

## Under-Five Mortality In The Fifth Congressional District Of Camarines Sur

**Lea Anne A. Mediado\*; Marielle France P. Agnas; Bryan Deo A. Tataro**

Institution: Camarines Sur Polytechnic Colleges:

leaagnas@cspc.edu.ph;

mariellefranceagnas@gmail.com;

bryantataro@cspc.edu.ph

### ABSTRACT

Addressing the pervasive issue of avoidable deaths and taking steps to ensure that they never happen again are imperative. Every mother and child are receiving primary health care, but in order for children anywhere in the nation or the world to have the best start and the best chance for the future, there must be a robust primary health care system that fulfills their needs as well as those of their families. This study aimed to assess the under-five mortality in the fifth Congressional District of Camarines Sur. From 146 respondents of the study were of parents or guardians of the under-five mortality recorded from January 2022-September 2023. In order to cover the respondents a total enumeration was considered in the different municipalities. Thirty-two respondents were from Nabua, 12 were from Balatan, 14 were from Bula, 19 were from Buhi, 17 were from Bato, 14 were from Baao, and 38 were from Iriga City, respectively. The researcher uses a self-made questionnaire that is simple and concise to be easily understood by the respondents and to easily facilitate the responses. The gathered data was tallied, tabulated and analyzed with the use percentage technique, weighted mean, and Friedman's Test.

From the result it was found out that the leading cause of under-five mortality for communicable diseases was pneumonia and for non-communicable diseases was cardiorespiratory arrest, and the factors all contributed to the under-five mortality in the Fifth Congressional District of Camarines Sur. The researcher also found that socioeconomic, maternal health, health care accessibility are not significant to under-five mortality in the fifth Congressional District of Camarines Sur while nutrition and sanitation are significant to under-five mortality in the fifth Congressional District of Camarines Sur.

**Keywords:** *Under-five mortality, Maternal Health, Health Care Access, Nutritional Status, Sanitation Practices.*

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### 1. INTRODUCTION

Many unanticipated tragedies result in the death of children, sometimes even before they are born, leaving parents to deal with the pain of losing their loved ones. Addressing the pervasive issue of avoidable deaths and taking steps to ensure that they never happen again are imperative. High-quality healthcare is still very important and should be easily accessible, especially for children under five, for whom it is still often a matter of life or death. Most child fatalities happen in the first five years of life, with half happening in the first month. It is inhumane to wait for a child's chances of survival when we may be more vigilant and knowledgeable about enhancing health and guaranteeing that every child and family has access to life-saving medical treatment (United Nations report, 2021).

In order to identify the current gaps in health service delivery and access, it is imperative that these barriers be described. It will be beneficial, especially for educating the government about healthcare services and correctly identifying areas that warrant further investigation. The literature provides a thorough description of these important obstacles, which include, but are not limited to, seasonal and weather variations, the expense of travel being limited, and obstacles relating to healthcare providers (Ligsay, 2021).

One of the most important public health issues, particularly in developing and impoverished nations, is preventing infant death and lessening the pervasive inequality of children mortality at all levels. Goal 3.2 of the Sustainable Development Goals (SDGs) is to eliminate all preventable child mortality under five and reduce it to 25 per 1000 live births or below by

2030. Childhood mortality is associated with multiple factors (Bhusal and Khanal, 2022).

The body of research on childhood mortality risk factors, such as low mother education, low family economic status, and inadequate utilization of healthcare facilities, is sufficient. Most impoverished individuals in developing nations frequently lack access to basic medical treatment. Furthermore, in less developing nations, residents of rural areas are more likely to experience child death. It can be the result of social norms that are detrimental to population health, limited healthcare coverage in remote or rural areas, and illiteracy (Rachmawati et al., 2022).

In Ghana, the likelihood of under-five mortality was inversely correlated with the number of births and the place of birth, and positively correlated with the child's female sex and mother education. Another study conducted in Northern Ghana found a strong relationship between under-five mortality and the mother's educational attainment, age at birth, and household socioeconomic position. The purpose of this study was to determine the prevalence and socioeconomic predictors of under-five mortality in Ghana, as there is a dearth of information regarding the country's statewide studies on this topic (Alhassan, 2021).

Socioeconomic characteristics have been found to be predictive of mortality among children under five in sub-Saharan Africa. According to a Woldeamanuel research conducted in Ethiopia, children whose mothers lacked formal education had a roughly threefold increased risk of dying before turning five. Additionally, there was a roughly two-fold increased risk of death before the age of five for mothers with short birth spacing. Additionally, babies born with birth orders greater than five had a higher chance of passing away before turning five. According to the Zewudie et al. study, breastfeeding, multiple birth orders, male gender, rural domicile, and first birth order all predicted Ethiopian under-five mortality (Alhassan, 2021). This is being supported by the study of Malabanan et.al (2024) conducted to thoroughly examine the prevalence of malnutrition and its associated risk factors among children under five in the Second Congressional District of Camarines Norte.

Based on a wealth of evidence, it seems plausible that the correlation between maternal education and U5M varies in rural versus urban settings. Due to varying socioeconomic, cultural, environmental, healthcare, and political circumstances or conditions, education has a variety of effects on child mortality. As a result, the socioeconomic return on education varies by location and region. These effects may differ between rural and urban areas. There are several ways that mother education enhances the chances of child survival. Children's health is improved by education because it increases wealth and income, empowers women, modifies attitudes, and increases their understanding of health care. There is a varied influence of education on mortality due to the variety of probable pathways causing the impact of maternal education on child mortality. Differences in the mechanisms by which maternal education lowers child mortality between Uganda and Malawi resulted in a differential effect of maternal education on child mortality (Moradkhvaj, 2023).

By 2030, the SDG wants all nations to have reduced newborn mortality to at least 12 deaths per 1,000 live births and under-five mortality to at least 25 deaths per 1,000 live births. Antenatal care (ANC) is a maternal health program that expectant mothers can get from qualified healthcare professionals. The ANC provides mothers and children with health education as well as risk identification, prevention, and control of diseases associated to pregnancy. Pregnant women who have contact with healthcare professionals during ANC visits can receive early diagnosis and treatment for health issues and infections connected to pregnancy. Pregnant women can learn about pregnancy risk signs and be ready for childbirth with the help of the ANC. Additionally, it provides pregnant women with access to vitamin and mineral supplements that are vital to their health. Pregnant women have opportunities throughout the antenatal period to receive a range of vital health services. Research shows that no country has managed to lower its maternal death rate below 100 per 100,000 live births without guaranteeing that every woman receives care from a medical practitioner with the necessary training both during labor and shortly after delivery (Oduse, 2021).

### Objectives of the Study

This study explored the under-five mortality in the fifth congressional district of Camarines Sur. Specifically, it sought to address the following objectives:

1. Identify the causes of under-five mortality in the Fifth Congressional District of Camarines Sur in terms of communicable diseases and non-communicable diseases.
2. Explore the socioeconomic factors, maternal health, health care access, nutritional status, and sanitation practices that contribute to under-five mortality in the Fifth Congressional District of Camarines Sur.
3. Test if there is a significant difference in the identified factors that contribute to under-five mortality in the Fifth Congressional District of Camarines Sur.

## 2. METHODOLOGY

The research study took into account the quantitative research approach In order to characterize two or more variables and their relationships. A picture of the situation as it stands right now can be obtained using descriptive correlation design. The study's design is suitable for gathering data from participants based on their behavior or attitudes, as required by the researcher (Panda, 2022). A study design in which data is gathered without modifying the research subject is also known as a descriptive correlational approach. Studies of this kind are also occasionally referred to as observational studies (Writer, 2019). The researcher used this design to evaluate the causes of under-five mortality in the Fifth Congressional District of Camarines Sur and test the significant difference in the identified factors that contribute to under-five mortality.

### Respondents of the Study

A population under study is one that is taken into account in research or statistical analysis. There are other human populations included in the study. According to Villegas (2020), it is a collection of features that share a common element. The respondents of the study were the 146 parents or guardians of the under-five mortality recorded from January 2022-September 2023.

### Research Instrument

In the study on the causes of under-five mortality in the Fifth Congressional District of Camarines Sur, the researcher used a self-made questionnaire and documentary analysis to gather the needed data. The questionnaire consists of a series of well-crafted, methodically ordered questions meant to be answered by a group of individuals in order to gather data and facts.

The following statistical tools were utilized to interpret and give meaning to the data gathered. The gathered data was tallied, tabulated, and analyzed with the use percentage technique, weighted mean, and Friedman's test.

**The percentage Technique** is a widely used method of representing statistics that describes a particular kind of rate or percentage that may be utilized for contrasting two or more data series. The correlation of the series is being determined with a percentage (Coursehero, 2022).

**Weighted Mean** is a kind of mean that is computed by adding up all the products of multiplying the weight (or probability) connected to a certain event or result by its corresponding quantitative outcome. The main characteristic that separates the weighted mean from the arithmetic mean is that it is highly helpful when calculating a theoretically expected outcome where each possibility has a distinct likelihood of occurring (Taylor, 2022).

**Friedman's Test** was used in measuring an ordinal dependent variable, in utilizing to look for differences between groups. It evaluates the significant difference in the identified factors that contribute to under-five mortality in the Fifth Congressional District of Camarines Sur.

## 3. RESULTS AND DISCUSSIONS

### Causes of Under Five Mortality in the Fifth Congressional District of Camarines Sur

**Communicable Diseases.** Communicable diseases also known as infectious diseases or transmissible diseases are illnesses that result from the infection, presence, and growth of pathogenic biologic agents in an individual human or other animal host.

**Table 1. Communicable Diseases that Cause Under Five Mortality in the Fifth Congressional District of Camarines Sur**

Indicator	Frequency	Percentage	Rank
Pneumonia	30	53.57	1
Acute Gastroenteritis	20	35.71	2
Dengue Hemorrhagic Fever	4	7.14	3
Tuberculosis	1	1.79	4.5
Covid-19	1	1.79	4.5
<b>Total</b>	<b>56</b>	<b>100.00</b>	

It revealed that 30 or 53.57 percent of cause under-five mortality is Pneumonia; followed by 20 or 35.71 percent Acute

gastroenteritis; four or 7.14 percent is Dengue hemorrhagic fever; and one or 1.79 percent is composed of Tuberculosis and Covid-19, respectively. It further shows that most of the causes of under-five mortality is pneumonia.

**Non-communicable Diseases.** Non-communicable diseases are a growing threat to children and adolescents. It undermines children's and adolescents' right to health, nutrition, education, and play. Table 2 shows the cause of under-five mortality in the Fifth District of Camarines Sur under the category of non-communicable disease. It revealed that 90 of them belong to the non-communicable disease that causes under-five mortality.

**Table 2. Non-communicable Diseases that Cause Under Five Mortality in Fifth Congressional District of Camarines Sur**

Indicator	Frequency	Percentage	Rank
Cardio-Respiratory Arrest	32	35.56	1
Neonatal Infection	18	20.00	2
Asthma	16	17.78	3
Congenital Anomalies	13	14.44	4
Asphyxia	11	12.22	5
<b>Total</b>	<b>90</b>	<b>100.00</b>	

**Socioeconomic Factors, Maternal Health, Health Care Access, Nutritional Status, and Sanitation Practices that Contribute to Under-Five Mortality in the Fifth Congressional District of Camarines Sur**

**Socio-economic Factors.** Socio-economic factors such as place of residence, mother's educational level, or household wealth, are strongly associated with risk factors of under-five mortality such as health behavior or exposure to diseases and injuries.

Table 3 shows the highest educational attainment got the highest rank with a weighted mean of 3.43 interpreted as "Contribute".

**Table 3. Socioeconomic Factors that Contribute to Under-five Mortality in the Fifth Congressional District of Camarines Sur**

Indicator	Weighted Mean	Verbal Interpretation	Rank
Family monthly income	3.29	Contribute	2
Highest educational attainment	3.43	Contribute	1
Employment status	3.17	Contribute	3
House condition	2.95	Contribute	5
Number of children in the family	3.05	Contribute	4
Availability of social support	2.80	Contribute	7
Type of family	2.91	Contribute	6
<b>Average Weighted Mean</b>	<b>3.08</b>	<b>Contribute</b>	

**Maternal Health.** Maternal health is a program provided by trained health workers to pregnant women through Antenatal Care (ANC). Its primary objective is to identify and monitor pregnant women at high risk early. As shown in table 4, all the indicators were rated by the respondents as Contribute.

**Table 4. Maternal Health that Contributes to Under-five Mortality in the 5th Congressional District of Camarines**

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Indicator	Weighted Mean	Verbal Interpretation	Rank
Age at Childbirth	3.26	Contribute	1
Body Mass Index	2.89	Contribute	7
Antenatal Care Utilization (Immunization and Other Supplements)	3.14	Contribute	3
Maternal Knowledge of Childbirth	3.19	Contribute	2
Obstetric History	3.01	Contribute	4.5
Maternal Condition	2.98	Contribute	6
Timing and Frequency of Prenatal Visits	3.01	Contribute	4.5
<b>Average Weighted Mean</b>	<b>3.07</b>	<b>Contribute</b>	

**Health Care Access.** Healthcare access is among the factors suggestive to be associated with child mortality.

Table 5 comprises the policies that must be practiced in the health facilities. The average weighted mean as to the access that contributes to under-five mortality was 3.29 interpreted as Contribute. The average weighted mean to access to health care was 3.29 interpreted as “Contribute”.

**Table 5. Health Care Accessibility that Contributes to Under-five Mortality in the Fifth Congressional District of Camarines Sur**

Indicator	Weighted Mean	Verbal Interpretation	Rank
Availability of health care services such as immunization, treatment of childhood illnesses	3.40	Contribute	2.5
Distance to the nearest healthcare facility	3.50	Greatly Contribute	1
Timeliness of healthcare seeking for child illness	3.40	Contribute	2.5
Barriers to accessing healthcare services such as cost, transportation, cultural beliefs	3.25	Contribute	4
Lack of awareness of existing healthcare services	3.12	Contribute	5
Health insurance (PhilHealth)	3.07	Contribute	6
<b>Average Weighted Mean</b>	<b>3.29</b>	<b>Contribute</b>	

**Nutritional Status.** Nutritional status is influenced by dietary practices, malnutrition is one of the important risk factors in the onset of many communicable and non-communicable diseases in both children and adults.

Table 6 depicts the nutritional status that contributes to under-five mortality in the Fifth Congressional District of Camarines Sur. As shown in the table, the average weighted mean for the nutritional status that contributes to under-five mortality was 3.07 interpreted as “Contribute”.

**Table 6. Nutritional Status Factors that Contribute to Under-five Mortality in the Fifth Congressional District of Camarines Sur**

Indicators	Weighted Mean	Verbal Interpretation	Rank
Breastfeeding practices	3.36	Contribute	1
Micronutrient supplementations	2.93	Contribute	5
Nutritional status (underweight, stunting)	3.09	Contribute	2
Household food security	2.98	Contribute	3
Dietary diversity for infants and young children	2.97	Contribute	4
<b>Average Weighted Mean</b>	<b>3.07</b>	<b>Contribute</b>	

**Sanitation Practices.** Sanitation practices are necessities of life such as access to safe drinking water and adequate sanitation, yet not everyone in the world can access these services, particularly people living in rural areas.

Table 7 shows the sanitation practices that contribute to under-five mortality in the Fifth Congressional District of Camarines Sur. As shown in the table, safe water storage and home sanitation practices were both interpreted as “Contribute” with a weighted mean of 3.34, respectively occupying the first rank.

**Table 7. Sanitation Practices that Contribute to Under-Five Mortality in the Fifth Congressional District of Camarines Sur**

Indicators	Weighted Mean	Verbal Interpretation	Rank
Access to basic safe water supply	3.24	Contribute	4
Safe water storage	3.34	Contribute	1.5
Home sanitation practices	3.34	Contribute	1.5
Sanitary toilet	3.21	Contribute	6.5
Safe disposal of waste	3.23	Contribute	5
Personal hygiene practices	3.32	Contribute	3
Presence of vector	3.21	Contribute	6.5
<b>Average Weighted Mean</b>	<b>3.27</b>	<b>Contribute</b>	

### 3. Difference in the Identified Factors that Contribute to Under-Five Mortality in the Fifth Congressional District of Camarines Sur

Table 8 revealed the difference in the identified factors that contribute to under-five mortality in the Fifth Congressional District of Camarines Sur. It shows that the computed  $X^2$  values of 8.7714 on socioeconomic factors, 8.3429 on maternal health, and 5.3667 on healthcare accessibility were all higher than the P-value at 0.05 level of significance, thus, accepting the null hypothesis and interpreted as not significant.

**Table 8. Difference in the Identified Factors that Contribute to Under-Five Mortality in the Fifth Congressional District of Camarines Sur**

Indicators	Computed $X^2$ Value	p-value	Decision on $H_0$	Interpretation
Socio-economic	8.7714	0.06707	Accepted	Not Significant
Maternal Health	8.3429	0.0798	Accepted	Not Significant
Health Care Accessibility	5.3667	0.2517	Accepted	Not Significant
Nutritional Status				
Sanitation Practices	13.72	0.00824	Rejected	Significant
	24.3143	0.00007	Rejected	Significant

## 4. CONCLUSIONS

1. In terms of communicable diseases, notably, pneumonia emerged as the predominant cause of under-five mortality in the Fifth Congressional District of Camarines Sur. Furthermore, the findings highlight the significant impact of non-communicable diseases on under-five mortality with cardio-respiratory arrest identified as a prominent cause.
2. The socioeconomic factors, maternal health, health care access, nutritional status, and sanitation practices contribute to under-five mortality in the Fifth Congressional District of Camarines Sur.
3. Nutritional status and sanitation practices demonstrate a statistically significant association with under-five mortality in the Fifth Congressional District of Camarines Sur. Conversely, there is a lack of statistical significance for socioeconomic, maternal health, and healthcare accessibility as factors that contribute to under-five mortality in the Fifth Congressional District of Camarines Sur.
4. The proposed plan can mitigate the under-five mortality in the Fifth Congressional District of Camarines Sur.



## 5. RECOMMENDATIONS

1. Given the significant impact of pneumonia and cardio-respiratory arrest as the common causes of under-five mortality, there should be targeted efforts to enhance prevention, early detection, and treatment of these conditions. This includes improving access to vaccinations, promoting breastfeeding practices to boost immune function, and ensuring prompt diagnosis and management of respiratory illnesses.
2. While socioeconomic factors may not show statistical significance in the study, it is crucial to recognize their influence on under-five mortality. Addressing poverty, unemployment, and inadequate housing can indirectly improve child health outcomes by reducing environmental risks and enhancing access to resources. Policy interventions aimed at poverty alleviation, job creation, and social protection programs may be prioritized.
3. Despite the lack of statistical significance, maternal health and healthcare accessibility remain vital components of reducing under-five mortality. Strengthening prenatal care, skilled birth attendance, and postnatal support services can contribute to better maternal and child health outcomes. Efforts should focus on improving the quality and accessibility of healthcare facilities, particularly in rural and underserved areas. Promoting breastfeeding, micronutrient supplementation, and nutrition education to improve child nutrition may be prioritized. Additionally, investments in sanitation infrastructure, access to clean water, and hygiene education programs can help prevent waterborne diseases and reduce the burden of diarrheal illnesses.
4. The proposed plan of this study provides a framework for addressing the multifaceted factors contributing to under-five mortality in the Fifth Congressional District of Camarines Sur. It is essential to mobilize resources, engage stakeholders, and implement evidence-based interventions as part of a comprehensive strategy to mitigate under-five mortality rates effectively.

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