Original Article

Effects of area of residence, education level and wealth of reproductive-aged woman on child's nutritional status: Evidence from Multiple Indicator Cluster Survey (MICS) 2011

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Objective: To find the relationship between mother's area of residence, education and household wealth on child's nutritional status.

Methodology: This cross sectional study was conducted in Punjab Province, Pakistan from May 2011 to August 2011. The data were collected through structured questionnaire from a sample of 102,545 households with an exceptional response-rate of 97 percent. Simple Linear Regression Analysis was applied with 95% confidence interval to determine the relationship between mother's education, area of residence and household wealth (independent variables) and child's nutritional status (dependent variable).

Results: There was a positive and significant relationship between all the independent variables with the dependent variable. The BMI of the child increased by changing the area of residence of mother from rural to urban, increased with the increase in the education level of mother and increased as the wealth index of the household rose.

Conclusion: There was a positive, direct relationship between the health of children and mothers' residential area, education level and family's wealth-status. (Rawal Med J 202;45:176-178).

Keywords: Child Nutritional Status, Reproductive aged mothers, BMI, socio-demographic factors.

INTRODUCTION

Malnutrition is "a state in which the physical function of an individual is impaired to the point where he or she can no longer maintain adequate bodily performance process such as growth, pregnancy, lactation, physical work and resisting and recovering from disease." Malnutrition contributes to the deaths of more than 6 million children each year. Significant variations exist in the levels of child and maternal malnutrition across rural-urban settings. In china, the children living in urban setting have better nutritional status compared to their rural counterparts. Malnutrition is the major cause of child mortality and morbidity in many developing countries across the world.[4-6]

There are many indicators and determinants of child nutritional status but the most significant is mother's education. Maternal education affects children's health and nutritional outcomes through its effect on improving women's socioeconomic status. A study reported that maternal education was a strong predictor of child stunting with some minimal attenuation of the association by other factors at maternal, household and community level.[6] In low-income countries, mother's reading skills had direct impact on the health status of the children.[6,7] BMI is the one of the most significant way of finding the nutritional status of the children under the age of 5 years. BMI level is associated with type of malnutrition. Child health and survival in Pakistan continues to be the issue of national and international concern. Pakistan has some of the highest rates of infant and child mortality, morbidity, and malnourishment in the region. Child malnutrition is considered as the key risk-factor for illness and death, contributing to more than half of the deaths of children globally. The aim of this study was to find the relationship between mother's area of residence, education and household wealth on child's nutritional status.

METHODOLOGY

The present study used the data from Multiple Indicator Cluster Survey 2011. This was a study conducted with the joint collaboration between Government of Punjab, Bureau of Statistics with technical support of UNDP and UNICEF with a sample size of 102,545 households.

The independent variable for the current study was measured by using place of residence, wealth index and level of education. The residence of the respondents was formulated in the two categories i.e. rural or urban.

The education of the respondents was divided into five categories i.e. No education, primary education, middle education, secondary education, higher education. Wealth index was categorized into five scale to i.e. poor, lower, middle, fourth and higher level of wealth index.

The dependent variable for the current study i.e. children's nutritional status was measured by using the BMI index from the MICS data by merging the weight, height and age of the children under 5.

Statistical Analysis: The confidence level for the data and interpretations was adjusted at 95%. ANOVA and linear regression analysis was used.

RESULTS

The results are presented starting from discussing socio-demographic characteristics of the respondent.

Table 1. Socio demographic characteristics of study population (N=10,023).

Variables	Frequency	Percentages
Place of residence		
Urban	3808	38
Rural	6214	62
Age of respondent		
15-29	4149	41.4
30-39	3367	3.6
40-49	2505	2505
Wealth index		
Poor	3989	39.8
Middle and rich	3988	39.6
Richest	2054	20.5
Education level		
Illiterate	6665	66.5
Primary	1343	13.4
Secondary	1343	13.4
Higher	661	6.6

In this study, 38% of the women awee urban resident while 62% of the women were rural area resident and 41.4% of the respondents belong to the age group between 15 to 29 years. 33.6% of the respondents are between the age of 30 to 39 years and in the end 25% of the respondents were between the ages of 40 to 49 years (Table 1). The ANOVA coefficients showed that the fitted model and overall significance of the model being used in the current study. The p-values indicate that all the included variables were significant.

Table 2. Regression Analysis Coefficients.

	Estimate	Std. Error	t value	Pr (>|t|)
(Intercept)	223.6242	0.014687	15226.1	0.0000
HH6 Rural	0.122372	0.011713	10.44759	0.0000
windex5 Second	0.059655	0.013916	4.286914	0.0000
windex5 Middle	0.075983	0.01474	5.154951	0.0000
windex5 Fourth	0.196851	0.016649	11.82326	0.0000
windex5 Highest	0.293121	0.020829	14.07287	0.0000
Me level Primary	0.062908	0.012899	4.876886	0.0000
Me level Middle	0.109573	0.017954	6.102939	0.0000
Me level Secondary	0.202667	0.016928	11.9725	0.0000
Me level Higher	0.330462	0.019995	16.52695	0.0000

Coefficients of the regression analysis showed a positive and significant relationship between BMI of the child and area of the residence of the women. Table 2 shows that BMI of the children increases by 0.122% on average by changing the residence from rural to urban area. BMI of child increased by 0.059% on average when wealth index increased from second to the middle category. BMI of child increased by 0.196% on average when the wealth index increases from middle to fourth category. BMI increased by 0.293% on average by increasing the wealth index from fourth to the highest category. These observations clearly indicate a positive and significant relationship between BMI and wealth of the women.

BMI of the child increased by 0.062908% on average by increasing the education of the women. BMI increased by 0.109573% on average when the education of the women increased from primary to middle. This trend continues to develop when the education of the women is increased. BMI increased by 0.202667% on average by increasing the education of the women from middle to secondary and BMI increased by 0.330462% on average when the education of the women is increased by secondary to the higher.

DISCUSSION

The findings of the study show that maternal

education is very important in determining the health and nutrition of children. These findings are similar to those found even to the adopted children. Maternal education was associated with child's nutrition status. Maternal education in Bolivia was also associated with child's health and increased level of BMI.

We found a significant relationship between mother's area of residence and child's BMI. This has been reported previously that area of residence has a clear relationship with child's nutritional status. Nutritional status of children was better in urban areas than in rural areas. This is mainly due to better information facilities available for the mothers.

Increase in the wealth has subsequently increased the nutrition of the child. This trend has also been explored by a number of studies. The wealth index of the mother is closely linked with the child's health and BMI. Household wealth has been used as an indicator of measuring child's health.

Greater household income and assets directly raise the ability to purchase sufficient quantities of nutritious foods which ultimately increase the child's health. This trend has also been observed in the current study where child's nutritional health has been found in close relationship with BMI of the child. Richer children have improved health facilities and better child's health.

CONCLUSION

BMI of children showed the tendency towards a rise as the education-level of mother rose. There was significant positive relationship between the researched elements as the residential area, wealth-status and education of mothers was directly related to children's nutrition level in the form of BMI.

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