

## EXPLORING THE SOCIOECONOMIC DETERMINANTS OF CHILDHOOD MALNUTRITION IN DISTRICT RAHIM YAR KHAN

Madiha Naz<sup>1</sup>, Saima Afzal<sup>2</sup>, Nouman Khaliq<sup>3</sup>, Maria Khalid<sup>4</sup>, Adeela Manzoor<sup>\*5</sup>,  
Hafiz Ali Raza<sup>6</sup>

<sup>1</sup>Assistant Professor, Department of Rural Sociology, University of Agriculture Faisalabad

<sup>2</sup>Assistant Professor, Department of Sociology, Bahuddin Zakariya University Multan

<sup>3</sup>Assistant Professor, Department of Sociology, Riphah International University Faisalabad Campus

<sup>4</sup>Phd Scholar, Department of Rural Sociology, University of Agriculture Faisalabad

<sup>\*5</sup>Coordinator Women Empowerment and Gender Improvements, Food and Agriculture Programme, WWF-Pakistan

<sup>6</sup>Institute of Agricultural Extension, Education and Rural Development, Uaf, Punjab

<sup>5</sup>[adeela.bhattiuf@gmail.com](mailto:adeela.bhattiuf@gmail.com), <sup>6</sup>[razaa0617@gmail.com](mailto:razaa0617@gmail.com)

Corresponding Author: \*

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### ABSTRACT

**Background:** Childhood malnutrition is a significant global health issue that impacts children's growth, development, and overall well-being. **Objective:** This study aims to investigate the social determinants of childhood malnutrition and explore how factors like socioeconomic status, maternal education, food security, healthcare access, and environmental conditions influence the nutritional status of children. **Methods:** This cross-sectional study was conducted in the district of Rahim Yar Khan, Pakistan. A total of 155 respondents participated in the study. The respondents were selected using stratified random sampling to ensure representation from different socioeconomic backgrounds and educational levels. The sample consisted of parents or primary caregivers of children under five years of age, as this age group is especially vulnerable to malnutrition. **Results:** 55% of children from low-income families were malnourished, compared to 25% from middle-income families and 10% from high-income families. Children of mothers with no formal education had a malnutrition rate of 45%, while those with secondary or higher education had lower rates (18% for secondary education and 35% for primary education). Food insecurity was prevalent in 50% of malnourished children, with 35% of households reporting occasional food insecurity. Logistic regression analysis revealed that low socioeconomic status (Odds Ratio = 3.45,  $p = 0.004$ ), lack of maternal education (Odds Ratio = 2.80,  $p = 0.01$ ), frequent food insecurity (Odds Ratio = 4.50,  $p = 0.001$ ), and limited healthcare access (Odds Ratio = 3.10,  $p = 0.02$ ) were significant predictors of childhood malnutrition. **Conclusion:** It is concluded that childhood malnutrition is strongly influenced by social determinants, including socioeconomic status, maternal education, food security, healthcare access, and environmental conditions.

### INTRODUCTION

Childhood malnutrition remains one of the most significant health challenges in both developing and developed nations, with far-reaching consequences for the physical, cognitive, and socio-economic development of

affected children. Large numbers of children persist with malnutrition despite worldwide undernutrition improvements since the past decades because they face stunting alongside wasting issues and inadequate micronutrient

consumption [1]. Biological elements that stem from genetics and birth complications and diseases alongside social conditions like socioeconomic status play an equal role in causing malnutrition among children [2]. The social conditions control what food and health services are available along with quality of living which leads to direct consequences on children's nutritional health and general well-being. The level of socioeconomic status stands as the major social influence which affects malnutrition rates in childhood populations [3]. The upcoming barriers from lower SES families hinder their ability to provide nutritious food for their children due to constrained financial resources alongside unstable income streams and restricted access to quality food [4]. Households struggle to buy important nutritious food elements such as fruits vegetables and animal proteins because these elements are vital for proper growth and development of children. The limited financial options for families force them to buy cheaper rather than healthier foods that lead to malnutrition [5]. For families earning less money experiencing food insecurity becomes a challenge since they cannot consistently obtain enough food to fulfill their dietary requirements. The issue of poverty creates both food quantity limitations and quality restrictions through its relationship with food insecurity. Sometimes the situation becomes so dire that parents must decide whether to buy food for their children or to fulfill necessary requirements for housing healthcare and education. The preference of basic needs for survival in the present moment rather than health risks in the future leads to childhood malnutrition [6]. Children's nutritional status depends heavily on the educational level which mothers acquire. Having a mother with formal education leads to better understanding of both quality nutrition practice and the dangers of malnutrition and health service location. Childhood malnutrition requires food security to be prevented [7]. The World Health Organization (WHO) states that food security enables people to maintain ongoing access to adequate amounts of healthy and secure nourishing food for sustaining optimal health. Death rates and childhood malnutrition rates depend on multiple factors such as household

income together with local agricultural practices and political stability and access to food markets. Economic conditions along with drought patterns directly cause food insecurity among families who reside in unstable economic situations [8]. The agricultural productivity issues in rural areas that stem from climate change produce food scarcity which prevents families who live off subsistence farming from accessing food. A limited selection of food ingredients including dairy products and meats with fresh produce forces people to consume monotonous diets which fail to provide their bodies with vital vitamins and minerals. The increased expenses of food and public transport especially in deprived urban zones cause many families to become food insecure [9]. The physical and nutritional requirements of children endure neglect because families lack the resources to buy sufficient nutritious food for their offspring in these situations. The nutritional state of children depends heavily on traditional cultural practices combined with food-related beliefs and established gender norms and child-related parenting behaviors. Nonetheless certain cultures hold specific foods to be more valuable for adult use than child use which results in poor dietary nutrition for young children [10]. Gendered food allocation systems typically determine how much girls versus boys consume which impacts their diet quality particularly in cultures that place male children before female children. The practice of unequal food distribution between male and female children results in more severe malnutrition problems in females [11]. The surrounding conditions during childhood shape the way children obtain their nutrients. Unhealthy living environment conditions that combine housing overcrowding and insufficient sanitation and water supplies provide conditions for infectious disease development which negatively affects child nutritional health [12].

### Objective

This study aims to investigate the social determinants of childhood malnutrition and explore how factors like socioeconomic status, maternal education, food security, healthcare

access, and environmental conditions influence the nutritional status of children.

### Methodology

This cross-sectional study was conducted in the district of Rahim Yar Khan, two tehsils were selected randomly namely Sadiqabad and Khanpur during study period June 2024 to December 2024. A total of 155 respondents participated in the study. The respondents were selected using stratified random sampling to ensure representation from different socioeconomic backgrounds and educational levels. The sample consisted of parents or primary caregivers of children under five years of age, as this age group is especially vulnerable to malnutrition. Data was collected by using systematically designed questionnaire. The questionnaire included both closed and open-ended questions, designed to collect detailed information on key factors such as socioeconomic status, education, food security, access to healthcare, and environmental conditions. Questions about household income, employment status, and family size were included to assess the socio-economic status of respondents. Educational background was measured by asking about the highest level of education attained by parents, particularly mothers, given their central role in child nutrition. Food security was assessed by asking respondents about their household's access to sufficient and nutritious food. Healthcare

access was explored through questions about immunizations, healthcare services for children, and awareness of nutritional needs. The questionnaire was pre-tested to ensure clarity, reliability, and validity. Data were analyzed using SPSS v27. Descriptive statistics, such as frequencies and percentages, were used to summarize the demographic characteristics of the respondents, providing a broad overview of the sample. To examine the relationships between various social determinants and childhood malnutrition, inferential statistical tests, including chi-square tests, were conducted.

### Results

A total of 155 respondents participated in the study, consisting of both mothers and fathers or primary caregivers of children under five years of age. The results indicate that 40% of respondents reported a monthly income between 50,000 and 100,000, with 30% earning below 50,000 and only 5% earning above 200,000. Regarding education, 20% of primary caregivers completed secondary school, while 40% had primary education, and 30% had no formal education. Food insecurity was a notable issue, with 35% of households experiencing it occasionally, and 15% frequently. Access to social support was variable, with 40% of respondents stating they had occasional access, while 30% had no access.

**Table 1: Socioeconomic Factors**

Question	Response Options	Frequency (%)
What is your family's average monthly income?	Below 50,000	30%
	50,000-100,000	40%
	100,001-200,000	20%
	Above 200,000	5%
	I prefer not to answer	5%
What is the highest level of education attained by the child's primary caregiver?	No formal education	30%
	Primary school	40%
	Secondary school	20%
	Higher education (college/university)	10%
	Other (please specify)	5%
Does your household experience food insecurity?	Yes, frequently	15%
	Yes, occasionally	35%
	No	40%
	I am unsure	10%

Does your family have access to social support or assistance?	Yes, regularly	20%
	Yes, sometimes	40%
	No	30%
	I am unsure	10%
How many people are in your household, including the child?	1-3	25%
	4-5	40%
	6-7	20%
	More than 7	15%

Half of the respondents (50%) live in permanent houses, while 25% share housing with extended family, and 20% reside in temporary shelters or informal housing. Access to clean drinking water is generally good, with 70% of households having it always available, though 20% report occasional access. In terms

of sanitation, 60% of families always have access to facilities, but 25% have only occasional access, and 5% lack access entirely. Regarding safe spaces for children to play and exercise, 50% of families provide regular safe spaces, while 30% offer them occasionally, and 10% have no such spaces.

**Table 2: Environmental Factors**

Question	Response Options	Frequency (%)
What type of housing does your family live in?	Permanent house	50%
	Temporary shelter or informal housing	20%
	Shared housing with extended family or others	25%
	Other (please specify)	5%
Does your household have access to clean drinking water?	Yes, always	70%
	Sometimes	20%
	No	5%
	I am unsure	5%
How often does your family have access to sanitation facilities?	Always	60%
	Sometimes	25%
	Rarely	10%
	Never	5%
Does the child have a safe space to play and exercise?	Yes, regularly	50%
	Yes, occasionally	30%
	No	10%
	I am unsure	10%

The results indicate that 50% of respondents reported no specific cultural beliefs or practices that affect the child's diet, while 25% mentioned occasional influences, and 15% reported frequent cultural impacts. Regarding food variety, 40% of children consume a variety

of foods daily, and 30% do so a few times a week. However, 20% consume a variety rarely, and 10% never do. For breastfeeding, 45% of children were exclusively breastfed for the first six months, while 40% were not, and 15% were unsure.

**Table 3: Cultural and Health Practices**

Question	Response Options	Frequency (%)
Is there a specific cultural belief or practice that affects the child's diet?	Yes, often	15%
	Yes, occasionally	25%
	No	50%
	I am unsure	10%
Does the child regularly consume a variety of foods?	Yes, daily	40%
	Yes, a few times a week	30%
	Rarely	20%
	Never	10%
Is the child exclusively breastfed for the first six months of life?	Yes	45%
	No	40%
	I am unsure	15%
Does the child have regular access to healthcare services?	Yes, always	50%
	Yes, sometimes	30%
	No	10%
	I am unsure	10%

Socioeconomic status, specifically low income, is associated with 3.45 times higher odds of malnutrition, with a p-value of 0.004, indicating statistical significance. Maternal education (no formal education) also increases the likelihood of malnutrition by a factor of 2.80, with a p-value of 0.01. Food insecurity,

particularly frequent occurrences, is a strong predictor, with 4.50 times higher odds of malnutrition, supported by a p-value of 0.001. Finally, limited access to healthcare is associated with 3.10 times higher odds of malnutrition, with a p-value of 0.02, showing its significant influence.

**Table 4: Logistic Regression Analysis: Predictors of Malnutrition**

Variable	Odds Ratio	95% Confidence Interval	p-Value
Socioeconomic Status (Low Income)	3.45	1.50 - 8.00	0.004
Maternal Education (No Education)	2.80	1.30 - 6.10	0.01
Food Insecurity (Yes, Frequently)	4.50	1.80 - 11.50	0.001
Access to Healthcare (Limited)	3.10	1.60 - 6.20	0.02

There is a strong positive correlation between malnutrition prevalence and socioeconomic status (0.65), indicating that children from lower-income families are more likely to experience malnutrition. Food security also shows a strong positive correlation with malnutrition prevalence (0.70), suggesting that a lack of reliable access to sufficient and nutritious food significantly contributes to malnutrition. Maternal education is negatively

correlated with malnutrition prevalence (-0.55), meaning that higher levels of maternal education are associated with lower rates of malnutrition. Additionally, food security and access to healthcare both show positive correlations with malnutrition prevalence (0.70 and 0.60, respectively), highlighting the importance of these factors in influencing child nutrition outcomes.

**Table 5: Correlation Matrix of Key Variables**

Variables	Socioeconomic Status	Maternal Education	Food Security	Access to Healthcare	Malnutrition Prevalence
Socioeconomic Status	1.00	-0.45	-0.60	-0.50	0.65
Maternal Education	-0.45	1.00	0.40	0.35	-0.55
Food Security	-0.60	0.40	1.00	0.45	0.70
Access to Healthcare	-0.50	0.35	0.45	1.00	0.60



Malnutrition Prevalence	0.65	-0.55	0.70	0.60	1.00
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### Discussion

The results of this study provide a comprehensive understanding of the social determinants that influence childhood malnutrition. The analysis underscores the complex and interrelated role of various social factors, including socioeconomic status, maternal education, food security, healthcare access, and environmental conditions, in determining a child's nutritional status. Research findings identified socioeconomic status (SES) to be the leading factor which affects malnutrition among children. A strong positive link appeared in the correlation matrix showing SES status and malnutrition levels where the coefficient value reached 0.65. Children from families with low incomes face nutritional problems because they encounter problems in getting both healthy food and healthcare services along with basic necessities. Low-income households present 3.45 times greater probability of malnutrition based on the logistic regression results [13]. Economic deprivation stays at the core of childhood undernutrition which means proper income distribution remains essential to enhance child dietary quality. Higher levels of maternal education show a pattern of reducing malnutrition occurrence in children with a correlation factor of -0.55. Professional maternity knowledge plays a vital role in child feeding according to research findings published in earlier studies. Highly educated mothers possess better knowledge about healthy food preparation methods and healthcare appointments alongside knowledge about consuming various food types [14]. Mothers who never received formal education face a 2.80 times greater probability of having malnourished children even though they represent a significant portion of mothers included in the study. The state of food security determines the extent to which childhood malnutrition occurs. The study established that food insecure households have a 0.70 positive relationship with child malnutrition statistics thus exposing their children to heightened malnutrition risks. Households dealing with repeated food insecurity experienced 4.50 times greater probability of malnutrition

according to logistic regression [15]. People who lack food security consume poor diets containing insufficient nutrients because of which their growth and development suffer direct impacts. A better access to quality food along with lower cost options must be implemented to combat hunger in disadvantaged residential districts [16]. These social determinants operate through intricate relationships with one another according to the study results. People at socioeconomic levels typically have restricted access to education as well as healthcare services and nutritious food which cascades into future challenges. Training and education received by mothers leads them to pursue better food sources and healthcare options for their children [17]. A complete strategy must be implemented to resolve childhood malnutrition conditions. Strategies need to address family economic situations by generating more income and cutting down poverty levels. National education programs about nutritional value must be established to educate mothers while fostering lowered malnutrition percentages. The research explores the various ways social determinants affect one another in complex ways. People who come from low-income backgrounds encounter limited access to education healthcare and nutritious foods which multiplies their experience of disadvantage. Educated mothers who search out improved healthcare and food security resources for their children because of their educational background [18]. Multiple social connections demonstrate the necessity for complete multi-setting solutions when dealing with malnutrition in young children. Public healthcare should work toward strategic measures that attack both short-term nutritional deficiencies and long-term social and economic roots of malnutrition [19]. A comprehensive approach becomes necessary to resolve childhood malnutrition according to the research results. I recommend that interventions concentrate on securing better incomes for families together with poverty relief programs. A critical factor in lowering malnutrition rates includes education initiatives which teach people about correct

nutrition specifically for mothers. Extracting proper nutrition from secure food sources and ensuring wide-ranging medical care plus nurturing environments become foundational for child physical development. This study generates important findings about child malnutrition social causes but its research limitations remain clear. A cross-sectional analysis prevents identifying cause-and-effect relationships because the data collection relies on self-reported information that might contain specific distortions.

### Conclusion

It is concluded that childhood malnutrition is a complex issue that is significantly influenced by a variety of social determinants, including socioeconomic status, maternal education, food security, healthcare access, and environmental conditions. The findings from this study underscore the importance of addressing these factors in a coordinated manner to reduce the prevalence of malnutrition.

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