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ANALYSIS OF CHILD MORTALITY RESULTING FROM PROTEIN ENERGY MALNUTRITION IN JAMA'A LOCAL GOVERNMENT AREA OF KADUNA STATE

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Abstract

The aim of this research work is to look at Protein Energy Malnutrition (PEM) as some of the contributory factors to child mortality in Jama'a Local Government Area of Kaduna State. The data for the research work was a secondary data from the record unit of General Hospital Kafanchanfrom 2010 to 2019. Descriptive statistics was used to analyze the data. Total child mortality was represented by "X" and child mortality due to protein energy malnutrition was represented by "Y". The bar chart revealed that the mortality of male children is more than that of the female children due to PEM throughout the period of the study. The Correlation analysis conducted returns a positive strong correlation of 0.993 which implies that both variables increase in the same direction and also there is tendency of a significant relationship. Results revealed that PEM will continue to decline as the year advances. The coefficient of determination which is 0.986 implies that 98.6% of variation in total child mortality is attributed to PEM. The equation for the regression analysis is depicted as, $Y = 101.6 - 0.5X$ indicating the decline in total child mortality. In conclusion, based on the findings, there is a relationship between total child mortality and protein energy malnutrition (PEM). This is because as total child mortality increases, protein energy malnutrition (PEM) is equally increasing. It is therefore recommended that parents should be encouraged on the importance of eating balance diet and proper breastfeeding of their children.

Keywords: protein energy malnutrition, children, under-nutrition

1. Introduction

Child mortality is a sensitive indicator of a country's development and telling evidence of its properties and value. Every day more than 26,000 children under the age of five die around the world mostly from preventable causes (George et al., 2009). One of the causes of child mortality is protein energy malnutrition. The term 'malnutrition' has no universally accepted definition. It has been used to describe a deficiency, excess or imbalance of a wide range of nutrients, resulting in a measurable adverse effect on body composition, function and clinical outcome.[1] Although malnourished individuals can be under- or over nourished, 'malnutrition' is often used synonymously with 'under nutrition', as in this article. (Elia, 2000). Women and children bear the brunt of the diseases burden associated with malnutrition. Many factors can cause malnutrition, most of which relate to poor diet or severe and repeated infections, particularly under privileged population. Malnutrition is one of the major causes of death in developing countries (Blossner, 2005).

The level of mortality reflects the country's conditions of mortality and related factors including prevalence of diseases, environmental and nutritional factors as well

as the functioning of health care systems. The analysis of mortality and trends in a country is therefore, important for various reasons, among which are the use of the various mortality indicators in policy formulation, strategic planning, monitoring and evaluation of various health and other socio economic programmes, as well in facilitating demographic analysis of a population (Ojuowo, 2012). The World Health Organization estimated that about 60% of all deaths, occurring among children aged less than five years in developing countries, could be attributed to malnutrition. Protein energy malnutrition has been identified as the most lethal form of malnutrition indirectly or directly causing annual death of at least five million children worldwide. Estimate indicates that 35.8% of pre-school children in developing countries are under weight, 42.7% are starved and 9.2% are wasted. These children are at a higher risk of morbidity, mortality and carry adverse mental health consequences through their lives (Ubesie et al., 2012).

The world made remarkable progress in child survival in the past three decades, and millions of children have better survival chances than in 1990. 1 in 27 children died before reaching age five in 2019, compared to 1 in 11 in 1990. Moreover, progress in reducing child mortality rates has been accelerated in the 2000–2019 period compared with the 1990s, with the annual rate of reduction in the global under-five mortality rate increasing from 1.9 per cent in 1990–1999 to 3.7 per cent in 2000–2019. Despite the global progress in reducing child mortality rates over the past few decades, an estimated 5.2 million children under age five died in 2019. More than half of those deaths occurred in sub-Saharan Africa (Alkema, L. et al., 2014). This called for this study to ascertain children who die as a result of deficiency in protein in the present study area.

The aim of this research work is to look at protein energy malnutrition (PEM) as some of the contributing factors to child mortality in Jama'a Local Government Area of Kaduna State.

Specifically the study will determine the effect of protein energy malnutrition (PEM) on child mortality, fit in a regression equation that can be used to estimate child mortality due to protein energy malnutrition (PEM) and find out if child mortality due to protein energy malnutrition (PEM) is influenced by sex. The study sought to know if protein energy malnutrition (PEM) have effect on child mortality as well as if sex of child has influence on child mortality due to protein energy malnutrition (PEM).The study hypothesized that protein energy malnutrition has no effect on child mortality and child mortality due to protein energy malnutrition is not influence by sex.

It is believed that the findings of the research work will help in government policy, most especially in the health sectors as well as serve as a base for further research work. This research work will cover only recorded cases of child mortality due to protein energy malnutrition (PEM) from 2010 to 2019, in General Hospital Kafanchan.

2. Study Area

Kafanchan city of country Nigeria lies on the geographical coordinates of 9° 35' 0" N, 8° 18' 0" E.

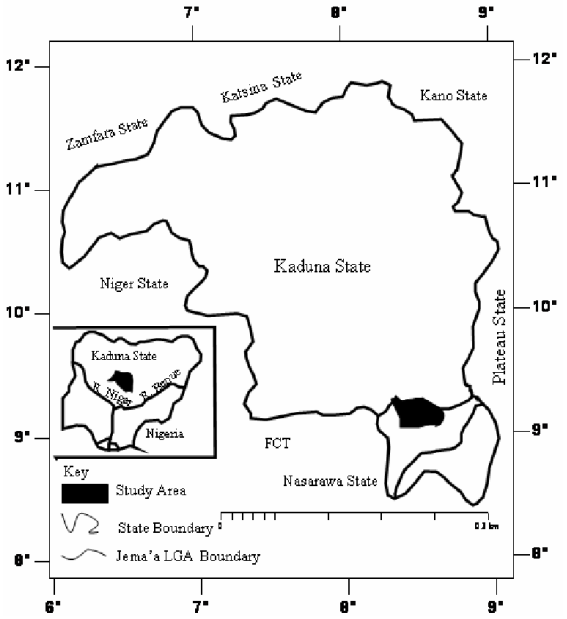

Figure 1: Study Area
Source: Abaje I.B (2008)

3. Research Methods

3.1 Research Design

The design of this project is in a way of highlighting on comparing record on child mortality due to protein energy malnutrition. The data for the research work was a secondary data from the record unit of General Hospital Kafanchan. This was based on the recorded cases of child mortality from 2010 to 2019. The researcher only study recorded cases of child mortality due to protein energy malnutrition.

Regression and correlation analysis were used to analyze the data. Total child mortality was represented by "X" which is the dependent variable and child mortality due to protein energy malnutrition was represented by "Y" which is the independent variable.

3.2 Population and Sampling Study

The population for the study was on recorded cases of child mortality in the general Hospital Kafanchan, the study was based on child mortality due to protein energy malnutrition (PEM). A total of 520 persons were recorded as total death in the hospital while a total of 456 were recorded as death due to PEM and this figure serves as the sample size for the study.

3.3 Instrument for Data Collection

The data for this research work was a secondary data and was collected from a documentary source which is the health record department of General Hospital Kafanchan. The data was collected in soft copy with flash drive.

3.4 Procedure for Data Collection

The data was collected from health record department General Hospital, Kafanchan.

3.5 Method of Data Analysis

The researcher used simple correlation to determine the effect of protein energy malnutrition (PEM) on child mortality. Regression analysis is the analysis of relationship between dependent and independent variable as it depicts how dependent variable will change when one or more independent variable changes due to factors. Simple regression is given by the formula below:

$Y = a + bX + E$, where Y is dependent variable, X is independent variable, a is intercept, b is slope and E is residual.

Linear regression analysis was used to fit in an equation that can be in estimating child mortality due to protein energy malnutrition.

4. Results and discussion

4.1 Effect of protein energy malnutrition (PEM) on child mortality

Result showed that there is relationship between total child mortality and child mortality due to protein energy malnutrition. This is because as total child mortality increases, child mortality due to PEM equally increases.

4.2 Estimation of child mortality due to protein energy malnutrition

From the forecasts the PEM will continue to reduce as the year advances. The coefficient of determination 0.986 implies that 98.6% of variation in total child mortality is attributed to child mortality due to PEM

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Table 1: Shows the total number of child mortality and number of child mortality due to protein energy malnutrition (PEM) from 2010 to 2019.

Years	Total number of child mortality	Number of mortality due to PEM	Percentage (%) mortality due to PEM
2010	30	25	5.5
2011	29	27	5.9
2012	50	44	9.6
2013	44	37	8.1
2014	46	40	8.8
2015	59	53	11.6
2016	48	42	9.2
2017	70	65	14.3
2018	77	66	14.5
2019	67	57	12.5
T0tal	**520**	**456**	**100**

Source: Record Department, General Hospital, Kafanchan

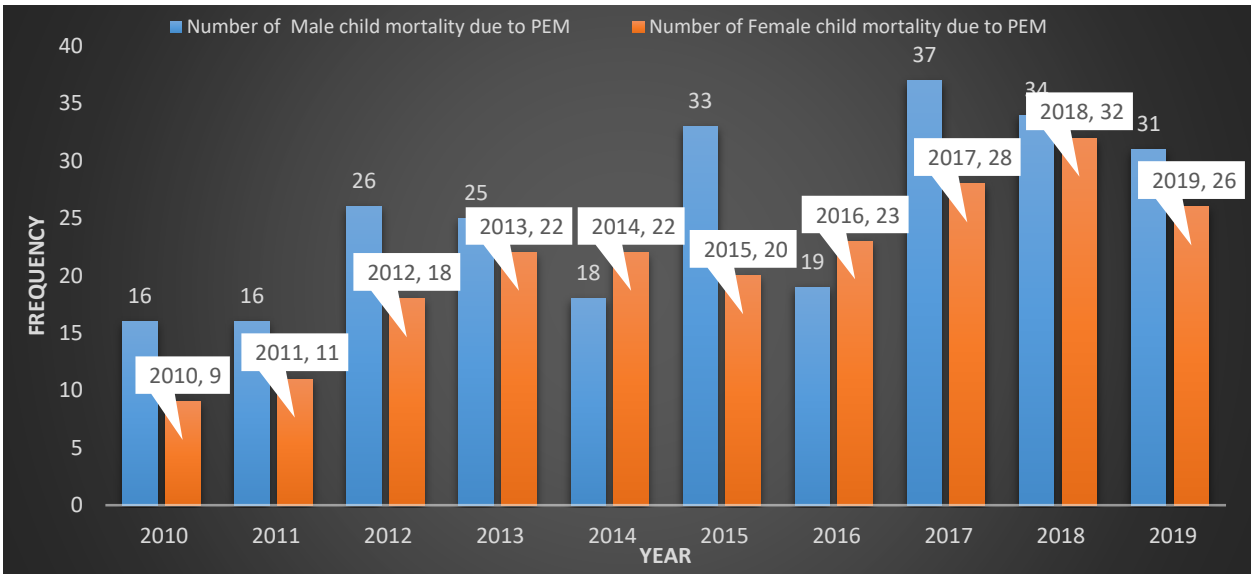

Figure 1: Shows the number of child mortality due to protein energy malnutrition (PEM) and sex mortality due to protein energy malnutrition from 2010 to 2019.
Source: Record Department, General Hospital, Kafanchan

The bar char used for the descriptive analysis present the total number of child mortality and mortality as a result of deficiency of protein. From the chart is shown that the mortality of male feminine is more than that of the female due to PEM throughout the period of the study.

Test of Hypothesis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.993[a]	.986	.984	2.05401

a. Predictors: (Constant), Child mortality due to PEM

The Correlation analysis conducted returns a positive strong correlation of 0.993 which implies that both variables increase in the same direction and also there is tendency of a significant relationship. Total child mortality was represented by "X" child mortality due to protein energy malnutrition was represented by "Y". .From the above forecasts', the result found that the PEM will continue to reduce as the year advances. The coefficient of determination 0.986 (98.6%) implies that 98.6% of variation in total child mortality is attributed to child mortality due to PEM. This shows the regression analysis gave an equation $Y = 101.6 - 0.5X$ that is the PEM will continue to reduce as the years advances.

4.3 Sex influence on child mortality

Results in figure 1 show that the mortality of male feminine is more than that of the female due to PEM throughout the period of the study.

5. Conclusion

In conclusion, based on the findings of this research work, there is relationship between total child mortality and child mortality due to protein energy malnutrition (PEM). This is because as total child mortality increases, child mortality due to protein energy malnutrition (PEM) is equally increasing. Therefore, the regression analysis gave an equation$Y = 101.6 - 0.5X$ that is the mortality due to PEM will continue to increase as the year's advances in Kafanchan General Hospital. Also the child mortality due to protein energy malnutrition is influence by sex as revealed on figure 1 where the mortality of male is higher than the female counterpart.

6. Recommendations

The researchers recommended that more effective measure should be taken by government to reduce protein energy malnutrition (PEM), since it is deadly to the community and parents should be encouraged on the importance of eating balance diet and proper breastfeeding of their children. Further research work should be carried out on how to educate parent on the effect of malnutrition on their health and the health of their children.

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