Association of Maternal Mental Health and Child Nutritional Status: A Study in Kohalpur Municipality of Banke

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Abstract

The main objective of this study is to identify the existing antenatal, natal and post-natal care practices among mothers, their socio-economic and demographic status and the knowledge of respondent on maternal and child health care. The research was based on descriptive survey research design. It covers 200 married women (100 from Tharu community and 100 from non-Tharu community) as a sample. The sample was taken with multistage simple random sampling method. Data were collected from the 15-49 years of mothers who have at least one child under the age of five years at the time of survey. Survey was conducted in the selected household. Most part of this study has covered the main components of maternal health care practices to find out the status. The relationship between maternal health care and socio-economic and demographic variables were examined by using tabulation. More than one-third of the respondent went for checkup during their pregnancy. Nearly one-third of the respondent know about their pregnancy by urine testing. All the respondents took iron tablets. All the respondent used delivery kit at their delivery. In delivery at home, also new razor blade was the main instrument for cord cutting. All of the mothers fed their infants with colostrum immediately after the baby was born. More than half of the respondent breastfeed their babies until three years. All of the respondent immunized their children. All of the respondents have supplementary food practice to the babies. All of the respondents have immunized their children. One-third of the respondents were suffered from Diarrhoea. The findings of the study show that knowledge and practices of maternal and child health care is satisfactory in this area. To improve the level of practices on maternal and child health care service, the related policies and program be implemented by government. Government should expand the maternal and child health care services. Government should promote for higher education for women, which leads a better maternal and child health care practice in society. Majority of the women were engaged in household activities. Government should most create opportunities for women in various sectors.

*Keywords***:** Maternal Mental Health, Child Nutritional Status, Kohalpur Municipality

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Introduction

Maternal mental health and child nutrition are critical aspects of public health that significantly influence the well-being of families and communities. Maternal mental health refers to a mother's psychological and emotional condition during pregnancy and after childbirth. Good mental health allows mothers to provide adequate care and nurturing for their children, while poor mental health can lead to inadequate caregiving practices and affect a child's growth and development. Globally, maternal mental health disorders, including depression and anxiety, are common, with an estimated prevalence of more than 10% among women in low- and middle-income countries (WHO, 2023).

Child malnutrition remains a pressing global issue, contributing to nearly half of all deaths in children under five years old (UNICEF, 2023). In Nepal, child malnutrition rates are alarmingly high, with 36% of children under five being stunted and 10 percent being wasted (NDHS, 2022). Malnutrition not only affects the physical health of children but also hinders cognitive development, school performance, and economic productivity later in life. The problem is even more severe in rural areas, such as Lumbini Province, where socio-economic challenges, limited healthcare access, and inadequate nutrition services persist.

Research indicates a strong link between maternal mental health and child nutritional outcomes. Poor mental health in mothers can limit their ability to care for their children, negatively impacting breastfeeding practices, meal preparation, and attention to their child's nutritional needs (Rahman et al., 2018). Studies in other LMICs have demonstrated that maternal depression is associated with higher rates of stunting and wasting in children. However, in Nepal, this relationship has been underexplored, particularly in the context of rural and underdeveloped regions like Kohalpur Municipality in Banke District.

Kohalpur Municipality represents a rural community in Lumbini Province, where poverty, limited education, and inadequate health services contribute to poor maternal and child health outcomes. While government programs and non-governmental organizations (NGOs) have made efforts to reduce child malnutrition and improve maternal health, these interventions often overlook the intersection between maternal mental health and child nutrition. This gap highlights the need for integrated approaches that address both issues simultaneously.

This study aims to fill this gap by exploring the association between maternal mental health and child nutritional status in Kohalpur Municipality. By understanding this relationship, the findings can inform policies and interventions to improve the health and well-being of mothers and children, thereby contributing to sustainable development goals in Nepal.

The WHO defines maternal mental health as "a state of well-being in which a mother realizes her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her community." The Lancet series on maternal and child undernutrition emphasized maternal depression as a significant risk factor for poor child growth and recommended integrating mental health interventions into maternal and child health programs. Impaired mental health reduces a mother's capacity to provide adequate care for her child, leading to adverse outcomes for child growth and development (Lancet, 2013).

Maternal depressive disorders, which can occur during pregnancy and the postnatal period, are prevalent in both developed and developing countries. These disorders often cause functional impairments at a time when a mother's role is vital for her infant's growth and development. Positive maternal mental health, on the other hand, is associated with improved birth outcomes and parenting practices that promote academic achievement and socio-emotional functioning in children (WHO, 2014). Despite global recognition of maternal and child health as public health priorities, the targets set by the Millennium Development Goals for reducing maternal and child mortality remain unmet in many low- and middle-income countries (LMICs). Evidence suggests that neglecting maternal mental health may contribute significantly to these shortcomings.

Globally, maternal and child health programs tend to prioritize physical health while often neglecting mental health, particularly in LMICs. To address this gap, strategies for integrating maternal mental health into broader maternal and child health agendas have been recommended. A holistic approach to maternal mental health during the perinatal period must consider its impact on infants, as the mother is typically the most critical figure in a child's early life. Mothers must be physically and emotionally capable to care for their children, supported by fathers and extended family. Addressing these challenges requires coordinated action across multiple agencies, including those within and beyond the UN system.

The interplay between maternal mental health and child nutritional outcomes is particularly relevant in contexts like Kohalpur Municipality, Banke located in Nepal's far-western region, this area faces numerous socio-economic challenges, including high rates of maternal depression and child malnutrition. Despite national efforts to improve maternal and child health, many families in this region continue to experience inadequate healthcare services, limited mental health support, and poor nutritional outcomes. These local challenges mirror global trends, underscoring the need for integrated programs addressing both maternal mental health and child nutrition. Given the intricate connection between maternal mental health and child nutrition, a comprehensive and integrated approach to care is essential. By addressing these issues simultaneously, policymakers and healthcare providers can create more effective interventions to improve both maternal well-being and child growth outcomes. This study seeks to explore the relationship between maternal mental health and child nutritional status in Kohalpur Municipality, Banke, contributing to the evidence base for targeted public health interventions in similar contexts.

Maternal mental health refers to a mother's emotional and psychological well-being, which influences her thoughts, feelings, and behaviour. It plays a critical role in the health and development of children. However, this issue is often overlooked. Globally, about one in five women experiences mental health problems, such as depression (feeling very sad) or anxiety, during pregnancy or within the first year after giving birth (WHO, 2023). When mothers struggle with mental health issues, it can affect their ability to take care of their children, reduce household productivity, and weaken their emotional connection with their children (Rahman et al., 2018).

In Nepal, child malnutrition is a major concern. Around 36% of children under five are stunted 10% are wasted (NDHS, 2022). Malnutrition not only harms children's physical growth but also affects their brain development, limiting their ability to learn and succeed in life. On the other hand, maternal mental health issues, such as postpartum depression and anxiety, are also common in Nepal, especially among women in rural and poor communities (Upadhyay et al., 2017). Despite the

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seriousness of these issues, very little research has been done in Nepal to explore how a mother's mental health affects her child's nutrition. This gap is particularly evident in Lumbini Province, one of the most underdeveloped regions in the country. Kohalpur Municipality in Banke District is a rural community where many families rely on farming. Poverty, lack of resources, and social challenges mean that many children in this area suffer from malnutrition, and mothers often face mental health struggles.

Although there are some programs to address child malnutrition and improve maternal health, these programs often work separately and fail to consider the connection between a mother's mental health and her child's nutrition. If a mother is struggling mentally, she may not be able to provide proper food or care for her child, which can worsen malnutrition.

This study aims to investigate the relationship between maternal mental health and child nutritional status in Kohalpur Municipality. Understanding this connection will help policymakers and organizations create more effective programs that address both maternal and child health together, improving the overall well-being of families in Nepal. Thus, this research problem id stated as "Association of Maternal Mental Health and Child Nutritional Status: A Study in Kohalpur Municipality, Banke District

Objectives of the Study

The general objective of this study is to evaluate the relationship between maternal mental health status and the nutritional status of children in Kohalpur Municipality. The specific objectives are as follows:

  i.   To assess the maternal mental health status.
  ii. To evaluate the nutritional status of children aged 6-59 months.
  iii. To examine the association between maternal mental health status and children's nutritional status.

Research Methodology

Study Design

A cross-sectional study was conducted to assess the association between maternal mental health and the nutritional status of children under five years in Kohalpur Municipality, Banke District. Both exposure (maternal mental health) and outcome (child nutritional status) were measured simultaneously.

Study Area

The study was conducted in Kohalpur Municipality, Banke District, Kohalpur Municipality spans predominantly in the Terai region, with its administrative center (Kohalpur) at 100 meters above sea level. The site was selected due to the absence of prior research on maternal mental health and child health outcomes in this region.

Study Population

The study population included mothers and their children (aged 6–59 months) residing in selected wards of Kohalpur Municipality.

Sample Size Determination

Using a 95% confidence level (Z = 1.96), a 15.2% prevalence of postpartum depressive symptoms (from a prior study in Dhanusha), and a 5% margin of error, the sample size was calculated as:

$$n = \frac{(Z^2 \times p \times q)}{d^2} = \frac{(1.96^2 \times 0.152 \times 0.848)}{0.05^2} \approx 198$$

Accounting for a 10% non-response rate, the final sample size was **217**.

Sampling Technique

A simple random sampling method was employed. Kohalpur Municipality was selected from Banke District's 13 local levels. Among its four health institutions managing severe acute malnutrition (SAM), two wards were randomly chosen via lottery. Eligible mothers with under-five children were selected from Primary Health Centre (PHC)/Outreach Clinic (ORC) registers.

Data Sources

Primary data were collected through:

- Face-to-face interviews with mothers using structured questionnaires.
- Anthropometric measurements (height, weight, mid-upper arm circumference [MUAC]) to assess child nutritional status.
- Literature review for contextual understanding.

Data Collection Tools

1. Self-Reporting Questionnaire-20 (SRQ-20): Assessed maternal mental health (depression, anxiety, psychosomatic symptoms) via 20 binaries (yes/no) items.
2. Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Evaluated positive mental well-being using 14 Likert-scale items (range: 14–70; higher scores indicate better mental health).
3. Anthropometric Indicators:
   - Stunting (height-for-age): Z-score < -2 SD (moderate), < -3 SD (severe).
   - Wasting (weight-for-height): Z-score < -2 SD (moderate), < -3 SD (severe).
   - Underweight (weight-for-age): Z-score < -2 SD (moderate), < -3 SD (severe).
   - Overweight (weight-for-height): Z-score $> +2$ SD.

Ethical Considerations

Ethical approval was obtained from Tikapur Multiple Campus and Kohalpur Municipality. Written informed consent was secured, emphasizing voluntary participation and confidentiality.

Data Collection Procedure

Trained enumerators conducted household interviews and anthropometric assessments. Child length/height (supine for <24 months; standing for ≥24 months), weight, and MUAC were measured following WHO protocols.

Data Analysis

Data were analyzed using SPSS, employing descriptive and inferential statistics to examine associations between maternal mental health and child nutritional outcomes.

Data Analysis and Interpretation

1. Descriptive Analysis:

The descriptive analysis section provides a summary of the background characteristics of the study participants. It describes the demographic, socio-economic, maternal, and child health-related variables using statistical summaries such as frequency, percentage, mean, and standard deviation.

Key variables analyzed in this section include:

- Maternal characteristics: Age, education level, marital status, occupation, household income, and household size.

- Child characteristics: Age, sex, birth weight, immunization status, breastfeeding practices, and nutritional status (stunting, wasting, and underweight).

- Maternal mental health: Assessed using the Self-Reporting Questionnaire (SRQ-20) recommended by the World Health Organization (WHO).

The descriptive statistics help in understanding the general profile of the study population and provide context for further analysis.

2. Analysis of Association:

This section focuses on examining the relationship between maternal mental health and the nutritional status of children under five. Inferential statistical methods are used to determine whether the observed relationships are statistically significant.

Common methods applied include:

- **Chi-square test**: To assess the association between categorical variables.

- **P-value**: To determine statistical significance (p-value < 0.05 is considered significant).

- **Cross-tabulation**: To compare variables and observe patterns or trends.

Description of Socio-demographic Factors

The socio-demographic characteristics of the study population provide important context for understanding the broader environment in which child nutrition and health are influenced. Factors such as age, ethnicity, education, occupation, income, and family structure can significantly affect caregiving practices, access to resources, and overall household well-being. Analyzing these variables helps identify potential disparities and vulnerabilities that may contribute to malnutrition or other health outcomes among children.

Table 1

Respondent and household characteristics

Characteristics	Frequency (n=203)	Percentage (%)
Age of the respondent (mother) in years		
19-29	151	74.4%
30-39	52	25.6%
Mean ± SD	26.19±4.422	
Ethnicity of the respondent		
Dalit	42	20.7%
Jana Jati	89	43.8%
Brahmin/Chhetri	72	35.5%
Religion of the respondent		
Hindu	203	100%
Family type of the respondent		
Nuclear	106	52.2%
Joint/extended	97	47.8%
Education of the respondent		
Primary	72	35.5%
Secondary	86	42.4%
higher secondary/Above	45	22.2%
Husband education level		
Primary	43	21.2%
Secondary	90	44.3%
higher secondary/Above	70	34.5%
Occupation of the respondent		
Job	35	17.2%
Agriculture	138	68%
Business	30	14.8%
Occupation of the husband		
Job	50	24.6%
Agriculture	27	13.3%
Business	32	15.8%
Foreign employment	94	46.3%
Monthly income of the family		
Less than fifty thousand	190	93.6%
More than fifty thousand	13	6.4%
Residence of the respondent		
Rural	70	34.5%
Urban	133	65.5%

The mean age of the respondent was 26.19 years. Majority (74.4%) of the respondent were between 19-29 years and 25.6 percent of respondent were between 30-39 years. All the respondent of

the study followed Hindu religion. Twenty-one percent of the respondent were Dalit. About 44 percent of the respondent were Janajati and 35 percent were Brahmin/Chhetri. About 52 percent of respondent lived in the nuclear family followed by 47 percent in joint/extended family. Nearly 36 percent of the respondent were primary level of education and 42 percent of the mother were secondary level of education followed by 22 percent higher secondary. Regarding husband education,21 percent were primary level of education,44 percent were secondary and 35 percent were higher secondary level of education.

Majority (68%) respondents were engaging in agriculture occupation, around 17 percent were work on government /non-government institution and nearly 15 percent were engaged in business activities. Forty-six percent of the husband were work in foreign employment, 25 percent were work on government /non-government institution ,13 percent were engaging in agriculture occupation and around 16 percent were engaged in business activities.

Lastly, Majority (96%) had monthly income less than NRs 50000 followed by (4%) had more than NRs 50000.

Description of Child Physical Characteristics

Children's health and development are shaped by various physical and biological factors, including birth weight, presence of illnesses, and family size. Understanding these characteristics is essential for assessing nutritional status, as conditions like low birth weight, frequent infections, or sleep disturbances may directly or indirectly impact growth patterns.

Table 2

Children Characteristics

Child Characteristics	Frequency (n=203)	Percentage (%)
Total child of the respondent		
less than two	159	78.3%
More than two	44	21.7%
Total infant > six month		
No	180	88.7%
One	23	11.3%
Total school going child of the respondent		
Less than two	188	92.6%
More than two	15	7.4%
Sleep disturbance		
No	155	76.4%
Yes	48	23.6%
Headache		
No	174	85.7%
Yes	29	14.3%
Gastro intestinal problems		
No	171	84.2%
Yes	32	15.5%
Respiratory infection		
No	139	68.5%
Yes	64	31.5%
Birth weight of last child		
<2500gm	26	12.8%
>2500gm	177	87.2%

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More than two third (78.3%) respondent had less than two children. Around 90 percent of the respondent don't have infant below six months of age. Regarding schooling total respondent children more than 90 percent had less than two child going school. Moreover, the respondent sleep disturbance was 24 percent About fourteen percent respondent had a history of headache. Majority (84.2%) respondent do not have any gastrointestinal problem. Around 69 percent of the respondent had the history of respiratory infection. The last birth weight of respondent more than 2500 gram was 87.2 percent.

Prevalence of Undernutrition

Undernutrition, manifested as stunting, wasting, or underweight, is a critical indicator of child health and development. Stunting reflects chronic malnutrition, wasting indicates acute malnutrition, and underweight suggests overall nutritional deficiency. Measuring the prevalence of these conditions helps evaluate the severity of malnutrition in the population and identifies priority areas for intervention.

Prevalence of Common Mental Disorder

Maternal mental health plays a significant role in child care and nutrition. Common mental disorders (CMD), such as anxiety and depression, can affect a mother's ability to provide adequate care, nutrition, and emotional support to her children. Assessing the prevalence of CMD helps determine its potential impact on child health and highlights the need for integrated mental health and nutrition interventions.

Analysis of Association

Association between sociodemographic characteristics and height for age

Sociodemographic factors such as ethnicity, parental education, occupation, and residence may influence child growth patterns. Analyzing their association with stunting helps identify structural and socioeconomic determinants of chronic malnutrition. This understanding can guide targeted policies to address disparities in child growth outcomes.

Table 3

Association between sociodemographic characteristics and height for age (stunting) of respondents

Variables	Stunting		P-Value
	Normal	**Stunted**	
Age of the mother			0.432
19-29	66 (43.7%)	85 (56.3%)	
30-39	26 (50%)	26 (50%)	
Ethnicity			
Dalit	28 (30.4%)	14 (12.6%)	0.004*
Jana Jati	32 (34.8%)	57 (51.4%)	
Brahmin/Chhetri	32 (34.8%)	40 (36%)	
Family type			0.786
Nuclear	49 (46.2%)	57 (53.8%)	
Joint/extended	43 (44.3%)	54 (55.7%)	
Mother education			0.716
Primary	30 (41.7%)	42 (58.3%)	
Secondary	40 (46.5%)	46 (53.5%)	

Higher Secondary/Above	22 (48.9%)	23 (51.1%)	
Husband Education			0.414
Primary	16 (37.2%)	27 (62.8%)	
Secondary	41 (45.6%)	49 (54.4%)	
Higher Secondary/Above	35 (50%)	35 (50%)	
Mother Occupation			0.691
Job	18 (51.4%)	17 (48.6%)	
Agriculture	60 (43.5%)	78 (56.5%)	
Business	14 (46.7%)	16 (53.3%)	
Husband Occupation			0.002*
Job	31 (62%)	19 (38%)	
Agriculture	12 (44.4%)	15 (55.6%)	
Business	19 (59.4%)	13 (40.6%)	
Foreign Employment	30 (31.9%)	64 (68.1%)	
Residence			0.014*
Rural	52 (5%)	81 (73%)	
Urban	40 (43.5%)	30 (27%)	
Income			
<50k	3 (32.1%)	10 (76.9 %)	0.096
>50k	89 (46.8%)	`101 (53.2%)	

Table 3 examines the association between sociodemographic factors and stunting (height-for-age) in children. There was signification association of stunting with ethnicity, husband occupation and residence (p- value <0.05). The analysis reveals three statistically significant relationships (p<0.05). First, ethnicity showed strong association (p=0.004), with Jana Jati children having the highest stunting rate (51.4%) compared to Brahmin/Chhetri (36%) and Dalit (12.6%). Second, father's occupation significantly impacted stunting (p=0.002), where children of foreign-employed fathers had the highest stunting prevalence (68.1%) compared to those with job-holding (38%), business-owning (40.6%), or agriculture-working fathers (55.6%). Third, residence was significant (p=0.014), with rural children experiencing much higher stunting rates (73%) than urban children (27%). Notably, mother's age, education, occupation, and family income showed no significant association with stunting. These findings suggest that paternal employment (particularly foreign migration), ethnic background, and rural living environment may be key determinants of chronic malnutrition in this population, while maternal factors appear less influential on stunting outcomes.

Association between Children Characteristics and Height for Age

Child-specific factors, including birth weight, illness history, and maternal mental health, may contribute to stunting. Investigating these associations helps determine whether immediate health conditions or caregiving challenges play a role in impaired growth, enabling more precise interventions.

Table 4

Association between Children characteristics and height for age (stunting) of respondents

Variables	Normal	Stunted	P Value
Sleep disturbance			0.803
No	71 (45.8%)	84 (54.2%	
Yes	21 (43.8%)	27 (56.3%)	
Headache			0.095
No	83 (47.7%)	91 (52.3%)	
Yes	9 (31%)	20 (69%)	
Gastro Intestinal Problem			0.333
No	80 (46.8%)	91 (53.2%)	
Yes	12 (37.5%)	20 (62.5%)	
Respiratory Infection			0.068
No	69 (49.6%)	70 (50.4%)	
Yes	23 (35.9%)	41 (64.1%)	
Birth Weight			0.110
<2500gm	8 (30.8%)	18 (69.2%)	
>2500gm	84 (47.5%)	93 (52.5%)	
CMD	normal	Stunted	p value
SRQ≤7(Good)	62 (50.8%)	60 (49.2%)	0.053
SRQ≥8(Poor)	30 (37%)	51 (63%)	

Table 4 analyzes the relationship between children's health characteristics and stunting prevalence. There was no signification association of stunting with Children characteristics (p- value <0.05). The results show no statistically significant associations (p>0.05) between stunting and any of the examined child health factors, though several trends approach significance. Children with reported headaches showed higher stunting rates (69% vs 52.3% without headaches, p=0.095), as did those with respiratory infections (64.1% vs 50.4%, p=0.068). Low birth weight infants (<2500g) had notably higher stunting prevalence (69.2%) compared to normal birth weight infants (52.5%, p=0.110). Maternal common mental disorders (CMD) showed a borderline association (p=0.053), with children of mothers having poor mental health (SRQ≥8) displaying higher stunting rates (63%) compared to those with mentally healthy mothers (49.2%). While none reached statistical significance, these patterns suggest potential relationships between childhood illnesses, birth weight, maternal mental health, and stunting that may warrant further investigation with larger sample sizes.

Association between Sociodemographic Characteristics and Weight for Height

Wasting, an indicator of acute malnutrition, may be influenced by household factors such as income, parental education, and occupation. Exploring these relationships helps identify whether socioeconomic conditions contribute to short-term nutritional deficits in children.

Table 5

Association between sociodemographic characteristics and weight for height (wasting)

Variables	Wasting Normal	Wasted	P-Value
Age of the mother			0.121
19-29	145 (96%)	6 (4%)	
30-39	47 (90.4%)	5 (9.6%)	
Ethnicity			0.139
Dalit	41 (21.4%)	1 (9.1%)	
Jana Jati	81 (42.2%)	8 (72.7%)	
Baramin/Chhetri	70 (36,5%)	2 (18.2%)	
Family Type			
Nuclear	103 (97.2%)	3 (2.8%)	0.089
Joint/Extended	89 (91.8%)	8 (8.2%)	
Mother Education			0.150
Primary	66 (91.7%)	6 (8.3 %)	
Secondary	81 (94.2%)	5 (5.8%)	
Higher Secondary/Above	45 (100%)	0 (0%)	
Husband Education			
Primary	38 (88.4%)	5 (11.6%)	0.067
Secondary	85 (94.4%)	5 (5.6%)	
Higher Secondary/Above	69 (98.6%)	1 (1.4%)	
Mother Occupation			0.216
Job	34 (97.1%)	1 (2.9%)	
Agriculture	128 (92.8%)	10 (7.2%)	
Business	30 (100%)	0 (0%)	
Husband Occupation			0.081
Job	48 (96%)	2 (4%)	
Agriculture	27 (100%)	0 (0%)	
Business	32 (100%)	0 (0%)	
Foreign Employment	85 (90.4%)	9 (9.6%)	
Residence			0.242
Rural	68 (35.5%)	2 (18.2 %)	
Urban	124 (64.6%)	9 (81.8%)	
Income			0.708
<50k	180 (94.7%)	10 (5.3%)	
>50k	12 (92.3%)	1 (7.7%)	

Table 5 examines the relationship between sociodemographic factors and wasting (weight-for-height) in children. There was no signification association of wasting with sociodemographic characteristics (p- value <0.05). The analysis found no statistically significant associations (p>0.05) between wasting and any of the examined sociodemographic variables, though several notable trends

emerged. Older mothers (30-39 years) had a higher percentage of wasted children (9.6%) compared to younger mothers (4%, p=0.121). Children from joint/extended families showed higher wasting rates (8.2%) than nuclear families (2.8%, p=0.089). Education levels appeared protective, with no wasting observed among children of mothers with higher secondary education or above, compared to 8.3% wasting in those with primary-educated mothers (p=0.150). The husband's foreign employment was associated with the highest wasting rate (9.6%), while no wasting cases appeared in families where husbands worked in agriculture or business (p=0.081). Although these patterns suggest potential influences of family structure, parental education, and paternal occupation on acute malnutrition, the lack of statistical significance indicates these factors may not be strong independent predictors of wasting in this population. The findings highlight the need for further research with larger samples to better understand determinants of wasting.

Association between Children Characteristics and Weight for Height

Acute malnutrition can be linked to immediate health factors such as infections, birth weight, and feeding practices. Assessing these associations helps determine whether biological or environmental factors are driving wasting, informing emergency and preventive nutrition strategies.

Table 6

Association between Children characteristics and weight for height (wasting)

Variables	Wasting		P-Value
	Normal	Wasted	
Total Child			0.772
Less than two	150 (94.3%)	9 (5.7%)	
More than two	42 (95.5%)	2 (4.5%)	
Total Infant<6month			
No	171 (89.1%)	9 (81.8%)	0.461
One	21 (10.9%)	2 (18.2%)	
Total School Child			0.824
Less than two	178 (94.7%)	10 (5.3%)	
More than two	14 (93.3%)	1 (6.7%)	
Sleep Disturbance			
No	148 (85.5%)	7 (8.4%)	0.307
Yes	44 (91.7%)	4 (8.3%)	
Headache			0.206
No	166 (95.4%)	8 (4.6%)	
Yes	26 (89.7%)	3 (10.3%)	
Gastro Intestinal Problem			0.054
No	164 (95.9%)	7 (4.1%)	
Yes	28 (87.5%)	4 (12.5%)	
Respiratory Infection			0.307
No	133 (95.7%)	6 (4.3%)	
Yes	59 (92.2%)	5 (7.8%)	
Birth Weight			0.016*
<2500gm	22 (84.6%)	4 (15.4%)	
>2500gm	170 (96%)	7 (4%)	
CMD	Normal	Wasted	p value
SRQ≤7(Good)	116 (95.1%)	6 (4.9%)	0.699
SRQ≥8(Poor)	76 (93.8%)	5 (6.2%)	

Table 6 reveals that low birth weight (<2500g) is the only factor significantly associated with wasting (p=0.016), with low birth weight infants having nearly four times higher wasting prevalence (15.4%) compared to normal birth weight infants (4%). While not statistically significant, several trends emerge: children with gastrointestinal problems showed higher wasting rates (12.5% vs 4.1%, p=0.054), as did those with headaches (10.3% vs 4.6%) and respiratory infections (7.8% vs 4.3%). Surprisingly, family characteristics like number of children, infants under six months, and school-going children showed minimal variation in wasting rates. Maternal mental health (CMD) also showed no significant association with wasting. These findings highlight birth weight as the strongest predictor of acute malnutrition in this population, while suggesting that common childhood illnesses may contribute to, but don't independently determine, wasting risk. The results emphasize the importance of addressing low birth weight through prenatal interventions to prevent acute malnutrition.

Conclusion

This cross-sectional study examined the association between maternal mental health and child nutritional status (stunting, wasting, underweight) in Kohalpur Municipality. Among 203 participating mothers (response rate: 93.54%), 39.9% exhibited common mental disorders (CMD), consistent with rates in Ethiopia (39.4%) but lower than Bangladesh (49%). Variations in CMD prevalence across regions (e.g., Vietnam: 31.2%, Peru: 30%) may reflect socio-cultural and economic disparities. Child malnutrition rates were notably high, with 54.7% stunted, 5.4% wasted, and 5.6% underweight, exceeding national benchmarks. Maternal mental health, assessed via SRQ-20, significantly correlated with underweight but not stunting or wasting. Key determinants of malnutrition included parental occupation (foreign employment linked to higher stunting) and low birth weight (LBW), which increased risks of underweight (55%) and wasting, aligning with findings from Malawi and Bangladesh.

The study underscores that maternal mental health impacts child nutrition, particularly underweight, while structural factors (e.g., migration, LBW) exacerbate stunting and wasting. The high stunting prevalence (55%) signals urgent public health concerns, necessitating targeted interventions addressing both psychosocial and socioeconomic determinants of malnutrition.

Recommendations

Policy-Level Interventions

- Expand diagnostic facilities for maternal mental health and child malnutrition to primary health centers.
- Integrate school-based nutrition and mental health education into curricula.
- Strengthen universal health coverage to ensure access to micronutrient supplements (e.g., folic acid) and maternal mental health services.
- Provide in-service training for healthcare workers on malnutrition screening and maternal mental health support.

Practice-Level Actions

- Conduct community awareness campaigns on nutrition and mental health, leveraging local health facilities and private practitioners.

- Improve hospital affordability and accessibility for marginalized groups.
- Implement targeted interventions for high-risk groups (e.g., mothers of LBW infants, migrant families).

Research Priorities

- Further qualitative studies (e.g., focus groups) to explore socio-cultural barriers to maternal mental health care and nutrition.
- Investigate the role of genetic counseling and inter-caste marriage in reducing hereditary conditions like sickle cell disease (SCD) among high-risk communities.

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