A STATISTICAL STUDY ON NUTRITIONAL STATUS OF CHILDREN BETWEEN 3 MONTHS AND 5 YEARS OF THE FAMILIES HAVING TWO OR MORE CHILDREN

By

Godellawattage Dinidu Priyankara Munidasa
(B.Sc.)

Reg. No. GS/PS/1789

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DECLARATION

The work described in this thesis was carried out by me under the supervision of Dr. B.M.S.G.Bannehaka and Dr Prasansa .Kalukottege. Department of Statistics & Computer Science. University of Sri Jayewardenepura. Nugegoda. Sri Lanka). I declare that a report on this has not been submitted in whole or in part to any university or any other institution for another Degree/Diploma.

11/12/2006

Date

G.D.P.Munidasa

Reg. No. GS/PS/1789

DECLARATION OF THE SUPERVISORS

We certify that the above statement made by the candidate is true and that this thesis is suitable for submission to the University for the purpose of evaluation.

2006.12.02

Dr. B.M.S.G.Bannehaka **Date**

Senior Lecturer

Department of Statistics & Computer Science

University of Sri Jayewardenepura.

Nugegoda.

Sri Lanka

2006.12.02

Dr. Prasansa Kalukottege **Date**

Senior Lecturer

Department of Statistics & Computer Science

University of Sri Jayewardenepura.

Nugegoda.

Sri Lanka

DEDICATION

I dedicate this thesis to my dear parents for providing the facilities and encouragement for higher education

It is also dedicated to the Director Nutrition- Ministry of Health , Dr. (Mrs) Chandani Dammika Gunaratne who helped me to complete this M.Sc.

and to all my teachers and lecturers who guided me in all endeavors

Abstract

This study was done to find the factors related to malnutrition and the relationship between response variable and explanatory variables.

I have used Demographic Health Survey 2000 secondary data set for my analysis.

314 families and 641children (aged 3-59 months) were selected from the Demographic Health Survey 2000 main data set. This sample included 333 males and 308 females.

Age and anthropometrical measurements (weight and height) were used to asses the nutritional status of children. The nutritional status can be categorised in to four groups (Normal, Underweight, Wasting and Stunting) using U.S. National Centre for Health Statistics (NCHS), and the Centre for Disease Control (CDC) reference value of the standard population.

Using the nutritional status of the child, the binary response variable was created and 30 explanatory variables were selected from main DHS data set which explained the health condition of child.

Basically, in my analysis the association of response variable and explanatory variables were checked using cross – tabulation and Chi – squared test.

Binary Logistic Regression models were fitted according to the theories of Generalized Linear Model and checked the significance of explanatory variables. Model significance was also checked using Goodness of Fit test.

The final models of binary logistic regression revealed that malnutrition of children was negatively related with income score of family, birth weight, birth interval (age gap in months)and race(Moor). It is also revealed that malnutrition of children was positively associated with the total number of the children in the family (Parity) and sex(females).

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TABLE OF CONTENTS

List of Tables

1. INTRODUCTION

1.1 Nutritional status of children

The early years of the life is the period in which great changes occur in one's life. This period develops the abilities to think, speak, learn and reason and lay foundation for their values and social behaviors as adult. So ensuring proper nutrition must begin at the very start of life. The period of growth of child up to around two to three years of age ensures adequate future growth, development and nutritional status.

To improve the nutritional status of population, there are two important stages in life of the individuals to consider. These are fetal stage and the first years of life. If the child is not receiving proper and adequate nutrition, during the first two years of life then the child will not gain the necessary height for age resulting a stunted adult. Therefore, factors like under nutrition, anaemia, heavy work in pregnancy, goiter, healminth infestation, malaria, sexually transmitted disease and other infections effectingare present, next generation will result in a high percentage of Low Birth Weight (LBW) babies.[1]

However, the global information on the nutritional status of the world children makes the worst picture about children and reports almost 11 million of children under 5 years die each year due to many reason.[2]

Child malnutrition is reported as a one of the major reasons for the infant and young child mortality and morbidity. According to WHO's Global Database on child growth

and malnutrition (1997) and World Health Assembly Report (1998), half of more than 10 million deaths every year among children under five are associated with malnutrition.[3]

Fifty percent of child deaths in developing countries are related to severe malnutrition effects and 83 percent of these deaths are attributable to mild to moderate malnutrition.[4]

Malnutrition can lower a child's immunity, making the child more susceptible to diseases such as diarrhea, measles, and respiratory infections. These in turn reduce appetite, cause nutrient loss, inhibit absorption, and alter the body's metabolism, thereby resulting in inadequate dietary intake and further malnutrition. This vicious cycle of malnutrition and infection has been termed the "most prevalent public health problem in the world today" [5].

The global database on protein – energy malnutrition & child growth shows that the prevalence of protein – energy malnutrition in children under 5 years in developing countries world wide has progressively fallen from 42.6 % in 1975 to 34.6% in 1995. However, in the South East Asia region the fall in percentage prevalence has not been as rapid as the rise in population.

Today, over three forth (79%) of world's malnourished children live in the South Asia region. [4] (WHO 2000) and 17 % of South Asia's under 5 years children were found to be wasted as compared to an average of only 9% in developing world as a whole and