

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

Bm

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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.

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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 641 children (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 assess the nutritional status of children. The nutritional status can be categorised into 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

	Page No
Abstract	i
Acknowledgement	iii
Table of Contents	iv
List of Tables	viii
Chapter 1	
1. Introduction	01
1.1. Nutritional status of children	01
1.2. Aim and objectives of the proposed study	05
Chapter 2	
2. Review of Literature	06
2.1. Child nutrition and growth	06
2.2. Under nutritional conditions	06
2.3. Malnutrition status in Sri Lanka	07
2.4. World status in malnutrition	09
2.5. Factors influence malnutrition of children	13
2.5.1. Nutritional status of child and poverty.	13
2.5.2. Child nutrition , Hygiene ,Water and Sanitation	15

2.5.3. The Role of mother	16
2.5.4. Breastfeeding practices	17
2.5.5. Complementary feeding practices	18
2.5.6. Birth weight	18
2.5.7. Food security & safety	20
2.5.8. A Recent study on nutritional status of children in Sri Lanka	21

Chapter 3

3. Statistical theories related to data analysis	22
3.1. Statistical modeling	22
3.2. The modeling process	23
3.3. Regression analysis	24
3.3.1. Simple linear regression and multiple linear regression	24
3.3.2. Binary data & binomial distribution	26
3.3.3. Binary logistic regression	28
3.3.4. Assumptions	29
3.3.5. Mathematical explanation of logistic regression	30
3.3.5.1. Coefficient of independent variable calculation	31
3.3.5.2. Coefficient variances and covariances	31
3.3.5.3. Significance of the model	32
3.3.5.4. G Statistic	33
3.3.5.5. Pearson statistic	34

3.3.5.6.	Hosmer-Lemeshow statistic	35
3.3.5.7.	Z -test	36
3.3.5.8.	Statistical software packages	37
3.3.5.9.	Explanation about The Minitab session window output of binary logistic regression analysis	37
 Chapter 4		
4.	Methodology	40
4.1.	Sample design & Data Collection – DHS Survey	40
4.2.	Anthropometrical Measurements	41
4.3.	Methodology for analysis of data	42
4.3.1.	Response Variable(Dependent Variable)	42
4.3.2.	Explanatory variables	42
4.3.3.	Data Analysis	43
 Chapter 5		
5.	Results	45
5.1.1.	Classification of children according to their sex	46
5.1.2.	Stunting of children	47
5.1.3.	Underweight of children	47
5.1.4.	Wasting of children	48
5.1.5.	Univariate analysis	50
5.1.6.	Model fitting	51
5.1.7.	Significance of coefficients	54

5.1.8. Significance of coefficients	54
5.1.9. Odds ratio & 95% confidence interval for the odds ratio.	55
5.1.10. Log-Likelihood test (G- test)	55
5.1.11. Hypothesis testing for G test	55
5.1.12. Goodness-of-fit tests	56
5.1.13. Hypothesis testing for goodness-of-fit test	56
5.1.14. Cramer's V test	58
5.1.15. Final binary logistic regression model	64
5.1.16. Nutritional status Vs birth interval	67
Chapter 6	
6.0 Discussion and conclusion	69
6.1 Recommendations	72
References	73
Appendix :1 Questionnaire	80
Appendix :2 Chi-square results	88
Appendix :3 Binary logistic regression model results	91

List of Tables

Table No.		Page No.
01	Nutritional status of children in Sri Lanka under 5 years of age(3-59) months	8
02	Type of response variable	28
03	Number of families having children aged 3 months to 5 years	45
04	Families classified according to sex	46
05	Children classified according to gender	46
06	Prevalence of stunting in 3 - 59 months age group	47
07	Prevalence of underweight in 3 - 59 months age group	48
08	Prevalence of wasting in 3 - 59 months age group	48
09	Prevalence of malnutrition in 3 - 59 months age group	49
10	Prevalence of malnutrition on according to sex in 3 - 59 months age group	49
11	Comparison of malnourished conditions with sex in 3 – 59 months age group	50

12	Binary logistic regression model	53
13	correlation between race and nutritional status of child.	59
14	correlation between religion and nutritional status of child.	59
15	correlation between religion and race of child	60
16	correlation between birth weight and mother's highest education level	62
17	correlation between birth weight and nutritional status of child	62
18	correlation between mother's highest education and nutritional status of child	63
19	Final binary logistic regression model	64
20	Children, classified according to gender with birth intervals	67
21	Logistic regression table nutritional status with birth intervals	68

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, helminth infestation, malaria, sexually transmitted disease and other infections effecting are 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