Determinants for Birth Weight of Infant in Estate Sector: A Case Study in Pettigala Estate in Balangoda DS Division

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Abstract

Reducing child malnutrition is a key millennium development goal, as child malnutrition produces a wide and diverse range of adverse economic and social consequences. Child malnutrition is highest in the estate sector with over 43% of children underweight. The main objective of this study was to examine the determinants for birth weight of infant in estate sector. 90 households were selected from 120 households in Pettigala GN division in Balangoda. Chi-square tests and multiple regression model were used for the analysis. More than 72% of infants were born in nine months. More than 68% of pregnant mothers were employed and 54% of them had only primary education. According to the regression outputs mother's illness, education level, employment, participation for the clinic, animal products consumption and the gestation period were highly influenced the birth weight of the infant. The study concludes that more than 42 percent of infant were recorded as low birth weight in estate sector. Authority should pay attention on the matters to improve the awareness, participation for clinics and nutritious food consumption of pregnant mothers in estate sector.

Key words: Alcohol consumption, Child malnutrition, Nutritious food consumption, Underweight

Introduction

Reducing child malnutrition is a key millennium development goal, as child malnutrition produces a wide and diverse range of adverse economic and social consequences. Child malnutrition in Sri Lanka is very high. The DHS data indicate that about 29% of children of 3-59 months are moderately or severely underweight. In 2000, 29.4% of Sri Lankan children aged 0-5 years were underweight, a "high" level of prevalence, according to WHO standards.

The highest child malnutrition rates are in the Uva and Central provinces followed by North-Western, North-Central and Sabaragamuwa Provinces. Child malnutrition is highest in the estate sector with over 43% of children underweight, followed by the rural sector (27%) and the urban sector (20%) (Department of Census and Statistics 2000). Low birth weight is very important impact of malnutrition.

Low birth weight is defined by WHO as the weight of an infant at birth of less than 2 500 gram. More than 20 million infants worldwide, representing 15.5% of all births are born with low birth weight, 95.6 percent of them in developing countries (WHO 2004).

Countries with higher percentages of low birth weight infants generally have a higher percentage of women with low body mass index and a higher percentage of underweight children. To address these issues successfully, the underlying basic causes of low birth weight in developing countries such as household food security, maternal and child care, access to and quality of antenatal and other health services, sanitation and hygiene, education, gender discrimination and poverty must be included in any long-term strategies for prevention (Judith and Laura 2000). Low birth weight remains a significant public health problem in many developing countries and combating child malnutrition is of central importance to the future economic and social welfare of countries (Usha 2003)

An international comparison of child malnutrition rates relative to per capita income, based on cross-sectional data for 2002 on 113 low- and middle-income countries, shows that Sri Lanka has a significantly higher child underweight rate than would be expected on the basis of its per capita GDP (Harsha et al. 2008)

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Maternal education, marital status and nationality were all independently related to the mean birth weight and the risk of preterm birth. The mean difference in birth weight between children of mothers with basic and university education was 87 g while the effect of nationality and marital status on birth weight was relatively stable (Ilona et al. 1999)

Therefore identifying reasons for low birth weight of infant in estate sector is important. This study mainly focuses about the determinants for birth weight of infant in estate sector.

Methodology

Simple random sampling method was used. 90 household which have infant were selected from Pettigala estate in Balangoda Divisional Secretariat Division. Questionnaires were used for data collection. Chi square test was uses to identify the association between birth weight of the infant and independent variables.

Dependent Variable: Birth weight of the infant
Independent variables are mother's height, education level, diseases in pregnant season, employment, animal products consumption, Participation for clinics, gestation legth, father's education level and family income. According to chi-square analysis except father's education level and family income all other factors are highly associated with birth weight of the children.
To identify the impact of independent variables, multiple regression model was used as follows.

$y = \beta_0 + \beta_1(X1) + \beta_2(X2) + \beta_3(X3) .....$

According to the regression analysis R sq =73%.

Result and Discussion

Regression Model

The regression model explains the relationship between the birth weight of infant and selected 08 variables.

Y (Birth weight) = 2.36 + 0.013(X_1) + 0.456(X_2) + 0.098(X_3) +0.578(X_4) +0.0988(X_5) +0.086(X_6) - 0.342(X_7)

The constant value 2.14 represents that effect of birth weight when all variables are constant.

(X_1)

The regression coefficient 0.013 measures the elasticity of birth weight with respect to mother's height in pregnant season that means when mother's height increased by 1cm the weight of the infant will increase by 0.013grams.

(X_2)

This is a dummy variable. If the mother has not any deceases, the variable was given a value of 1: if mother has decease, it was given a value of 0. The regression coefficient of this variable is 0.456. This means mother who have not deceases causes to increased birth weight of infant by 0.456 grams when compares with mothers who have deceases in pregnant season.

(X_3)

Mother's education level included as a dummy variable. Then the regression coefficient of this variable is 00.098. That means secondary educated mother's infant birth weight is increased by 0.098grams compare with the birth weight of primary educated mother's infant.

(X_4)

This is a dummy variable. According to the regression coefficient it is recorded as 0.578. That means mothers who consume animal products more than twice per

Table 02: Summery of the regression analysis

Independent Variable	Coefficient	Standard error	P value
Constant	2.36	1.87	0.042
Mother's height (X_1)	0.013	0.01099	0.023
Mother's illnesses in pregnant season (X_2)	0.456	0.2467	0.036
Mother's education level (X_3)	0.098	0.054	0.002
Animal products consumption (X_4)	0.578	0.059	0.02
Participation for clinics (X_5)	0.0988	0.0934	0.045
Period stay in abdomen (X_6)	0.086	0.254	0.005
Mother's employment (X_7)	-0.342	0.132	0.03
Father's alcohol consumption (X_8)	-0.578	0.6453	0.064

week the birth weight of infant increases 0.578 grams compare with mothers who rarely consume animal products (less than twice per week).

(X_5)

The regression coefficient 0.0988 measures the elasticity of birth weight with respect to participation for clinics. That means when mother's participation for clinics increased by 1 time the weight of the infant will increase by 0.0988 grams.

(X_6)

Considering the period stay in abdomen (up to delivery), it is recorded as 0.086. That means when the period infant stay in abdomen increased by one week their birth weight increased by 0.086 grams.

(X_7)

This is a dummy variable. According to the regression coefficient it is recorded as - 0.342 That means employed mothers' birth weight of infant decreases by 0.342grams compare with unemployed mothers infant.

Considering the birth weight of the infant in estate sector these findings were very important. According to the survey, more than 72% of infants were born in nine months. More than 61% of the fathers were alcohol consumers. Considering pregnant mothers, more than 68% of them were employed and 54% of them had only primary education. According to the regression outputs mother's illness, height, education level, participation for the clinic, animal products consumption, the gestation length were positively correlated with on birth weight of infant.

Conclusion

The study concludes that more than 42 percent of infant were recorded as low birth weight in estate sector. Therefore policy makers should pay their attention to address this matter and in order to improve the awareness of the mothers' health condition, consumption pattern of the pregnant season, especially in estate sector.

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