

## Practice of Childhood Immunization Among Mothers in Umueze, Osisiomangwa Local Government Area, Abia State, Nigeria

Uwa N Onwuchekwa<sup>1</sup>, Prince Ezenwa Ndubueze Onyemachi<sup>2\*</sup>, Isaiah Abali<sup>3</sup>, Ajere Grace Chimkamnele<sup>2</sup>, Chidi-Esike Obinna Ugonna<sup>2</sup> and Ukanwa Ebere Ann<sup>2</sup>

<sup>1</sup>Department of Internal Medicine, Abia State University Teaching Hospital, Aba, Nigeria

<sup>2</sup>Department of Community Medicine, Abia State University Teaching, Hospital, Aba, Nigeria

<sup>3</sup>Department of Surgery, Abia State University Teaching Hospital, Aba, Nigeria

**\*Corresponding Author:** Prince Ezenwa Ndubueze Onyemachi, Department of Community Medicine, Abia State University Teaching, Hospital, Aba, Nigeria.

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### Abstract

**Background:** Childhood immunization is an effective public health initiative aimed at reducing the burden of vaccine preventable diseases (VPDs) and deaths among children, particularly under-fives. It averts an estimated 2.5 million deaths per year in all age groups from VPD. Childhood immunization is an act of inducing immunity to a child by applying a vaccine that almost guarantees protection from many major diseases.

**Objective:** To determine the practice of childhood immunization among mothers in Umueze in OsisiomaNgwa Local Government Area of Abia State.

**Methods and Materials:** A cross-sectional study performed in Umueze Community in OsisiomaNgwa Local Government Area in ABA, Abia State, Nigeria. Self/interviewer questionnaires were administered to 470 women for the study.

**Result:** A total of 470 women selected by systematic sampling methods with non-response rate of 40 (8.0%). Mean age was 34 ± 8.246. Three hundred and fifty (81.4%) believe that there was benefit of immunization as it prevented child from diseases, 340 (79.1%) believed that immunization was free, 330 (76.7%) believed that lack of centres was the cause of reduced child immunization, 350 (81.4%) started immunizing their children after birth, 138 (32.1%) mothers give their children all the immunization, while 278 (64.7%) women had good practice of immunization. The relationship between the sociodemographic variables and level of practice of immunization were statistically significant, marital status (95% CI: 1.164 - 541.451), odd ratio; -3.223, p = 0.04, Number of living children (95% CI: 2.025 - 61.784), odd ratio; - 2.415, p = 0.006.

**Conclusion:** Childhood Immunization is an inevitable practice that every family should be involved in, and mothers should always see to the completion of their children's Immunization, in order to avert impending dangers which can result from it.

**Keywords:** Practice; Childhood; Immunization; Mothers; Osisiomangwa

## Introduction

Childhood immunization almost guarantees protection from many major diseases, it is widely considered to be 'overwhelmingly good' by the scientific community [1,2]. Childhood immunization is an effective public health initiative aimed at reducing the burden of vaccine preventable diseases (VPDs) and deaths among children, particularly under-fives. It averts an estimated 2.5 million deaths per year in all age groups from Diphtheria, Tetanus, Pertussis (whooping cough) and Measles [3]. Other VPDs include: Tuberculosis, Measles, Meningitis, Polio, Hepatitis B and Yellow fever. These are sources of morbidity and mortality especially in developing countries, mainly in Africa and Asia [1,2]. Vaccination coverage has now reached a plateau in many developing countries, and even where good coverage has been attained, reaching children not yet vaccinated had proved difficult [4].

Typically, this involves exposure to an agent (antigen or immunogen) designed to fortify the person's immune system against the antigen or similar infectious agent, (I.e. active immunization) [5]. Immunization also includes providing someone with protective antibodies developed by someone else or another organism. When the human immune system is exposed to a disease once, it can develop the ability to quickly respond to a subsequent infection. Therefore, by exposing an individual to an immunogen in a controlled way, the person's body will be able to protect itself from infection later in life [6].

Childhood immunization is an act of inducing immunity to a child by applying a vaccine that almost guarantees protection from many major diseases. Up take of vaccination service is dependent not only on provision of these service but also on accessibility of vaccination clinics, availability of safe needles and syringes and the opportunity cost incurred by mothers. A good attempt to address this drawback may go a long way to improve vaccine utilization and subsequent protection of the children against childhood infectious diseases. Most mothers support immunization for their children, while some do not because they believe that administration of too many vaccines may negatively affect their children.

Child mortality has fallen significantly in many medium and low-income countries due to introduction of appropriate vaccine for routine use in infants; however, Sub-Sahara African countries experience the slowest fall in mortality rate among children due

to vaccine preventable disease. Measles is the leading cause of vaccine preventable diseases among children. 1-5% of children with measles die from complications of the disease [7].

Tuberculosis is one of the most important infectious diseases globally. Estimation shows that thirty percent of the world populations are infected with tuberculosis. Annually, eight to ten million people develop the disease throughout the world and over three million of these are from sub-Saharan Africa. Though the incidence on tuberculosis is not known definitely, but it has been estimated that over twenty-five thousand new cases are reported annually [7].

Neonatal tetanus is a completely preventable disease by immunizing females before or during pregnancy or by ensuring clean delivery, proper care of the umbilical cord in the days following birth, as estimated value of two hundred and eight-nine thousand cases of neonatal tetanus continue to occur annually with the case of fatality rate averaging to seventy percent [7]. Tetanus is responsible for fourteen percent of all neonatal mortality in developing countries. The incidence in Nigeria ranges from 14.6 to 20 per 100 live births, and remain a contributor to neonatal mortality in the countries [7].

The historical success of eradicating these dreaded diseases prompted WHO to launch the Expanded program on immunization (EPI) globally in May 1974 with the focus on reducing drastically the number of deaths among children from preventable diseases by 80% by the year 1990 [7]. WHO also instructed its member countries to launch immunization against these diseases in their National Immunization Schedule. EPI was launched in Nigeria in 1971 and revised in 1984. It successfully attained the Universal Child Immunization (UCI) target of 80% by 1990 in Nigeria as in many countries. Unfortunately, this coverage could not be sustained and there was a decline in coverage and increase in number of reported cases of the target diseases. As a way of reawakening national consciousness and demonstration of ownership of the program by Nigeria Government, EPI was renamed as National Program on Immunization (NPI) in 1996. The NPI employed the use of the four traditional EPI vaccines: Bacille Calmette Guerin vaccine (BCG), Diphtheria Pertussis Tetanus (DPT), Oral Polio virus Vaccine (OPV) and Measles containing Vaccine (MCV) [7]. The vaccines currently employed in Nigeria includes Bacille Calmette

Guerin vaccine (BCG), Oral Polio virus Vaccine (OPV) and Measles containing Vaccine (MCV). Pentavalent vaccine which includes: Hepatitis B, Diphtheria Pertussis Tetanus (DPT) and Haemophilus Influenza B (HiB), meningitis [7].

Nigeria is among the 10 countries in the world with vaccine coverage rate less than 50% being persistently below 40% since 1997 [7]. In Nigeria, over 1 million children die continually from preventable diseases making the country one of the lowest successful of African countries achieving improvement in child survival in the past four decades [7]. The fourth millennium Development Goal (MDG) for health in 2002 set targets for nations to reduce under-five mortality rate by two-third 2015 from the base year 1990 and immunization is expected to contribute significantly to the achievement of this goal [7].

Nigeria routine immunization schedule stipulates that infants should be vaccinated according the National Program on Immunization schedule starting from birth. This however have been characterized by intermittent failures and successes since its initiation in 1996 due to individual, community and systemic factors affecting the inequitable intake of children immunization in Nigeria and other sub-Sahara African countries.

National programme on immunization (NPI) schedule

Vaccine	When To Give	Dose	Route	Site
BCG	At birth or as early as possible till one year of age	0.1ml (0.05ml until 1 month age)	Intra-dermal	Left upper arm
Hepatitis B - Birth dose	At birth or as early as possible within 24 hours	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
OPV-0	At birth or as early as possible within the first 15 days	2 drops	Oral	Oral
OPV 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (OPV can be given till 5 years of age)	2 drops	Oral	Oral
Pentavalent 1, 2 & 3	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	0.5 ml	Intra-muscular	Antero-lateral side of mid-thigh
Rotavirus	At 6 weeks, 10 weeks & 14 weeks (can be given till one year of age)	5 drops	Oral	Oral
IPV	Two fractional dose at 6 and 14 weeks of age	0.1 ml	Intra dermal two fractional dose	Intra-dermal: Right upper arm
Measles/MR 1 <sup>st</sup> dose	9 completed months -12 months (can be given till 5 years of age)	0.5 ml	Sub-cutaneous	Right upper arm
JE - 1	9 completed months -12 months	0.5 ml	Sub-cutaneous	Left upper arm
Vitamin A (1 <sup>st</sup> dose)	At 9 completed months with measles - Rubella	1 ml (1 lakh IU)	Oral	Oral

Figure a

The table above is the current National programme on immunization (NPI) schedule, which is scheduled from birth to 9 completed months.

Despite notable improvement, about three million children are permanently disabled each year due to poor coverage of immunization [7]. Wide spread inequalities persists in immunization coverage among the children of lowest socioeconomic status, parents with no educational background and in northern Nigeria, where lack of immunization has been attributed to fear and confusion.

The knowledge, attitude and practice of childhood immunization among mothers is very important in our present society, in that they can help to protect and prevent their children from many diseases out there [7].

Materials and Methods

Study area

The study was carried out in Umueze Community in OsisiomaNgwa Local Government Area in Aba, Abia State, South Eastern Nigeria. It is bounded by Abayi village, Osisioma town and Umuimo Villages. The indigenous dwellers of the community are Igbo's whose occupation is farming. They produce yam, cassava, maize, palm oil and plantain. They are Christians of different denomination but dominated by the Seventh Day Adventist Church and orthodox churches. It has 3 wards, one primary health centre and a central market. This community is located in Aba.

OsisiomaNgwa is a city found in Abia State, Nigeria. It is located 5.11 Latitude and 7.37 Longitude, and it is situated at elevation 64 meters above sea level. The LGA has an area of 198 Square Kilometer and a population of 220,662 as per 2006 census data of Nigeria projected to 289,100 at 2.7% in 2016 annual growth rate. Its residents are made up of civil servants, business people and farmers [10].

The town is made up of a tertiary health facility- Abia State University Teaching Hospital, with several Government and private owned primary, secondary, and tertiary institutions including a few banks, churches, industries, hotels, hospitals, etc. Notable among these are: Abayi umuoam girls secondary school, Ngwa

high school, St. Bridget primary and secondary school, Living word primary and secondary school, Early learning/Dority Int'l secondary school, Amazing grace academy, Abia State university primary school, Abia State Polytechnic, Covenant polytechnic, Rhema university, Udeagbala holdings limited, Sumez gas plant, The Adventist church, Living faith church, Redeemed Christian church of God, Dominion city church, Believer love world, Victoria city hotel, Binez hotel, Benidon hotel, Firapur hotel, Simeon hospital, Living word hospital, Embassy hospital, First bank PLC, Union bank, May fresh bank, Keystone bank, United Bank of Africa, etc. The notable markets in this town include: Ariaria, Ahiaohuru, Cemetary, Ahiankwo, Ahiaumungasi, ahiaafule.

The inhabitants of this city are mainly the Ngwas, which constitute the largest and most populous sub-ethnicity or clan in southeastern Nigeria. Majority of the residents are traders while the minority engage in vocations such as civil service, commercial bus driving, tailoring, shoe making, farming, patent medicine, etc. The religion mainly practiced by these people is Christianity.

Abia State is one of the eastern states in Nigeria created on the 27<sup>th</sup> of August 1991 from the Old Imo State. Its administrative capital is located in Umuahia. Abia State is bordered northwards by Anambra, Enugu, and Ebonyi states, to the west by Imo State, to the east and southeast by Akwa Ibom and Cross Rivers States and to the south by Rivers State. The tribe is the Igbo tribe and the most common spoken language is the Igbo language followed by English.

### Study design

This study is a cross-section of the practice of childhood immunization among mothers in Umueze Community in OsisiomaNgwa Local Government Area of Abia State. The study adopted a survey design and this is considered suitable for the study because the study is intended to investigate into an existing phenomenon and data will be collected from only a fraction considered to be a representative of a population.

### Study population

This comprised of all women of Umueze Autonomous Community in OsisiomaNgwa Local Government Area of Abia State of child bearing age irrespective of their children's age.

### Inclusive criteria

Women from Umueze Autonomous Community of child bearing age who had children and gave consent for the study.

### Exclusive criteria

Women who were not from Umueze Autonomous Community and those who did not give consent for the study.

### Sample size determination

The sample size will be determined using the formula [11]

$$N = \frac{Z^2 \cdot P \cdot Q}{D^2}$$

Where,

N = Minimum sample size

Z = Standard normal deviate, usually set at 1.96 which corresponds in 95% confidence level.

P = Proportion with deserved characteristics = 50%

Q = I.P (Proportion in the target population not having the deserved characteristics)

D = Degree of accuracy usually set at 0.05

$$N = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$N = \frac{384.16 \times 0.25}{0.0025}$$

$$N = 0.96004 - 384.16$$

$$= 0.025$$

Therefore, minimum sample size (N) = 384

Adjustment for non-response,  $N_s = N/\text{response rate}$

Assumed response rate = 82% i.e.  $0.82 \times 384 / .82 = 469.38$

$$N_s = 384 / .82$$

$$= 469.67$$

$$= 470$$

Therefore, sample size used = 470

### Sampling techniques

The simple random technique was used. Out of 17 Local Government in Abia State, OsisiomaNgwa Local Government was

selected by a simple method of balloting. The questionnaire was administered consecutively to consenting women till the sample size was reached.

### Study instrument

Self/Interviewer administered questionnaires were used for the study.

The instruments used in this study are paper, pen and participants.

### Data collection method

Data was collected using self/interviewer administered questionnaire which were given to all the eligible mothers of Umueze Autonomous Community within the study period.

### Data management

### Measurement of variables

Variables were duly measured.

### Statistical analysis

Data collected were entered into and analyzed using Statistical Package for Social Science [SPSS], Version 26.0. Continuous/numerical variables were summarized using mean and standard deviation, categorical variables were summarized using frequency and proportions. Chi-Square test was used to test the relationship between sociodemographic variables of the participants and level of practice on childhood immunization at statistically significant level of p-value of < 0.05.

### Ethical considerations

Ethical approval for this work was sought for and obtained from the ethics and research committee of Abia State University Teaching Hospital, Aba. Permission was obtained from the Umunze community Abayi, OsisiomaNgwa and informed consent was obtained from the participants. All information received from our respondents was handled with utmost confidentiality.

### Limitations

During the interview, some women were not willing to participate in the study, gathering of participants, and collecting their responses were of great challenges, but we ensured we had a successful field work by following up the women and adequate explanations where made.

## Result

A total of 470 questionnaires were distributed to the study participants but 430 participants returned their questionnaires giving 92% recovery which was the response rate and the findings are presented below in tables. Mean age of the respondents was  $34 \pm 8.246$ .

Variables		Frequency	Percentage (%)
Age group	<21	8	2.0
	21 - 27	107	24.9
	28 - 35	137	31.9
	36 - 43	76	17.6
	>44	102	23.6
Total		430	100.0
Marital status	Single	77	17.9
	Married	308	71.6
	Divorced	16	3.7
	Widowed	20	4.7
	Separated	9	2.1
Total		430	100.0
Occupation of the respondents	House wife	59	13.7
	Teaching	78	18.1
	Civil servant	43	10.0
	Farming	196	45.6
	Trading	54	12.6
Total		430	100.0
Religion	Christianity	361	84.0
	Islam	40	9.3
	Traditional religion	16	3.7
	others	13	3.0
Total		430	100.0
Highest level of education	None	18	4.2
	Primary	206	47.9
	Secondary	75	17.4
	Tertiary	141	32.7
Total		430	100.0
Spouse's level of education	None	35	8.1
	Primary	209	48.6
	Secondary	66	15.3
	Tertiary	120	28.0

Total		430	100.0
Spouse's occupation	Farming	177	41.2
	Teaching	44	10.2
	Civil servants	113	26.3
	Trading	74	17.2
	Others	22	5.1
Total		430	100.0
Monthly family income	#50,000.00	220	51.2
	#51,000 - #60,000	60	14.0
	#61,000 - #70,000	58	13.5
	#71,000 - #80,000	57	13.3
	#81,000 - #90,000	35	8.0
Total		430	100.0
Number of living children	1	33	7.7
	2	71	16.5
	3	200	46.5
	4	99	23.0
	>4	27	6.3
Total		430	100.0

**Table 1:** Socio-demographic characteristics.

In table 1 of socio-demographic characteristics: Age group of the respondents shows that women of less than 21 years constituted 8 (2.0%). Women of age group from 21 to 27 years were 107 (24.9%), women of age group from 28 to 35 years were 137 (31.9%) and they were the highest in number, those from 36 to 43 years were 76 (17.6%) and those above 44 were 102 (23.6%).

Marital status of the participating women shows that single women were 77 (11.9%), These 77 women did not marry but had children on their own without attachment to any man. Married women 308 (71.6%) which was the highest, divorced women were 16 (3.7%) are women who were married but legally separated, widowed women were 20 (4.7%) were women who lost their spouses by death and separated women were 9 (2.1%) and are women who are not living with their spouses but not legally separated which was the lowest.

Occupation of the respondents showed the women who were housewife were 59 (13.7%), women who were teachers were 78 (18.1%), Women who were civil servants were 43 (10%) which were the lowest, women who were farmers were 196 (45.6%) which was the highest. And trading 54 (12.6%).

Religion of the respondents shows that women who were Christians were 361 (84.0%) which was the highest, Islam was 40 (9.3%), traditional religion was 16 (3.7) and women of other religion were 13 (3.0%) which was the lowest. This distribution was because the area is Christian dominated one.

Highest level of education attained by the women shows 18 had none which was the lowest, women with primary education were 209 (47.9%) which was the highest, women with secondary education were 66 (15.3%), tertiary was 120 (28%).

Spouse's level of education attained shows 35 spouses had none, spouses with primary education were 209 (48.6%) which was the highest, spouses with secondary education were 66 (15.3%) and tertiary education 120 (28.0%). Single mothers who did not marry claimed educational status of men who made them pregnant.

Spouses' occupation shows that spouses who were farmers were 177 (41.2%) which was the highest, spouses who were teachers were 44 (10.2%), those who civil servants were 113 (26.3%), those who were traders were 74 (17.2%), those with other occupation were 22 (5.1%) which was the lowest.

On monthly family income, women with #50,000.00 were 220 (51.2%) which was the highest, women with #51,000.00 - 60,000.00 were 60 (14%), those with #61,000.00 - 70,000.00 were 58 (13.5%), those with #71,000.00 - 80,000.00 were 57 (13.3%), those with #81,000.00 - 90,000.00 were 35 (8%) which was the lowest.

On the number of children the participants had, women who had a child were 33 (7.7%), those who had two children were 71 (16.5%), those who had three children were 200 (46.5%) which was the highest, those with four children were 99 (23%) and those with more than four children were 27 (6.3%) which was the lowest.

Those who had three or more children were mainly those living with their spouses.

Variables		Frequency	Percentage (%)
Benefits of immunization	It gives wealth	41	9.5
	Makes child lovely	22	5.4
	Prevents child from disease	350	81.4
	Increase the child's knowledge	11	2.3
	Don't know	6	1.4
Total		430	100.0

**Table 2:** Benefits of immunization.

Table 2 shows women the idea of the benefits of immunization, three hundred fifty (81.4%) women believe that immunization prevents child from diseases which was the highest, those who believe that it give wealth were 41 (9.5%), those who believe that it makes child lovely were 22 (5.4%), those who believe that it increases child's knowledge were 11 (2.3%) and those who don't know were 6 (1.4%) which were the lowest.

Variables		Frequency	Percentage (%)
What is the cost of immunization?	Free	340	79.1
	Costly	35	8.1
	Gift item	15	3.5
	Not affordable	11	2.3
	Don't know	29	7.0
Total		430	100.0

**Table 3:** The cost of immunization.

Table 3 shows the cost of immunization and women who believe that immunization services are free were 340 (79.1%) and they were the highest, those who believe that it was costly were 35 (8.1%), those who believe that it was a gift item were 15 (3.5%), those that believe that it was not affordable were 11 (2.3%) which was the lowest and those who said that they don't know were 29 (7.0%).

Table 4 shows the causes of lack of immunization and women who believe that the lack of immunization centre was the cause

Variables		Frequency	Percentage (%)
Causes lack of child immunization?	Lack of immunization centre	330	76.7
	Child's refusal	17	4.0
	Inadequate health facility	46	10.7
	Lack of good roads	37	8.6
Total		430	100.0

**Table 4:** Causes lack of child immunization.

were 330 (76.7%) which was the highest, those who believe that child's refusal was the cause were 17 (4.0%) which was the lowest, those who believe that inadequate health facility was the cause were 46 (10.7%), those who believe that lack of good roads were 37 (8.6%).

Variables		Frequency	Percentage (%)
Onset of immunization of a child	At birth and afterwards	350	81.4
	When crawling started	27	6.3
	When walking started	19	4.4
	walking has not started	34	7.9
Total		430	100.0

**Table 5:** Onset of immunization of a child.

Table 5 is a that of onset of immunization of a child and women who believe that onset of immunization is at birth and thereafter were 350 (81.4%) which is the highest, those who believe it is when crawling starts was 27 (6.3%), those who believe that it is when child starts walking were 19 (4.4%) which was the lowest, those who believe that it is when walking had not started were 34 (7.9%).

Table 6 is that of number of immunization received by a child and women who believe that only one received out of the required number were 27 (6.3%), those who believe that the children receive all of the required number were 138 (32.1%), those

Variables		Frequency	Percentage (%)
Number of immunizations received by a child	Only one of them	27	6.3
	All of them	138	32.1
	Some of them	225	52.3
	Half of them	14	3.3
	None of them	26	6.0
Total		430	100.0

**Table 6:** Number of immunizations received by a child.

who believe that children receive some of the required number were 225 (52.3%) which was the highest, those who believe that children receive half of the required number were 14 (3.3%) which is the lowest and those who believe that the children received none of them 26 (6.0%).

Variables		Frequency	Percentage (%)
Level of Practice	Good Practice	278	64.7
	Bad Practice	152	35.3
Total		430	100.0

**Table 7:** Level of Practice of childhood immunization.

Table 7 is of the level of practice of immunization, the level of practice to childhood immunization among mothers was higher 278 (64.7%) which is a good practice and women with lower level were 152 (35.3%) which is bad practice.

Variables	Odds ratio	df	Sign Lower	95% C.I. for EXP (B)		
				Upper		
The relationship between the socio-demographic variables and level of practice	Marital status Married Single	3.223 1	1	0.04	1.164	541.451
	Religion Christianity Others	2.109 1	1	0.46	1.043	65.045
	Number of living children >2 ≤2	2.415 1	1	.006	2.025	61.784

**Table 8:** The relationship between the socio-demographic variables and level of practice.

Table 8 shows the odds ratio of the willingness of mothers to bring their children for immunization services were 3 times more likely for married women than single women (95% CL: 1.164 - 541.451), P = 0.04, which is statistically significant. The odds ratio of the willingness of mothers to bring their children for immunization services 2 time more likely for women with more than 2 children than women with equal and less than 2 children (95% Cl 2.025 - 61.784), p = 0.006. which is statistically significant. The odds ratio of the willingness of mothers to bring their children for immunization services were 2 times more likely for Christian women than women who were not Christian (95% CL: 1.043 - 65.045), p = 0.46 which is statistically not significant.

### Discussion

In this study, four hundred and seventy women were recruited for the study, 430 women responded giving a response rate of 92%, majority of the respondents (137; 31.9%) were in the age group of between 28 and 35 years, least was (8; 2%) was in the age range of below 21 years old. Married women were in the majority (308; 71.6%), majority of the respondent (196; 45.6%), majority of the respondent (361; 84%) were of Christian religion, majority of the respondent (206; 47.9%) had primary education and majority of their spouses (209; 48.6%) had primary education, majority of their spouses' occupation (177; 41.2%), Majority of the respondent (220; 51.2%) had monthly family income of equal



and below #50,000.00, In Bangladesh, women with the highest wealth index were significantly more likely to fully immunize their children [12]. This is in contrast to our study where majority of the respondents has a lower family income which may be the reason why we had incomplete childhood immunization. Distance from health facility, parity, mother's age, mass media, children's sex and tetanus toxoid injection were also significantly positively associated with full vaccination [13]. Majority believed (359; 81.4%) that prevention of child from disease was a benefit of immunization, this finding was in agreement with a study done at Mangalore where it was found that childhood immunization save and improve lives of children [14].

Majority of the respondents (340; 79.1%) believed that immunization service was free, majority of the respondents (330; 76.6%) believe that lack of immunization centre a major cause of reduction of childhood immunization. Majority of the respondents (350; 81.4%) believed that onset of immunization of a child was at birth and thereafter. Majority of the respondent (225; 52.3%) received some of them while (138; 32.1%) received complete immunization, this finding was in agreement with a study done in Akinyele Local Government Area, Oyo State, Nigeria where it was found that data from 383 (95.8%) participants were analysed and only 145 children (37.9%) were fully immunized, this may be as a result of poor awareness on immunization services among mothers [15].

The level of practice of childhood immunization among mothers was higher 278 (64.7%) which was a good practice, This is comparable with a study [16] in Wadla Woreda, North East Ethiopia in 2021 where The finding indicated that 231 (55.3%) of the parents at 95% CI: (50.4-60.4%) had good practice towards infant vaccination, which is lower than studies done in Sudan (89.5%) [17] in Addis Ababa (84%), [18] Libya (81%), [19] Edo State (Nigeria) (69.7%), [20] Jos North (Nigeria) (76.6%), [21] (86.4%), [22] Saudi Arabia (77.7%), [23] Al Madinah (Saudi Arabia) (92.8%), [24] and India (90.20%), [25] and rural areas (68.2%) [26]. The inconsistency may be due to variation in socio-demographic characteristics, low levels of awareness, and unfavorable attitude towards immunization, and immunization is not mandatory and is not needed for school registration in our setup made immunization practice poor. the relationship between the socio-demographic variables and level of practice of childhood immunization was

statistically significant with marital status (95% CI: 1.164 - 541.451) odd ratio 3.223, p value 0.04, number of living children > 2 (95% CI: 2.025 - 61.784) odd ratio 2.415, p value 0.006, In this study, it was found out that sociodemographic variables like married women, women who had number of living children >2 were about two time (odd ratio = 3.223, 95% CI: 1.164 - 541.451, p = 0.04), and two time (odd ratio = 2.415, 95% CI: 2.025 - 61.784, p=0.006) respectively, more likely to practice childhood immunization than unmarried women and women with ≤2 children. This comparable with a study [26] in Wadla Woreda, North East Ethiopia in 2021 where sociodemographic variable like literate parents who attended primary school, secondary school and higher education were about two times (AOR = 2.513, 95% CI: (1.526 - 4.136), two times (AOR = 2.546, 95% CI: (1.159 - 5.9590) and twelve time (AOR = 11.988, 95% CI: (4.470 - 32.147), respectively, more likely to practice infant immunization than illiterate respondents. A similar result between mother's educational level and vaccination status was observed in other studies as well in Arba Minch town and Zuria District [27] Mizan Ama town Ethiopia [28], sinan District [29], Tehulederie District [30], Taif (Saudi Arabia) [31], Kama District (Afghanistan) [32], Nepal [33], Bengaluru (India) [34], urban slums of Varnasi (India) [35], Lebanon [36], and Georgia [37]. This might be related to improvement of maternal educational status which enhances parent health-seeking behaviour and it had a positive influence on infant immunization uptake. Moreover, this might be due to recent advancements in parental education such as changes in attitudes, customs, and beliefs, increased autonomy, and control over household resources, which promote healthcare-seeking behaviour.

## Conclusion

Childhood Immunization is an inevitable practice that every family should be involved in, and mothers should always see to the completion of their children's immunization, in order to avert impending dangers which can result from it. In this study, Mothers had good practice (64.7%) towards childhood Immunization, this is due to the fact that they have understood the need for their children to be immunized and prevent some killer diseases that are vaccine preventable. Also, number of people involved in the practice of immunization in this area was a good factor that led to the improved practice of immunization among the mothers.

## Recommendations

Concerning the practice of childhood immunization, as an add-on to Expanded Program on Immunization and National Program on Immunization, there should be an extensive awareness in primary health care centers towards childhood immunization. Nonetheless, the involvement of mothers who are already oriented and experienced in practice of child immunization should be required in the awareness programs. Immunization programs should be included as part of scheduled visit, to mothers who just delivered in different hospital facilities, and the health attendants should always see to the completion of the immunization of the children born in their facility. Massive public health education must be intensified through the provision of information, education, and communication materials to enhance the practice of parents about immunization and vaccine-preventable diseases.

## Conflicts of Interest

I declare that no conflicts of interest regarding the publication of this paper.

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