ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Compliance on Age-Appropriate National Immunization Program Among Under-Five Children in Nabua, Camarines Sur

Bryan Deo A. Tataro, RM, RN*[1], Joseph Neil M. de la Cruz, RM, RN[2],
Marielle France P. Agnas, RM, RN[3], Ernalyn C. Tabayag, RM, RN[4]
[1, 2, 3, 4] Camarines Sur Polytechnic Colleges
*Corresponding Author e-mail: *bryantataro@cspc.edu.ph*

Received: 16 May 2025 **Revised**: 29 June 2025 **Accepted**: 05 July 2025

Available Online: 08 July 2025

Volume IV (2025), Issue 3, P-ISSN – 2984-7567; E-ISSN - 2945-3577

https://doi.org/10.63498/etcor407

Abstract
Aim: The study evaluated the compliance on age-appropriate National Immunization program among under-five children in Nabua, Camarines Sur.
Methodology: The descriptive-correlational research method was utilized in the study. A total of 380 mothers of under-five children were the respondents selected using stratified random sampling. Statistical analysis involved a range of tools, including the percentage technique, weighted mean, chi-square test of independence and t-test.
Results: The level of compliance on age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur is 'complied' – needed vaccines were given more than the recommended age-appropriate vaccination schedule but is still given not more than 12 months enough to still qualify for a 'Fully Immunized Child' (FIC) Status. Results revealed that perceived susceptibility and perceived benefits affects the compliance on age-appropriate National Immunization Program; with factors such as perceived barriers and the situational influences moderately affecting the timely vaccination of children. The study found no significant relationship between the respondents' profiles and the compliance to age-appropriate National immunization Program. The person who usually brings the child for immunization, religion, number of family members in the family, family monthly income, occupation of mother, number of prenatal visits in the health center during pregnancy, NHTS membership, and usual place where the child gets vaccination did not significantly affect the compliance on age-appropriate National immunization Program (NIP). However, there were significant relationships between age, civil status, educational attainment, number of 12–59-month-old children who are siblings of the child for routine, and place of delivery and compliance to age-appropriate NIP.
Conclusion: Based on the findings, it is concluded that there is a significant relationship between the compliance to age-appropriate National Immunization Program and factors affecting childhood immunization. Thus, the proposed plan is recommended to improve the compliance to age-appropriate National immunization Program among under-five children in Nabua, Camarines Sur.
Keywords: *Compliance, Age-appropriate, National Immunization Program*

INTRODUCTION

Microorganisms like bacteria and viruses are major causes of death globally, often spreading rapidly and causing outbreaks. Children aged 0–59 months are highly vulnerable due to their developing immune systems, making them more susceptible to vaccine-preventable diseases. The National Immunization Program (NIP) protects children from these infections by providing vaccines during early childhood, when the risk of exposure and complications is high. Immunization is vital to community health, especially for children. It prevents diseases, allowing families to focus on other needs instead of treatment costs. With strong vaccine coverage, children can grow healthy and reach their full potential—benefiting themselves, their families, and the nation.

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Each year, hundreds of thousands of children die and millions are hospitalized due to vaccine-preventable diseases, resulting in high healthcare costs and lost productivity (Vaccines Work, 2020). When many parents fail to vaccinate their children, they also endanger those who cannot be immunized—such as newborns, children with allergies to vaccine components, cancer, or immune disorders—by weakening herd immunity (Baby Gooroo, 2021).

The Expanded Program on Immunization (EPI) in the Philippines began in 1976 through Presidential Decree No. 996, aiming to reduce child mortality from infectious diseases with support from WHO and UNICEF. Initially covering six diseases, it mandated immunization for children under eight. In 1986, a National Immunization Committee was formed for program coordination. By 2010, through Republic Act No. 10152, the program expanded to include mumps, rubella, Hepatitis B, and Hib, and ensured free vaccinations for children up to five years old in government facilities, while also emphasizing parent education and health worker training (The LawPhil Project, 2024).

Delaying vaccination leaves children unprotected at the age when they are most at risk. Vaccines are studied to ensure safety and adequate immune response at the age when they are recommended (O'Leary et al., 2024). Globally, childhood immunization remains neglected in some areas. Between 2019 and 2021, about 67 million children missed routine vaccinations, including 8.3 million in East Asia and the Pacific, highlighting the urgent need for catch-up efforts. In the Philippines, full basic vaccination coverage for children aged 12–23 months declined from 77% in 2013 to 70% in 2017, while the proportion of unvaccinated children increased from 4% to 9%. Although 80% received the first measles dose, only 47% got the second, contributing to a 2018 measles outbreak that claimed over 700 children's lives (UNICEF, 2023). In 2018 fewer than a third of Filipinos strongly agreed that vaccines were important, down from 93 percent in 2015. Since the Dengvaxia controversy, the confidence in vaccines among Filipino parents plummeted from 82 percent in 2015 to only 21 percent in 2018 – showing a dramatic drop in vaccine confidence in the Philippines. While it is difficult to quantify, a growing number of medical professionals believe that the Dengvaxia crisis eroded trust in vaccines overall and contributed, to a certain extent, to the recent spike in polio and measles in the Philippines (Mason & Smith, 2020).

In the past years, based from the annual report of the Rural Health Unit of Nabua, the municipality of Nabua had Fully Immunized Child coverage of 44.36 percent in 2015, 37.27 percent in 2016, 51.03 percent in 2017, 52.55 in 2018, and 52.63 percent in 2019. Despite health education and household visits, some parents in the community still refuse to vaccinate their children. While many do get their children vaccinated, they often miss the recommended schedule, increasing the risk of disease. With diseases like smallpox and polio now rarely seen, many parents have forgotten their severity and the crucial role vaccines played in saving lives– this is where most of parents fail to realize that vaccines do actually work.

The researchers developed a deep connection with the community through their advocacy to improve childhood immunization. This inspired the study to better understand perceptions and barriers to compliance with the National Immunization Program. During the 2018 Dengvaxia controversy, which affected immunization efforts nationwide, they actively educated the community on the safety and benefits of vaccines, working to restore trust and boost immunization coverage despite challenges.

Objectives

This study was aimed at determining the compliance on age-appropriate National Immunization Program (NIP) among under-five children in Nabua Camarines Sur as basis in improving Fully Immunized Child (FIC) coverage which led to the creation of a proposed plan to improve the immunization coverage in this locale.

The following specific objectives guided the study:

1. Determine the demographic profile of the respondents in relation to:
    a. Age
    b. Person who brings the child for immunization
    c. Civil Status
    d. Religion
    e. Educational Attainment
    f. Number of Family Members in a Household
    g. Number of 12–59-month-old Children (Siblings of child)
    h. Family Monthly Income
    i. Occupation of Mother
    j. Place of Delivery of Mother
    k. Number of Prenatal visits in the Health Center During Pregnancy

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

l. National Household Targeting System (NHTS) Membership of family of child
m. Usual Place where the child gets vaccination

2. Determine the level of compliance on National Immunization Program among age-appropriate children
3. Identify the factors affecting the compliance on National Immunization Program among age-appropriate children in Nabua, Camarines Sur.
4. Test the significant relationship between profile of the respondents and the compliance on Age-appropriate National Immunization Program.
5. Test the significant relationship between the compliance on age-appropriate National Immunization Program and the factors affecting it.

Hypotheses

The study on the compliance on age-appropriate National immunization Program among under-five children in Nabua, Camarines Sur hypothesized the following:

Ho1: There is no significant relationship between the respondents' profile and the compliance on age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur.

Ho2: There is no significant relationship between the compliance on age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur and factors affecting its compliance.

METHODS

Research Design

The research used the descriptive-correlational survey method to accurately examine the compliance to age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur.

Population and Sampling

The respondents of this study were composed of the mothers of the under-five children, specifically children who are 12 to 59 months old and are expected to have completed the necessary vaccinations at the age of one year. Mothers are mostly believed to be the one who is responsible for taking the children for their immunization schedules within the municipality of Nabua, Camarines Sur. The number of the respondents was determined using the Slovin's formula and was further divided into its respective barangays depending on the total number of 12 to 59 months old children recorded in the master list using the stratified random sampling method.

Instruments

The main instrument used in this study was a self-made, Filipino-translated questionnaire. It was developed based on relevant literature and expert input to ensure clarity, cultural appropriateness, and content relevance. The questionnaire was designed to gather data on respondent profiles, compliance with the National Immunization Program, and factors influencing immunization practices.

To establish its validity, the instrument was reviewed by experts in the field for content and construct validity. It was also pre-tested with ten mothers of under-five children in Buhi, Camarines Sur—a municipality outside the actual study locale. Feedback from the pre-test was used to refine and improve the questionnaire before the actual data collection.

Data Collection

Data were collected from January to March 2024. The researchers personally administered and retrieved the questionnaires to ensure high response rates and data accuracy. Data collection took place in both community health centers and through house-to-house visits in the study area, providing a comfortable and familiar environment for the respondents. Informal interviews were also conducted during these visits to gather additional insights and clarify responses when necessary. Prior permission was secured from relevant local authorities and health personnel to facilitate smooth and ethical data collection.

Data Analysis

The collected data were analyzed using appropriate statistical tools to ensure accurate and meaningful interpretation of results. Descriptive statistics, specifically percentages, were used to present the demographic

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

profiles of the respondents. To assess the level of compliance with the National Immunization Program (NIP) and the influencing factors, the weighted mean was computed using a 4-point Likert scale.

For inferential analysis, the Chi-Square Test was employed to determine the relationship between respondents' demographic profiles and their level of immunization compliance. Meanwhile, the T-test was used to identify significant differences between compliance and its influencing factors. All responses were tallied and processed systematically based on the study's variables.

Ethical Considerations

The study ensured informed consent, voluntary participation, and confidentiality. Approval from local authorities was secured, and all data were handled with respect and cultural sensitivity. No harm was posed to participants or their children.

RESULTS and DISCUSSION

This chapter presents the findings on the compliance with the Age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur. It covers respondent profiles, compliance levels, influencing personal and environmental factors, and the relationships between these variables. A proposed plan to improve immunization compliance is also included.

1. Profile of the Respondents

Table 1 presents the profile of mothers of under-five children in Nabua, Camarines Sur, the target of the National Immunization Program. Understanding these profiles helps assess current trends and possible changes over time.

Table 1. Profile of the Respondents

Profile	Indicators	Frequency	Percentage	Rank
Age	19 years old and below	11	2.89	6
	20 – 25 years old	87	22.89	2
	26 – 30 years old	135	35.53	1
	31 – 35 years old	68	17.89	3
	36 – 40 years old	41	10.79	4
	41 years old and above	27	7.11	5
	Total	380	100.00	
Person Who Brings the Child for Immunization.	Me (Mother)	353	92.89	1
	Father	6	1.58	3
	Grand Mother	14	3.68	2
	Sister	4	1.05	4
	Others	3	0.79	5
	Total	380	100.00	
Civil Status	Single	34	8.95	3
	Married	216	56.84	1
	Separated	1	0.26	4
	Single, with Live-in Partner	129	33.95	2
	Total	380	100.00	
Religion	Roman Catholic	360	94.74	1
	Iglesia ni Cristo	6	1.58	3
	Born Again Christian	10	2.63	2
	Muslim	2	0.53	4.5
	Others	2	0.53	4.5
	Total	380	100.00	
Educational Attainment	Post graduate	2	0.53	7.5
	College graduate	92	24.21	2
	College Undergraduate	37	9.74	3

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

	Vocational	22	5.79	5
	High School graduate	185	48.68	1
	High School undergraduate	33	8.68	4
	Elementary graduate	7	1.84	6
	No formal education	2	0.53	7.5
	Total	380	100.00	
Number of Family Members in a Household.	1-5	232	61.05	1
	6-10	141	37.11	2
	11-15	7	1.84	3
	Total	380	100.00	
Number of 12–59-Month-old Children Who are Siblings of the Child for Routine Immunization.	1	162	42.63	1
	2	76	20.00	3
	3	30	7.89	4
	4	18	4.74	5
	5	5	1.32	7
	6 or more	1	0.26	6
	No Siblings	88	23.16	2
	Total	380	100.00	
Family Monthly Income	Php 5,000 and below	145	38.16	2
	Php 5,000 to Php 10,000	156	41.05	1
	Php 11,000 Php to 20,000	42	11.05	3
	Php 21,000 to Php 30,000	18	4.74	5
	Php 31,000 pesos & above	19	5.00	4
	Total	380	100.00	
Occupation of Mother	Employed Full-Time	61	16.05	2
	Employed Part-Time	8	2.11	4
	Full-Time Housewife	279	73.42	1
	Self-employed, Business owner	32	8.42	3
	Total	380	100.00	
Place of Delivery	Private Hospital	39	10.26	4
	Government Hospital	113	29.74	2
	Private Lying-In / Birthing Home	115	30.26	1
	Government Lying-In	88	23.16	3
	Home	25	6.58	5
	Total	380	100.00	
Number of Prenatal Visits in the Health Center During Pregnancy	Mother hasn't visited the center during pregnancy	18	4.74	3.5
	Just once	18	4.74	3.5
	2 to 3 times	65	17.11	2
	More than 4 times	279	73.42	1
	Total	380	100.00	
National Household Targeting System (NHTS) Membership	Non-NHTS	246	64.74	1
	NHTS (Non-CCT / Non-4P's)	69	18.16	2
	NHTS (CCT / 4P's)	65	17.11	3
	Total	380	100.00	
Usual Place Where the Child Gets Vaccination	Barangay Health Station	314	82.63	1
	Rural or City Health Offices/ RHU/ CHO or Main Health Center	52	13.68	2
	Private Clinics/ Hospitals	12	3.16	3
	Others: (Vaccination at Home)	2	0.53	4
	Total	380	100.00	

a. Age. The table reflects that 135 or 35.53 percent are 26-30 years old; 87 or 22.89 percent are 20-25

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

years old; 68 or 17.89 percent are 31-35 years old; 41 or 10.79 percent are 36-40 years old; 27 or 7.11 percent are 41 years old and above; and 11 or 2.89 percent are 19 years old and below. The result reflects most women who are in the prime years of reproduction and copulation. Most mothers of under-five children are aged 20 – 30, highlighting the need to tailor health education to early adults. However, younger (less than 19 years old) and older (more than 41 years old) mothers also need targeted support due to unique challenges in following immunization programs.

b. Person Who Brings the Child for Immunization. Out of the 380 mothers as respondents, 353 or 92.89 percent of them said that they are the one bringing the child for immunization; followed by 14 or 3.68 percent of mothers said they rely on the grandmothers of the child; then, six or 1.58 percent for fathers; four or 1.05 percent are sisters; and lastly, three or 0.79 percent for others. The data suggests most mothers personally bring their children for vaccination, reflecting their caring and selfless nature. Mothers play a central role in their children's healthcare decisions.

c. Civil Status. The result shows that married ranked at number one are composed of 216 or 56.84 percent; single, with live-in partner came in at second with 129 or 33.95 percent; and lastly, those who are single had 34 or 8.95 percent; and separated with one respondent or 0.26 percent. The predominance of married respondents may suggest better compliance due to support from their husbands in caring for the family.

d. Religion. As illustrated, out of the 380 respondents, 360 or 94.74 percent are Roman Catholics; 10 or 2.63 percent are Born Again Christian; six or 1.58 percent are Iglesia ni Cristo; two or 0.53 percent are Muslims; and two or 0.53 percent are others, respectively. The high number of Roman Catholic respondents may imply fewer religious barriers to immunization, as Catholic teachings support vaccination to protect health and preserve life.

e. Educational Attainment. It depicts that 185 or 48.68 percent are high school graduates; 92 or 24.21 percent are college graduates; 37 or 9.74 percent are college undergraduates; 33 or 8.68 percent are high school undergraduates; 22 or 5.79 percent are vocational; seven or 1.84 percent are elementary graduates; two or 0.53 percent are post graduates and has no formal education, respectively. The data shows that most respondents only reached high school, likely due to financial and other challenges. While education aids in understanding concepts like vaccination, it remains the responsibility of healthcare providers to simplify health education so it remains clear, understandable, and evidence-based.

f. Number of Family Members in a Household. The result shows that 232 or 61.05 percent belongs to a household with 1-5 members; 141 or 37.11 percent from those with 6-10 family members; and seven or 1.84 percent for those with 11-15 members in a household. Fewer family members may imply better compliance with childhood immunization, as parents can focus more attention, time, and resources on each child's health needs. With fewer dependents, logistical and financial barriers to accessing vaccination services may also be reduced.

g. Number of 12–59-Month-old Children Who are Siblings of the Child for Routine Immunization. It shows that 162 or 42.63 percent of mothers has one other under-five child that is a sibling of the child for vaccination; 88 or 23.16 percent has a child for vaccination with no siblings; 76 or 20.00 percent has two other under-five children; 30 or 7.89 percent has three; 18 or 4.74 percent has four; five or 1.32 percent has five; and one or 0.26 percent has 6 or more. The data suggests that mothers may have divided attention in addressing their children's health needs, as many care for more than one child under five. This highlights the importance of proper birth spacing to help parents better meet each child's holistic needs.

h. Family Monthly Income. It reflects that 156 or 41.05 percent has family income of 5,000 to 10,000 pesos monthly; 145 or 38.16 percent has below 5,000 pesos of monthly income; 42 or 11.05 percent has 11,000 to 20,000 pesos monthly; 19 or 5.00 percent has more than 31,000 pesos monthly; and 18 or 4.74 percent has 21,000 to 30,000 pesos monthly. The study suggests that many families, having lower monthly incomes, prefer to wait for free vaccines due to limited resources. Most of their income is prioritized for basic daily needs like food, water, and shelter.

i. Occupation of Mother. The result shows that 279 or 73.42 percent are full-time housewives; 61 or 16.05 percent are employed in a fulltime job; 32 or 8.42 percent are self-employed and is a business owner; and eight or 2.11 percent are employed in a part-time job. Despite progress in gender equality, many women still choose traditional wife roles, possibly due to past beliefs or gender-based employment preferences.

j. Place of Delivery. The data depicts that 115 or 30.26 percent are has delivered in a private lying-in or birthing home; 113 or 29.74 percent had their delivery in a government hospital; 88 or 23.16 percent in Government lying-ins; 39 or 10.26 percent in private hospitals; and 25 or 6.58 percent at home. This implies that more private lying-in exists in the locality causing limitations to access to birth dose vaccines causing delay in administration.

k. Number of Prenatal Visits in Health Center During Pregnancy. It was noted that 279 or 73.42

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

percent had more than four times of prenatal check-up; 65 or 17.11 percent had two to three times of antenatal consultation; 18 or 4.74 percent only got one prenatal visit; and 18 or 4.74 percent for mother that has not visited the center for a pregnancy consultation. Data shows respondents had over four prenatal visits, providing ample health education. This education is crucial for positive maternal and infant outcomes, including information on immunizations after delivery.

l. National Household Targeting System (NHTS) Membership. The data shows that 246 or 64.74 percent are non-NHTS members; 69 or 18.16 percent are NHTS (Non-CCT/Non-4Ps); and 65 or 17.11 percent are NHTS (CCT/4Ps) members. These percentages suggest many families lack a sustainable income to cover basic and healthcare needs, likely causing delays in vaccinations due to costs like transportation and related expenses.

m. Usual Place Where the Child Gets Vaccination. It is evident that 314 or 82.63 percent of mother bring their child for immunization to Barangay Health Stations; 52 or 13.68 percent at the Rural or City Health Office/ RHU, CHO or Main Health Center; 12 or 3.16 percent in Private Clinics or Hospitals; and two or 0.53 percent for others. The data shows most immunizations occur at barangay health stations, reflecting adherence to the DOH's Reaching Every Barangay (REB) strategy, now expanded to Reaching Every Purok (REP) for wider coverage.

2. Compliance on Age-appropriate National Immunization Program among Under-five Children in Nabua, Camarines Sur

Table 2 presents the data on the compliance on age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur.

Table 2. Compliance on Age-appropriate National Immunization Program among Under-five children in Nabua, Camarines Sur

Indicators	WM	Verbal Interpretation	Rank
1. Vaccines at Birth			
a. BCG	3.35	Complied	12
b. HEP-B	3.50	Highly Complied	5.5
2. Vaccines at 1 1/2 Months			
a. PENTA 1	3.55	Highly Complied	1
b. OPV 1	3.53	Highly Complied	2
c. PCV 1	3.52	Highly Complied	3
3. Vaccines at 2 1/2 Months			
a. PENTA 2	3.43	Complied	7
OPV 2	3.42	Complied	8
c. PCV 2	3.41	Complied	9
4. Vaccines at 3 1/2 Months			
a. PENTA 3	3.37	Complied	11
b. OPV 3	3.38	Complied	10
c. PCV 3	3.32	Complied	13
5. Vaccines at 9 Months			
a. MCV 1	3.51	Highly Complied	4
6. Vaccines at 12 Months			
MCV 2	3.50	Highly Complied	5.5
Average Weighted Mean	**3.45**	**Complied**	

Scale	Range Value	Verbal Interpretation
4	3.50-4.00	Highly complied
3	2.50-3.49	Complied
2	1.50-2.49	Partially Complied
1	1.00-1.49	Not Complied

It is evident that vaccines that should be given at one and a half month old got the top three rank with first dose of pentavalent vaccine (PENTA 1) as rank one with a weighted mean of 3.55 followed by first dose of oral polio

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

vaccine (OPV 1) with a weighted mean of 3.53 and first dose of pneumococcal conjugate vaccine (PCV 1) with a weighted mean of 3.52. additionally, the vaccine that should be given at nine months old which is the first dose measles containing vaccine (MCV 1) got an interpretation of highly complied as well with a weighted mean of 3.51 ranking at number four for the compliance to age-appropriate immunization. Moreover, vaccine at birth, specifically the hepatitis-B (hep-b) vaccine and the second dose of measles containing vaccine (MCV 2) both got a weighted mean of 3.50 still interpreted as highly complied. Moreover, vaccines who complied with the age-appropriate national immunization program in terms of adherence to still achieving a Fully-immunized Child (FIC) status as the child reaches the age of 12 months. Vaccines that should be given at two and a half months old receives the ranks seventh, eighth and nineth on the survey, these vaccines are the second dose of pentavalent vaccine (PENTA 2) with a weighted mean of 3.43 followed by the second dose of oral polio vaccine (OPV 2) with a weighted mean of 3.38 and second dose of pneumococcal conjugate vaccine (PCV 2) with a weighted mean of 3.41.

Moreover, vaccines that should be given at the age three and a half months receives the lower ranks. The third dose of oral polio vaccine (OPV 3) got a weighted mean of 3.38, the third dose of pentavalent vaccine (Penta 3) has a weighted mean of 3.37. in addition, the bacillus calmette-guerin (BCG) vaccine which must be given within 24 hours after birth got the twelfth rank with a weighted mean of 3.35. lastly, the third dose of pneumococcal conjugate vaccine (PCV 3) that is also given at the age of three and a half months got the last rank with a weighted mean of 3.32. Overall, the average weighted mean for the compliance on age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur is 3.45, interpreted as complied implying that Parents and Health Care Providers manage to catch-up the immunization of children before the age of one.

3. Factors Affecting the Compliance on Age-appropriate National Immunization Program Among Under-five Children in Nabua, Camarines Sur

Table 3 presents the factors affecting the compliance on age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur such as personal factors and environmental factors.

Table 3. Factors Affecting the Compliance on Age-appropriate National Immunization Program among Under-five Children in Nabua, Camarines Sur

Indicators	WM	Verbal Interpretation	Rank
a. Personal Factor			
a.1. Personal Experiences			
1. Any personal experience of a child's disability after immunization.	1.17	Not at All	7
2. Any personal experience of a child's death after immunization.	1.12	Not at All	8
3. Experience with expected side effects like fever after vaccination.	2.01	Moderately Affect	1
4. Experience with redness at the injection site after vaccination.	1.62	Moderately Affect	4
5. Experience with swelling at the injection site after vaccination.	1.64	Moderately Affect	3
6. Experience of pus formation at the injection site days after vaccination.	1.25	Not at All	6
7. Experience with adverse effects like allergies or rashes after vaccination.	1.30	Not at All	5
8. Experience of child becoming very irritable after vaccination, affecting caregiver's sleep.	1.83	Moderately Affect	2
Average Weighted Mean	**1.49**	**Not at All**	
a.2. Perceived Susceptibility			
1. My child can get diseases despite no family history; vaccines protect them.	2.65	Affect	5
2. Nutrition isn't enough; timely vaccination is necessary.	2.83	Affect	2.5
3. Vaccination shouldn't be delayed even without local cases.	2.78	Affect	4
4. Faith is important, but vaccines are still needed for protection.	2.83	Affect	2.5
5. Outdoor play exposes my child to diseases; vaccines are essential.	2.55	Affect	6
6. Socializing with neighbors increases risk; vaccination is needed.	2.51	Affect	8
7. Travel raises disease risk; vaccines are important.	2.52	Affect	7
8. Children's weaker immune systems require early, timely vaccination.	2.97	Affect	1
Average Weighted Mean	**2.71**	**Affect**	
a.3. Perceived Severity			

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

1. Without vaccination, my child could suffer permanent disabilities like paralysis or blindness.	2.62	Affect	4
2. My child could die young if not vaccinated.	2.30	Moderately Affect	8
3. Treating diseases is costly and time-consuming compared to vaccination.	2.94	Affect	1
4. Illness may cause my child future difficulties in school.	2.63	Affect	3
5. My child could spread diseases to vulnerable family members and others.	2.42	Moderately Affect	6.5
6. Unvaccinated children are more prone to serious illnesses.	2.86	Affect	2
7. My child could contribute to disease outbreaks in the community.	2.45	Moderately Affect	5
8. Lack of vaccination can cause travel and school enrollment issues.	2.42	Moderately Affect	6.5
Average Weighted Mean	**2.58**	**Affect**	
a.4. Perceived Benefits			
1. Immunization is the only way to prevent vaccine-preventable diseases.	2.72	Affect	8
2. Vaccination is safe, effective, and causes no harm.	3.04	Affect	3.5
3. Timely vaccination helps prevent outbreaks.	3.04	Affect	3.5
4. Immunization saves time and money for families.	3.05	Affect	2
5. Vaccines improve health throughout life.	2.92	Affect	5
6. Routine immunization reduces child mortality.	2.90	Affect	6
7. Immunization protects future generations by eradicating diseases.	2.74	Affect	7
8. Vaccination gives parents peace of mind.	3.16	Affect	1
Average Weighted Mean	**2.95**	**Affect**	
a.5. Perceived Barriers			
1. Anxiety about side effects like fever, pain, swelling, and redness.	2.47	Moderately Affect	1
2. Belief that vaccines are too early at 1½ months.	1.81	Moderately Affect	6
3. Lack of knowledge about vaccines and schedule.	2.28	Moderately Affect	2
4. Belief that unvaccinated family members stayed healthy.	1.72	Moderately Affect	8
5. Unaware of the need for 2nd or 3rd doses.	1.76	Moderately Affect	7
6. Forgetting the immunization schedule.	2.14	Moderately Affect	3
7. Inconvenience of multiple health center visits.	2.04	Moderately Affect	4
8. Prioritizing work or daily life over immunization.	1.88	Moderately Affect	5
Average Weighted Mean	**2.01**	**Moderately Affect**	
b. Environmental Factor			
b.1. Interpersonal Influences			
1. Lack of trust in the healthcare provider administering vaccines.	1.29	Not At All	7
2. Partner opposes child's immunization.	1.33	Not At All	5
3. Relatives oppose child's immunization.	1.36	Not At All	4
4. Heard of adverse experiences from relatives or community.	1.53	Moderately Affect	2
5. Family problems or caretaker illness.	1.32	Not At All	6
6. Religious beliefs influence vaccination decisions.	1.39	Not At All	3
7. Superstitions, rumors, and misconceptions affect decisions.	1.67	Moderately Affect	1
8. Lack of support and encouragement from local healthcare providers.	1.28	Not At All	8
Average Weighted Mean	**1.40**	**Not At All**	
b.2. Situational Influences			
1. Vaccine shortage or unavailability.	2.23	Moderately Affect	2
2. Negative media about vaccines.	1.92	Moderately Affect	4
3. Disease outbreaks.	2.21	Moderately Affect	3
4. No private vaccination option if health center lacks vaccines.	3.05	Affect	1
5. Health facility is too far.	1.52	Moderately Affect	7
6. Child was denied vaccination at health center before, causing discouragement.	1.77	Moderately Affect	5
7. Long wait times and unconducive vaccination environment.	1.50	Moderately Affect	8
8. Vaccination cost is unaffordable.	1.54	Moderately Affect	6
Average Weighted Mean	**1.97**	**Moderately Affect**	

Scale	Range Value	Verbal Interpretation
4	3.50-4.00	Greatly Affect

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

3	2.50-3.49	Affect
2	1.50-2.49	Moderately Affect
1	1.00-1.49	Not at all

The table presents various factors influencing compliance with the age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur. The factor 'personal experiences' received an average weighted mean of 1.49, interpreted as 'not at all'. The average weighted means for 'perceived susceptibility' and 'perceived severity' were 2.71 and 2.58, respectively, both interpreted as 'affect'. 'Perceived benefits' had an overall average weighted mean of 2.95, also interpreted as 'affect'. The 'perceived barriers' factor had an average weighted mean of 2.01, indicating it 'moderately affects' compliance. 'Interpersonal influences' had an average weighted mean of 1.40, interpreted as 'not at all', while 'situational influences' showed an average weighted mean of 1.97, interpreted as 'moderately affect'.

4. Relationship Between the Profile of the Respondents and the Compliance on Age-appropriate National Immunization Program Among Under-five Children in Nabua, Camarines Sur.

Table 4 illustrates the relationship between the profile of the respondents and the compliance to age-appropriate National immunization program among under-five children in Nabua, Camarines Sur.

Table 4. Relationship Between the Profile of the Respondents and the Compliance to Age-appropriate National Immunization Program among Under-five Children in Nabua, Camarines Sur

Indicators	Computed X^2-Value	P - Value	Decision on Ho	Interpretation
1. Age	41.2	0.001	Reject	Significant
2. Person who usually brings child for immunization	4.37	0.822	Accept	Not significant
3. Civil Status	19.5	0.003	Reject	Significant
4. Religion	4.57	0.802	Accept	Not significant
5. Educational Attainment	37.4	0.001	Reject	Significant
6. Number of Family Members in a household	3.73	0.444	Accept	Not significant
7. Number of 12–59-month-old children who are siblings of the child for routine immunization	34.2	0.001	Reject	Significant
8. Family Monthly Income	7.52	0.676	Accept	Not significant
9. Occupation of mother	11.4	0.077	Accept	Not significant
10. Place of Delivery of mother	17.9	0.022	Reject	Significant
11. Number of Prenatal Visits in the Health Center During Pregnancy	9.47	0.149	Accept	Not significant
12. NHTS Membership of Family of child	8.20	0.084	Accept	Not significant
13. Usual place where the child gets vaccination	1.11	0.981	Accept	Not significant

The data reveals that the profile such as person who usually brings child for immunization, religion, Number of Family Members in a household, Family Monthly Income, Occupation of mother, Number of Prenatal Visits in the Health Center During Pregnancy, NHTS Membership of Family of child has computed p-values of 0.822, 0.802, 0.444, 0.676, 0.077, 0.149, 0.084, and 0.981 respectively which are higher than the significance level of 0.05. Therefore, the null hypothesis is accepted which means there is no significant relationship between the profile of the respondents and the compliance to age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur for the aforementioned indicators.

However, for indicators such as age, civil status, educational attainment, number of 12 to 59 months old

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

children who are siblings of the child for routine immunization, and place of delivery of mother, the computed p-value were 0.001, 0.003, 0.001, 0.001, and 0.022, respectively which were lower than the 0.05 significance level. Hence, the null hypothesis was rejected. These findings mean that there is a significant relationship between those profiles of the respondent and the compliance to age-appropriate national Immunization Program.

5. Relationship Between the Compliance to Age-appropriate National Immunization Program Among Under-five Children and the Factors Affecting Its Compliance

Table 5 outlines the result of the relationship between the compliance to age-appropriate National immunization Program and the factors affecting its compliance.

Table 5. Relationship between the Compliance to Age-appropriate National Immunization Program among Under-five Children in Nabua, Camarines Sur and factors affecting it

Indicators	Computed X^2-Value	P - Value	Decision on Ho	Interpretation
1. Personal Experience	56.2	0.001	Reject	Significant
2. Perceived Susceptibility	32.1	0.001	Reject	Significant
3. Perceived Severity	18.8	0.001	Reject	Significant
4. Perceived Benefits	14.1	0.001	Reject	Significant
5. Perceived Barriers	34.4	0.001	Reject	Significant
6. Interpersonal Influences	54.7	0.001	Reject	Significant
7. Situational Influences	51.6	0.001	Reject	Significant

Indicators in terms of the factors that could affect the compliance to age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur which includes 'Personal Experience', 'Perceived Susceptibility', 'Perceived Severity', 'Perceived Benefits', 'Perceived Barriers', 'Interpersonal Influences', and 'Situational Influences' received a computed p-value of 0.001 for all indicators which is considered to be lower than the 0.05 level of significance. Therefore, the null hypothesis is rejected which means there is a significant relationship between the compliance to age-appropriate National Immunization Program and factors affecting its compliance.

We may infer that the claims of compliance to age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur, based on the result from the generated data is likely to be attributed to the factors affecting compliance to age-appropriate National Immunization Program. This means that there is a high degree of statistical significance that an observed relationship is likely to happen and not by chance only – this significance is based on the probability that the compliance may happen based on those said factors.

Conclusions

Based on the findings gained from evaluating the compliance to age-appropriate National Immunization Program among under-five children in Nabua, Camarines Sur, the following conclusions were drawn.

1. Most respondents are mothers aged 26–30, married, Roman Catholic, high school graduates, full-time housewives, with monthly income of 5,000 to 10,000 pesos, usually bringing their child to Barangay Health Stations for immunization.

2. Compliance with the age-appropriate National Immunization Program is classified as 'complied,' meaning that there are vaccines given more than the recommended age-appropriate vaccination schedule, but still given within 12 months, qualifying children as Fully Immunized.

3. Perceived susceptibility, severity and benefits affect compliance, while perceived barriers and situational influences have moderate effects.

4. No significant relationship was found between most respondent profiles and compliance, except for age, civil status, education, number of siblings aged 12–59 months, and place of delivery.

5. Compliance is significantly related to both personal factors and environmental factors.

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Recommendations

Based on the conclusions drawn from the evaluation of the compliance to age-appropriate National immunization Program among under-five children in Nabua, Camarines Sur, the following recommendations are proposed:

1. Develop support programs for target mother demographics (age 26–30, married, high school graduates, with multiple under-five children).
2. Improve access to vaccination: follow weekly schedules, allow walk-ins, conduct outreach, and ensure each Barangay Health Station has a vaccine refrigerator.
3. Strengthen tracking of defaulters and implement reminder systems.
4. Launch health education campaigns through community events, IEC materials, and social media.
5. Enhance collaboration among healthcare providers, LGUs, and community leaders.
6. Address vaccine supply issues by coordinating with LGUs.
7. Upgrade health facilities and ensure cold chain equipment is available.
8. Regularly review the Immunization Program Manual to improve service delivery and trust.

REFERENCES

Baby Gooroo (2021, December 6). *Why is Herd Immunity Important.* https://babygooroo.com/articles/why-is-herd-immunity-important

Mason, J., & Smith, R. (2020, February 19). Vaccine case study: Exploring the controversy around Dengvaxia and vaccine misinformation in the Philippines. https://firstdraftnews.org/long-form-article/exploring-the-controversy-around-dengvaxia-and-vaccine-misinformation-in-the-philippines-draft/

O'Leary, S., Opel, D., Cataldi, J., Hackell, J. (2024). *Strategies for Improving Vaccine Communication and Uptake*. American Academy of Pediatrics, Pediatrics *153 (3)*, 1-24. https://doi.org/10.1542/peds.2023-065483

The LawPhil Project (2024). *Republic act no. 10152: An act providing for mandatory basic immunization services for infants and children, repealing for the purpose presidential decree no. 996, as amended.* https://lawphil.net/statutes/repacts/ra2011/ra_10152_2011.html

United Nations Children's Fund (2023). *Regional Brief: East Asia and the Pacific – The State of the World's Children 2023: For Every Child, Vaccination. https://www.unicef.org/media/139066/file/SOWC23%20EAPRO%20Brief,%20English.pdf*

Vaccines Work (2020). *A United Voice for Immunization in Asia Pacific.* https://www.vaccineswork.org/a-united-voice-for-immunization-in-asia-pacific/