophylaxis (PEP) of potential infectious diseases Infection with rabies within 14 days provides complete protection against the disease (Rupprecht et al., 2010). A number of deadly diseases have been dramatically reduced as a result of vaccination. For example, since 1988, when the vaccination for Haemophilusinfluenzae type b meningitis was initially launched, the number of cases of the disease among newborns and children in the United States has decreased by 95%. By their second birthday, more than 90% of children in the United States have received all of the recommended immunizations. By the age of two, around 85 percent of Canadian children had been inoculated (Microsoft Encarta, 2008).

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Types of Immunization

A. Active Immunization: Depending on the disease and the organism that causes it, active immunisation vaccines are created in a variety of ways. Antigens, molecules contained in the disease-causing organism that the immune system detects as alien, are the active ingredients in immunizations. In reaction to the antigen, the immune system produces antibodies or T lymphocytes, which are particular attacker cells in white blood cells. Immunization imitates a real infection while posing little to no risk to the patient. Some immunising agents offer lifetime protection against a disease. Other agents offer just partial immunity, allowing the inoculated person to catch the disease albeit in a milder form. These immunizations are typically thought to be dangerous. These persons may develop the disease that the vaccine is designed to prevent if they do not have a good defence system to fight infection. Some immunising drugs require booster doses or repeated inoculations at specific intervals. For example, tetanus shots are recommended every ten years throughout life.

B. Passive immunization: Passive immunisation is performed without injecting any antigen. Vaccines containing antibodies are extracted from the blood of an actively immunised human or animal in this procedure. The antibodies last two to three weeks, and the person is protected from the sickness throughout that time. In contrast to active immunisation, which might take weeks to develop, passive immunisation delivers immediate protection. When there is a high danger of infection and not enough time for the body to generate its own immune response, or to alleviate the symptoms of ongoing or immunosuppressive conditions, passive immunisation is utilised (for example, for tetanus). Antibodies can be created in animals ("serum treatment"), however because of immunity to animal serum, there is a high risk of anaphylactic shock.

C. Naturally acquired passive immunity: Maternal passive immunity refers to antibody-mediated immunity that a mother passes on to her foetus throughout pregnancy. An FcRn receptor on placental cells transmits maternal antibodies (MatAb) to the foetus through the placenta. Around the third month of pregnancy, this happens. The only antibody isotype that can travel through the placenta is immunoglobulin G. (Coico, Sunshine and Benjamin, 2003). Immunization against diseases like tuberculosis, hepatitis B, polio, and pertussis is frequently recommended soon after birth. However, maternal antibodies can prevent the protective vaccination from being induced. Throughout the first year of life, you will receive several replies. Secondary reactions to booster immunisation usually overcome this impact (Lambert, Margaret and Claire-Anne, 2005).

Passive immunity is also given by IgA antibodies contained in breast milk, which are transmitted to the infant's gut and protect the infant against bacterial infections until the newborn can synthesise its own antibodies (Paul et al., 2001).

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D. Artificially acquired passive immunity: Artificially acquired passive immunity is a short-term immunisation achieved by the transfer of antibodies, which can be administered in a variety of ways, including human or animal blood plasma or serum, pooled human immunoglobulin for IVIG or IG use, high-titer human IVIG or IG from immunised or recovering donors, and monoclonal antibodies (MAb). In the case of immunodeficiency illnesses like hypogammaglobulinemia, passive transfer is utilised as a preventative measure (Keller et al., 200). It's also used to treat poisoning and some types of acute infections. Passive immunisation provides only temporary immunity, and there is also the possibility of infection. Hypersensitivity responses and serum sickness, especially from non-human gamma globulin. Passive immunity provides immediate protection, but because the body lacks memory, the patient is at risk of contracting the same pathogen again later (Paul et al., 2001).

Expanded Program on Immunization

When the World Health Organization (WHO) developed the EPI in 1974, it kicked off a global campaign to use immunisation as a public health intervention. Immunization has remained one of the most cost-effective public health strategies for lowering child morbidity and mortality worldwide since then (Machingaidze, Wiysonge, & Hussey, 2015). The EPI programme is a blueprint for managing the technical and managerial functions required to routinely vaccinate children with a limited number of vaccines, providing protection against diphtheria, tetanus, whooping cough, measles, polio, and tuberculosis, as well as to prevent maternal and neonatal tetanus by vaccinating women of hildbearing age with tetanus toxoid vaccine (Shen, Fields, &Mc Question, 2014). The original goal of EPI was to provide all children with multiple vaccines through a simple schedule of child health visits (Shen, Fields, &Mc Question, 2014). This was difficult because most poor and developing countries' health systems were fragile, if not non-existent, at the time (Shen, Fields, &Mc Question, 2014). Vaccine coverage was less than 5% until around 1990, when most impoverished nations had institutionalized immunisationp rogrammes based on the EPI plan, and by 1991, the worldwide goal of vaccinating 80% of the world's children had been declared met, saving millions of lives (Shen, Fields, &McQuestion, 2014).

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Routine immunization schedule

Current EPI Schedule in Nigeria

Minimum Target Age of Child	Type of Vaccine	Dosage	Route of administration	Site
At birth	BCG	0.05ml	Intra dermal	Left Upper Arm
	*OPV0	2 drops	Oral	Mouth
	**Hep B birth	0.5ml	Intra muscular	Antero-lateral aspect of Right thigh
6 weeks	Pentavalent (DPT, Hep B and Hib) 1	0.5ml	Intra muscular	Antero- lateral aspect of left thigh
	Pnemococcal Conjugate Vaccine 1	0.5ml	Intra muscular	Antero- lateral aspect of Right thigh
	OPV1	2 drops	Oral	Mouth
	Rota 1	1ml	Oral	Mouth
10 weeks	Pentavalent (DPT, Hep B and Hib) 2	0.5ml	Intra muscular	Antero-lateral aspect of left thigh
	Pnemococcal Conjugate Vaccine 2	0.5ml	Intra muscular	Antero- lateral aspect of Right thigh
	OPV2	2 drops	Oral	Mouth
	Rota 2	1ml	Oral	Mouth
14 weeks	Pentavalent 3 (DPT, Hep B and Hib)	0.5ml	Intramuscular	Antero-lateral aspect of left thigh
	Pnemococcal Conjugate Vaccine 3	0.5ml	intra muscular	Antero- lateral aspect of Right thigh
	OPV3	2 drops	Oral	Mouth
	IPV	0.5ml	Intramuscular	Antero- lateral aspect of Right thigh (2.5cm apart from PCV)
6 months	Vitamin A 1st dose	100,000 IU	Oral	Mouth
9months	Measles 1st dose	0.5ml	Subcutaneous	Left upper arm
	Yellow Fever	0.5ml	Subcutaneous	Right upper arm
	Meningitis Vaccine	0.5ml	Intramuscular	Antero- lateral aspect of Left thigh
15 months	Vitamin A 2nd dose	200,000 IU	Oral	Mouth
	Measles 2 dose (MCV2)	0.5ml	Subcutaneous	Left upper arm

Source: National Programme on Immunization (NPI), 2011

Nigerian Immunization and Vaccine Development

Despite the fact that vaccinations have shown to be one of the most effective public health policies of this century, recent outbreaks of vaccine-preventable diseases have caused alarm in the public, political, and medical arenas (Evers, 2000). As a result, a variety of initiatives have been implemented to address the issue of child under-immunization. For example, in order to enrol a child in school, fifty states and the District of Columbia required completion of a basic set of vaccines, resulting in immunisation rates of nearly 98 percent for school-aged children. At first sight, these figures seemed encouraging—until it was realised that, in many cases, parents were playing catch-up to meet legal

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immunisation requirements before their children could enter school (Schmalz and Larwa, 2003). Many life-threatening diseases of infancy and early childhood are not protected by waiting until a child is completely immunised before starting school.

Parents can get both valid and inaccurate immunisation information from a variety of sources. Wolfe et al., (2002), for example, identified 22 anti-vaccination Web sites that expressed a variety of vaccine safety concerns as well as a general disdain of medicine. Family physicians, paediatricians, and nurses must be better equipped to have fruitful conversations with parents who refuse or refuse to have their children immunise. Vaccination services in the United States are still insufficient. In 2000, around 38% of children aged one year received three doses of oral polio vaccination (OPV) (3), while approximately 25% of newborns aged one year received three doses in 2001. Nigeria implemented EPI in 1978 with the goal of delivering routine vaccination to children under the age of two. The programme had some early but recurrent successes, with the highest level in the early 1990s, when Nigeria attained childhood immunisation coverage of 81.5 percent (Ophori, Tula, Azih, Okojie, &Ikpo, 2014). Nigeria, on the other hand, has seen a slow but steady decline in immunisation coverage since that period of success. By 1996, national coverage for all antigens had plummeted to less than 30%, and by 2003, it had dropped to 12.9 percent, which matched the findings of the 2003 national vaccination coverage survey. The decline in antigen coverage appears to be linked to a lack of political will and dedication on the part of the government, leading in the inability to meet the targets. The government came up with a program to revitalize and sustain the immunization system in 1999, in synergy with the polio eradication program, leading to the establishment of the National Program on Immunization (NPI). The focus of the NPI is on providing support to the states and LGAs in the implementation of immunization programs (WHO Regional Office for Africa, n.d.)

Role of Religious/Ethnic Affiliation of Parents/Mothers in Completion of RI Schedules

Many studies and documents emphasise the impact of caretakers' or mothers' religious affiliations in ensuring that their children finish RI regimens before their first birthday. Many of these research took place outside of Nigeria or in the southern part of the country, leaving the northern region, which includes Kaduna State, with little or no knowledge of the subject. Oyefara (2014) discovered that, in addition to other personal characteristics of women, religious affiliation and ethnic background were statistically related with full immunisation status of their children in a study conducted in Ojo Local Government Area, Lagos State, Nigeria. These results were in line with previous research on the impact of maternal and provider variables on up-to-date immunisation status in children aged 19 to 25.

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Role of Women's Autonomy in Completion of Immunization Schedule

Many scholars define women's autonomy as a woman's ability to make independent decisions about her family that impact her or her children without interference from her family. The terms autonomy, volitional control, and empowerment are all used interchangeably. Several academics had comparable conceptions of women's autonomy, according to Bharati (2014). According to Bharati (2014), autonomy is described as women's options to get education and work outside the home, while Miles-Doan defined autonomy as a woman's position within family power relations, such as negotiating power. He also defined autonomy as having control over one's own resources and those of society. Finally, according to Bharati (2014, Jejeeboy and Sathar, autonomy entails emotional independence, and economic and social sovereignty, which includes the right to utilise and manage resources. Because the definitions and concepts of women's autonomy overlap, researchers have lately begun to look into the impact of women's autonomy on their own health and the health of their children (Bharati, 2014).

In a study on the impact of women's autonomy on their children's nutritional and immunisation status as measured by the women's decision-making power on her own health care, large household purchases, going to relatives or friends' houses, and spending the husband's earnings, the women's decision-making power was measured through four main parameters of decision-making on her own health care, large household purchases, going to relatives or (Bharati, 2014).

Role of Maternal Age and Parity, Child's Sex, and Birth Order in Completion of Immunization Schedule

n a study on maternal determinants of immunisation status of children aged 12-23 months in urban slums of Varanasi, India (Awasthi, Pandey, Singh, Kumar, & Singh, 2015), and a similar study on the factors affecting acceptance of complete immunisation coverage of children under five years in rural Bangladesh (Rahman&Obaida-Nasrin, 2010), both researchers found that maternal age, maternal employment status, maternal education, They discovered that moms with fewer children were more likely to have completely immunised children than mothers with more children, who may lack the incentive to care for the most recent child. A study in rural Bangladesh (Rahman&Obaida-Nasrin, 2010) discovered that the mother's age is statistically significant. This could be due to their cumulative knowledge of contemporary medicine and repeated messaging on the significance of immunisation services, and that middle-aged moms are more likely to get their children properly immunised than older women.

The study (Rahman&Obaida-Nasrin, 2010) also discovered that sex discrimination affects immunisation coverage, with male children being more likely to be fully immunised than females, and mothers receiving TT injection being one of the significant predictors of full immunisation coverage

for children (Rahman&Obaida-Nasrin, 2010). In contrast to the findings of these research, De Oliveira et al. (2014) found no sex differences in characteristics associated with vaccination coverage in children aged 5 years in Angola.

Attitudes, Motivation, Performance, and Competence of Health Staff

In Ethiopia, Zimbabwe, Niger, Kenya, Bangladesh, West Africa, Uganda, Benin, Nigeria, and Syria, health workers who treat mothers in an unfavourable, rude, and sometimes abusive manner have been linked to mothers refusing to bring their children for vaccination or refusing to return to complete vaccination schedules even after they had started the schedule (Favin, Steinglass, Fields, Banerjee, &Sawhney, 2012). There have been numerous accounts of health professionals yelling at women who neglected to bring their children's immunisation records, missing scheduled appointments, or youngsters clad in a filthy fabric or presenting as underweight (Favin et al., 2012).

PRESENTATION AND ANALYSIS OF DATA

Section A: Demographic Information

The data collected in this category was intended to find out the distribution of the respondents based on Age and Educational Qualification of respondents. The Frequency (f) for each category was found and percentages (%) calculated as shown in the tables and charts below.

Table 1: Age distribution of respondents

Age	Frequency	Percentage %
16-20	62	18
21-25	69	20
26-30	121	35
31-35	53	16
36 and above	36	11
Total	341	100

Table 1 indicates that 62 respondents representing (18%) are between 16-20 years, 69 respondents representing (20%) are between 21 – 25 years, 121 respondents representing (35%) are between 26-30 years, 53 respondents representing (16%) are between 31 – 35 years while the remaining 36 respondents representing (11%) are 36 years and above.

Table 2: Educational Qualification of Respondents

Educational Qualification	Frequency	Percentage %
None	73	21
FSLC	53	16

SSCE/GCE	135	40
NCE/OND	33	10
HND/BSC/B.A	36	11
Others	11	3
Total	341	100

Table 2 indicates that 73 respondents representing (21%) are not Educated, 53 respondents representing (16%) are having FSLC, 135 respondents representing (40%) are having SSCE/GCE, 33 respondents representing (10%) are having NCE/OND, 36 respondents representing (11%) are having HND/BSC/BA while the remaining 11 respondents representing (3%) are having other forms of educational qualification.

Section B: Research Questions

Research question one: What is the factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State?

The data analysis to research question one is presented in table 1

Table 3: Mean Response on the levels of Immunization programmes

S/N	ITEMS	SA	A	D	SD	Mean	Remarks
1.	There is PHC center in the Community	75	200	25	55	2.83	Accepted
2.	The PHC center carries EPI services	152	149	27	27	3.20	Accepted
3.	You take your last child for DPT Immunization	22	30	101	202	1.64	Rejected
4.	Your last child completed DPT Immunization Schedule?	5	15	210	125	1.72	Rejected
5.	You take your last child for Polio Immunization	27	55	98	175	1.81	Rejected
6.	Your last child complete the Polio Immunization Schedule	55	100	79	121	2.25	Rejected
7.	You take your last child for Measles Immunization	25	55	75	200	1.73	Rejected
8.	Your last child complete the Measles immunization schedule	47	45	50	213	1.79	Rejected
9.	You have your child's immunization card	15	20	298	22	2.08	Rejected
10.	The Vaccines are always available in the	10	35	201	109	1.85	Rejected

PHC

Grand Mean=3.03

The result presented in Table 3 above indicate a grand mean of 3.03 which shows general acceptance of the items in the questionnaire. Individual analysis shows that the respondents agreed with all items 1 and 2 with means of 2.83 and 3.20 while they rejected the remaining items with means below 2.5. This shows that coverage of Immunization programmes in Kaduna South LGA, Kaduna State is not adequate.

Research Question Two: What is the level of knowledge of mothers/caregivers on vaccine preventable diseases in children in Kaduna South LGA, Kaduna State?

The data analysis to research question two is presented in table 2

Table 4: Mean response on the level of knowledge of mothers/caregivers on vaccine preventable diseases

S/N	ITEMS	SA	A	D	SD	Mean	Remarks
11.	I know the purpose of childhood immunization	121	179	25	30	3.10	Accepted
12.	I know the vaccine preventable diseases	2	2	301	50	1.88	Rejected
13.	I know the number of times a child should be taken to a health facility to complete his/her routine immunization	26	20	134	156	1.66	Rejected
14.	I know the age (or at what time) a child should receive his/herroutine immunization	25	55	75	200	1.73	Rejected
15.	Immunization prevents all childhood diseases	47	45	50	213	1.79	Rejected
16.	Childhood vaccines are safe for children	15	20	298	22	2.08	Rejected
17.	Immunizations are for keeping children healthy	10	35	201	109	1.85	Rejected
18.	Childhood vaccines are very effective in preventing diseases that they are supposed to prevent	25	55	75	200	1.73	Rejected
19.	There are local preparations that can serve as substitute for immunization to prevent childhood diseases	301	50	2	2	3.83	Accepted
20.	I can identify the various side effects of	10	35	201	109	1.85	Rejected

vaccines

Grand mean = 3.25

The result presented in Table 4 showsthe grand mean of 3.38 which indicates general acceptance of the items by the respondents. Individual analysis indicates that that the respondents agreed with items 11 and 19 with means of 3.10 and 3.83 respectively and rejected remaining the items with means below 2.5. This shows that the level of knowledge of mothers/caregivers on vaccine preventable diseases in children in Kaduna South LGA, Kaduna State is low.

Research question three: What are the factors affecting factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State?

The data analysis to research question three is presented in table 5

Table 5: Mean response on the factors affecting coverage levels of Immunization programmes

S/N	ITEMS	SA	A	D	SD	Mean	Remarks
21.	Inadequate understanding of immunization	298	22	15	20	3.68	Accepted
22.	Limited access to immunization services for communities in hard-to-reach areas	50	213	47	45	2.75	Accepted
23.	Inadequate numbers of health staff	201	109	10	35	3.34	Accepted
24.	Education level of parents/caregivers	134	156	26	20	3.03	Accepted
25.	Income level of parents/caregivers	75	200	25	55	2.83	Accepted
26.	Delivery in a health facility	50	213	47	45	2.75	Accepted
27.	Knowledge of parents/mothers of routine immunization (ri) services	101	202	22	30	3.05	Accepted
28.	Distance of parents/caregivers from ri-providing facilities	210	125	5	15	3.49	Accepted
29.	Religious/ethnic affiliation of parents/mothers	98	175	27	55	2.89	Accepted
30.	Women's autonomy	79	121	55	100	2.50	Accepted
31.	Maternal age	298	22	15	20	3.68	Accepted
32.	Maternal parity	201	109	10	35	3.34	Accepted
33.	Child's sex	75	200	25	55	2.83	Accepted
34.	Birth order	301	50	2	2	3.83	Accepted
35.	Attitudes of health workers	50	213	47	45	2.75	Accepted

36.	Competence of health staff	201	109	10	35	3.34	Accepted

Grand mean= 3.06

From table 5, indicates a grand mean of 3.06 which shows general acceptance of the items by the respondents. Individual analysis indicates that all the items presented agreed upon as their individual mean is above 2.5, showing that the above listed items are the factors affecting factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State.

Research question Four: What are the ways to improve implementing immunization programmes in Kaduna South LGA, Kaduna State?

The data analysis to research question three is presented in table 6

Table 6: Mean response on the ways to improve implementing immunization programmes

S/N	ITEMS	SA	A	D	SD	Mean	Remarks
37.	Creating adequate understanding of immunization	50	213	47	45	2.75	Accepted
38.	Increasing access to immunization services for communities in hard-to-reach areas	201	109	10	35	3.34	Accepted
39.	Increasing manpower for immunization services	201	109	10	35	3.34	Accepted
40.	Literacy level of the community especially women should be increase	134	156	26	20	3.03	Accepted
41.	Poverty alleviation strategies should be embarked upon	75	200	25	55	2.83	Accepted
42.	Families should be encourage to deliver in a health facility	50	213	47	45	2.75	Accepted
43.	Enlightenment campaign on routine immunization (RI) services should be done regularly	101	202	22	30	3.05	Accepted
44.	Distance of parents/caregivers from RI-providing facilities should be located at close proximity	210	125	5	15	3.49	Accepted
45.	Women should be empowerment	98	175	27	55	2.89	Accepted

Grand mean= 3.06

From table 5, indicates a grand mean of 3.06 which shows general acceptance of the items by the respondents. Individual analysis indicates that all the items presented agreed upon as their individual

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mean is above 2.5, showing that the above listed items are the ways to improve implementing immunization programmes in Kaduna South LGA, Kaduna State.

Section C: Test of Hypothesis

Hypothesis One: There will be no significant difference on the factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State based on age of mothers/care givers.

Table 7: Summary of ANOVA Verifying the factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State based on age of mothers/care givers

ANOVA

Group	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.246	7	3.062	12.887	.056
Within Groups	70.085	333	.238		
Total	82.332	340			

Table 7 revealed that there is no significant difference on factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State based on age of mothers/care givers since the p-value 0.056 is greater than 0.05, this implies that the response provided on table 7 on factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State does not significantly differ with respect to the age of mothers/care givers. Consequently, the first null hypothesis was rejected. It then follows that factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State is not depended on age of mothers/care givers.

Hypothesis Two: There will be no significant difference on the factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State based on level of Education.

Table 8: Summary of ANOVA Verifying factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State based on level of Education

ANOVA

Group	Sum of Squares Diff.	Mean Square	F	Sig.

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B/w Groups	26.471	6	2.571	13.273	.042
Within Groups	50.429	335	.490		
Total	76.000	340			

According to table 8, the p-value of the ANOVA (0.042) is less than 0.05 we therefore conclude that there is statistically significant difference on factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State based on level of Education. Consequently, the null hypothesis (**Ho_2**) was accepted. It then follows that factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State is statistically dependent on Educational qualification.

Findings

1. **On** the factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State, the study found that:

- There is PHC center in the Community
- The PHC center carries EPI services
- Majority of the women don't take their children for immunization
- Majority of the women don't complete their immunization schedules
- Majority of the women don't have their child's immunization card
- The Vaccines are always available in the PHC

2. **On** the level of knowledge of mothers/caregivers on vaccine preventable diseases in children in Kaduna South LGA, Kaduna State, the study found that:

- Majority of the women know the purpose of childhood immunization
- Majority of the women don't know the vaccine preventable diseases
- They don't know number of times a child should be taken to a health facility to complete his/her routine immunization
- They don't know the age (or at what time) a child should receive his/herroutine immunization
- Immunization does not prevents all childhood diseases
- They don't know that Childhood vaccines are safe for children
- They don't know immunizations are for keeping children healthy
- They don't know that childhood vaccines are very effective in preventing diseases that they are supposed to prevent
- They believed that there are local preparations that can serve as substitute for immunization to prevent childhood diseases
- They can't identify the various side effects of vaccines

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3. The factors affecting factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State are:

- Inadequate understanding of immunization
- Limited access to immunization services for communities in hard-to-reach areas
- Inadequate numbers of health staff
- Education level of parents/caregivers
- Income level of parents/caregivers
- Delivery in a health facility
- Knowledge of parents/mothers of routine immunization (ri) services
- Distance of parents/caregivers from ri-providing facilities
- Religious/ethnic affiliation of parents/mothers
- Women's autonomy
- Maternal age
- Maternal parity
- Child's sex
- Birth order
- Attitudes of health workers
- Competence of health staff

4. The ways to improve implementing immunization programmes includes:

- Creating adequate understanding of immunization
- Increasing access to immunization services for communities in hard-to-reach areas
- Increasing manpower for immunization services
- Literacy level of the community especially women should be increase
- Poverty alleviation strategies should be embarked upon
- Families should be encourage to deliver in a health facility
- Enlightenment campaign on routine immunization (RI) services should be done regularly
- Distance of parents/caregivers from RI-providing facilities should be located at close proximity
- Women should be empowerment

Discussion of Findings

From research question one, the study found that coverage of Immunization programmes in Kaduna South LGA, Kaduna State is not adequate. This corroborates the WHO assertion who estimates that 2 million child deaths were prevented through vaccination in 2003 and immunization continues to be amongst the most successful and cost–effective public health interventions. The number of developing

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countries estimated to have met the target of the UNICEF medium-term strategic plan of 80 percent coverage for PENTA3 in every district increased from 42 in 2002 compared to 45 in 2003. Nonetheless 89 developing countries have developed strategies for reaching hard-to-reach group with immunization. Since 1985 expanded programme on immunization (EPI) coverage has realized a worldwide increase, reported by (WHO, 1991). By 1990 Africa and member states were reported to have achieved 80% vaccination. The increase was attributed to mass immunization exercises where districts were given financial support to implement the programme aggregated among member states; routine coverage with PENTA3 has remained at 70 percent to 78 percent from 1990 to 2004, (Global Immunization Data, 1980-2004). In 2003, the coverage rates for three doses of combined diphtheria/pertussis/tetanus vaccine (PENTA3) increased to 76 percent in developing countries and 78 percent worldwide (unicef, 2005). The average annual rate of increase (AARI) since 1990 exceeds the AARI required to reach 90 percent coverage in 2010. In 1989, a situational analysis of EPI coverage in Nigeria showed that in spite of the success of the EPI the third dose vaccination was still low. There were only 50.7 percent coverage for PENTA3 and 51.5 percent for OPV3 with drop out rate of approximately 40 percent, (UNICEF, 1990). In 1995, the figures reported for Nigeria based on a nationwide survey were; BCG -85 percent, PENTA3 -71 percent, OPV3 -71 percent, Measles 68 perent (WHO, 1998). Nigeria Health Service reported in 2002 that in spite of several attempts over the years to improve EPI, the national immunization coverage has been low (FMoH, 2002).

From Research Question Two, the study further revealed that the level of knowledge of mothers/caregivers on vaccine preventable diseases in children in Kaduna South LGA, Kaduna State is low. This is as posited by Ngowu, Larson, & Min, (2008), who posited that despite the global advances in universal immunization and oral rehydration therapy for diarrheal disease, and the endowment of Nigeria with human and natural resources, childhood mortality is still extremely high. Despite the implementation of a primary health care plan designed to help improve immunization rates in Nigeria, immunization coverage remains low. Abdulraheem and Onajole (2011) reported on reasons for incomplete vaccination and factors for missed opportunities among Nigerian children less than one year of age in Awe local government area (LGA), Nasarawa State, through a cross-sectional survey conducted in 85 villages in all the 10 administrative wards of the LGA between January and June, 2008. Less than half (37.2%) of the mothers/caregivers finished RI schedules for their children by 9 months of age. The main reasons given by the mothers for partial immunization included parents' disagreement, objection, or apprehension about the safety of immunization (38.8%), long trekking distance to the service point (17.5%), and waiting for a long time at the health facility (15.2%) (Abdulraheem&Onajole**,** 2011).

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Belachew (2012) in a similar study in Ethiopia found that complete immunization coverage among children ages 12 to 23 months remained low and that maternal health care use and knowledge of mothers regarding the age to begin and finish vaccinations are the main factors associated with complete immunization coverage. Beckie et al. (2014) reported high coverage in the urban district of Enugu, South East Nigeria, in a hospital study on vaccination coverage and its determinants in children ages 11 to 23 months. The cross-sectional study targeted caregivers and their children attending children's outpatient clinics in Enugu metropolis. The results indicated that of 351 subjects studied, 84.9% (298) were fully immunized according to the national immunization schedule by both cards and history of vaccination (Beckie et al., 2014).

Research question three further revealed that the factors affecting factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State includes inadequate understanding of immunization, limited access to immunization services for communities in hard-to-reach areas, inadequate numbers of health staff, education level of parents/caregivers, income level of parents/caregivers, delivery in a health facility among others. This is in conformity with the assertions of Beckie et al., (2014) who asserted that factors such as government employment, child delivered in a government facility, and the knowledge of the caregiver/parents of the age when RI should start and be completed were the independent forecasters of the high vaccination coverage noted in this study, suggesting the need to extend the awareness and health education efforts to private and other hospitals to improve and sustain RI coverage nationwide.

Maternal knowledge and educational status and raising the knowledge level of mothers and increasing maternal literacy level are necessary to advance immunization coverage, and that children from mothers with higher levels of education, who were delivered in hospitals, who live in urban areas, and whose mothers work outside the home, have significantly higher rates of completed basic vaccinations (Funmilayo, 2013; Gidado et al., 2014; Ushie, Fayehun, &Ugal, 2014). Saleena et al. (2014) reported that considerable barriers to enhancing coverage still exist, including vaccine stock outs and shortages of other supplies.

Furthermore, Research question Four, shows that the ways to improve implementing immunization programmes in Kaduna South LGA, Kaduna State includes creating adequate understanding of immunization, increasing access to immunization services for communities in hard-to-reach areas, increasing manpower for immunization services, literacy level of the community especially women should be increase, poverty alleviation strategies should be embarked upon, families should be encourage to deliver in a health facility among others. This is as posited by Ngowu, Larson, & Min, (2008), who posited that despite the global advances in universal immunization and oral rehydration therapy for diarrheal disease, and the endowment of Nigeria with human and natural resources,

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CONCLUSION

From the major findings and discussion of findings, stated above, the following conclusions were drawn about the study:

1. The study found that coverage of Immunization programmes in Kaduna South LGA, Kaduna State is not adequate.
2. The study further revealed that the level of knowledge of mothers/caregivers on vaccine preventable diseases in children in Kaduna South LGA, Kaduna State is low.
3. The factors affecting factors affecting the implementation of Immunization programmes in Kaduna South LGA, Kaduna State includes inadequate understanding of immunization, limited access to immunization services for communities in hard-to-reach areas, inadequate numbers of health staff, education level of parents/caregivers, income level of parents/caregivers, delivery in a health facility among others.
4. The ways to improve implementing immunization programmes in Kaduna South LGA, Kaduna State includes creating adequate understanding of immunization, increasing access to immunization services for communities in hard-to-reach areas, increasing manpower for immunization services, literacy level of the community especially women should be increase, poverty alleviation strategies should be embarked upon, families should be encourage to deliver in a health facility among others

Recommendations of the Study

Based on the findings of the study, the following recommendations were made.

1. Government should re-strategize methods of creating awareness to change bad perceptions and practices on RI among people of the state.

2. The Kaduna State Ministry of Education and Agency for Mass Education should collaborate to improve the literacy level of the people
3. State Ministry of Education should create convenient adult education classes to improve educational status of mothers
4. Kaduna State government should divert resources specially for girl-child education in the state
5. It is recommended that all Health Centers and Health Personnel should encourage and educate the parents about the values and benefits of the vaccination and vaccine preventable diseases and its consequences to children's health
6. Kaduna state government, through the Ministry of Information should intensify sensitization of mothers/caregivers to improve their knowledge on Routine Immunization through Radio and Television jingles
7. Local government authority should provide the parents with some health information by distributing printed materials such as brochures, pamphlets and leaflets in local languages.

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