RELATIONSHIP BETWEEN MATERNAL NUTRITIONAL KNOWLEDGE AND CHILDREN GROWTH UNDER 5 YEARS OF AGE IN LAKHODAIR COMMUNITY, LAHORE, PAKISTAN

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Abstract: *Nutrition knowledge is essential for the prevention of nutrition-related problems. Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning.* **Objective:** *To determine the relationship between maternal nutritional knowledge and children's growth under 5 years of age in the Lakhodair community, Lahore Pakistan.* **Methods**: *A quantitative correlational study design was used to conduct this study. The study duration was 4 months after IRB approval. This study was conducted in the Lakhodair community in Lahore, Pakistan. Study Population females (mothers) living in the Lakhodair community in Lahore, Punjab Pakistan. A simple random sampling technique was used for the selection of sample size.* **Results:** *Results revealed that all participants had breastfed their child. The majority (90%) of the participants didn't rate their knowledge so it was compromised by their attitude problems and lack of awareness regarding maternal nutritional guidelines. More than 72% have no access to the resources.68% responded that child eating habits are not average depicting mal-nutrition. P value was less than 0.05 showing the significant relation of maternal knowledge with children's growth.* **Conclusion:** *It was concluded that maternal nutritional knowledge has a positive and direct relation with the child's growth. As the mother's knowledge increases ultimately practices will be better and consequently, maternal nutritional knowledge and childcare practices will significantly impact the child's growth.*

Keywords: Knowledge, Maternal Knowledge, Child Growth, Child Care, Practices

Introduction

Nutrition knowledge is essential for the prevention of nutrition-related problems (1). Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning (2). Knowledge refers to a theoretical or practical understanding of a subject. It can be more or less formal or systematic (3). Globally, it is estimated that 250 million children under five years of age in low- and middle-income countries are at risk of failing to reach their full developmental potential due to factors such as poor nutrition, insecurity, and lack of opportunity for early learning(4). Child development has an impact on educational and professional attainment during one's life course, as it is associated with productivity and income generation in adulthood (5). Therefore, poverty is reproduced by a child's poor brain development. A mother with nutrition knowledge is more aware of the nutritional requirements during pregnancy or lactation, supplemental foods, immunization, growth monitoring, development of healthy eating habits, and personal hygiene such as brushing teeth, washing hands, daily bathing, etc. as dirt is the main cause of infectious disease transmission. She can help kids understand the value of cleanliness. Education level and knowledge of cooking have an impact on not only the meals chosen and meal patterns but also the cooking techniques, allowing for the preservation of the nutritional value of foods. According to statistics, if moms of children are well-educated and trained, many nutritional and health issues in children can be reduced. One of the many reasons why malnutrition in infants is so common is that moms often lack the necessary expertise and information related to nutrition (6). Maternal education plays a central role in children's health, but there has been little research comparing the role of maternal education across health outcomes (7). It is important to distinguish child health outcomes from medical care outcomes. Health outcomes such as short-term morbidity and stunting are multifactorial in origin and determined by a range of factors not necessarily under a mother's control (8). Mother's education, given the necessary structural factors such as medical centers, is likely to lead to increased access to, and uptake of, medical services (9). Maternal educational attainment has been identified as relevant to several child health and development outcomes (10). Mothers with a higher level of education are more likely to provide greater learning opportunities and may be better able to assess the quality of learning activities as well as make more significant investments in their children's nutrition and safety (11). Maternal low educational attainment and poverty can be the determinants of protein energy malnutrition. Restricted household states highest potential for social and economic development of physical growth problems due to consumption of bad food (12). Maternal higher education can reduce child protein-energy malnutrition by raising awareness of hygiene measures Practices and best resources Priority allocation to children. Socioeconomic development and rate of reduction in child protein energy malnutrition can provide key insights to improve Living conditions in most developing countries (13). Risk factors for wasting come from maternal factors including education,

knowledge, age, occupation, birth spacing, BMI, MUAC, and parenting style. Wasting is a condition in toddlers characterized by Weight-for-Height (WHZ) or Weight-for-Length (WLZ) scores being between -3 and less than -2 standard deviations in children aged 0-59 months. Wasting is characterized by extreme weight loss, resulting in low weight for height (14). The global nutrition target until 2030 aims to reduce the prevalence of wasting and severe wasting to below 5% by 2025 and less than 3% by 2030. Wasting is a priority in health development, aligned with the direction of the National Medium-Term Development Plan (RPJMN) 2020-2024, with a target of reducing wasting prevalence to 7% by 2024. Existing literature notices that stunting results from a complex interaction of several determinant factors such as household and family factors: poor nutrition during pre-conception, prenatal and lactation, short maternal stature, infection, intrauterine growth rate (IUGR) and preterm birth; inadequate complementary feeding, breastfeeding, water, and sanitation, socio-economic and cultural influences as stated in the conceptual framework of stunting by the World Health Organization that cause of stunted growth (15). An increase in maternal childcare knowledge may contribute significantly to a child's nutritional status in Pakistan if there is concurrent improvement in the socioeconomic circumstances of women living in deprived rural communities. Therefore, this study aims to determine the relationship between maternal nutritional knowledge and children's growth under 5 years of age in Lakhodair, a rural community in Lahore, Pakistan. Malnutrition is the major cause linked to many diseases and is a burden recognized in many developing countries including Pakistan. Women's limited nutritional knowledge and poor nutritional practices have been attributed to negative nutritional outcomes for children and their mothers. Therefore, there is a gap regarding maternal nutritional knowledge and children's growth under 5 years of age in the rural community of Pakistan. RESEARCH OBJECTIVE The research objective was to determine the relationship between maternal nutritional knowledge and children's growth under 5 years of age in the Lakhodair community, Lahore Pakistan.

Methodology

A quantitative descriptive correlational study was conducted over four months following approval from the Institutional Review Board (IRB). The study took place in the Lakhodair community in Lahore, Pakistan, and focused on mothers living in the area. A convenient sampling technique was employed to select participants, and the sample size of 150 was determined using Cochran's formula for an unknown population. The study targeted mothers of children under five years of age who were willing to participate. Exclusion criteria included mothers with psychiatric disorders, those with children older than five, and those unwilling to participate.

Ethical guidelines from the Fatima Memorial School of Health Sciences were strictly followed. Written informed consent was obtained from all participants, ensuring confidentiality and anonymity throughout the study. Participants were informed of their rights, including the freedom to withdraw at any stage without any disadvantages or risks associated with participation. The study ensured that no identifiable information was disclosed in any resulting publications. While there were no known risks, the privacy and rights of the participants were carefully protected.

Data were collected through research tools related to maternal nutritional education and child growth, with a bilingual (Urdu and English) questionnaire. The questionnaire was divided into two parts: Part One covered demographic information, while Part Two included fifteen closed-ended questions assessing maternal nutrition knowledge and its relationship to children's growth. The questionnaire was used with permission from its original source.

For data analysis, the Statistical Package for Social Sciences (SPSS) version 25.0 was utilized. Descriptive statistics, including frequencies, means, and percentages, were calculated to analyze demographic information and response rates. The relationship between mothers' knowledge of childcare practices and children's growth under five years of age in the Lakhodair community was examined using correlation coefficients. The significance level was set at less than 0.05 for statistical analysis. Based on the results, findings, conclusions, and recommendations were made.

Results

The table provides a summary of the demographic and anthropometric characteristics of children and their families. Regarding the age of the children, the majority (42.7%) are between 1.1 and 2 years old, with equal proportions of 28.7% being either under 1 year or between 2.1 and 4 years of age. In terms of gender, the sample includes slightly more females (56.7%) than males (43.3%). All the children in this study come from rural areas, with no participants from urban settings. This indicates that the study focuses on a rural population. In terms of family size, more than half of the families (52%) have 5-7 children, while 39.3% have fewer than 4 children, and 8.7% have 8-10 children, suggesting larger family structures in this community.

Looking at the mother's educational level, a significant proportion of mothers (68%) are illiterate, with only 20.7% having completed primary education and a small group (11.3%) having secondary education. This highlights a potential challenge in terms of access to education in the rural community. As for the father's occupation, nearly half (48%) are workers, while 27.3% are teachers and 24.7% are unemployed. This diverse range of employment reflects varying socioeconomic statuses in the families.

In terms of mother's occupation, the overwhelming majority (91.3%) are housewives, with only a small portion (8.7%) engaged in work outside the home. Regarding monthly income, 48.7% of the families earn above Rs. 35,000, while 36.7% earn Rs. 20,000 or less, indicating income disparities within the population.

For anthropometric measures, a substantial percentage of children (64.7%) are classified as underweight, while 34.7% fall into the average weight category and only 0.7% are overweight. Similarly, height measurements show that 78% of children are shorter than normal, with only 22% having a

normal height. Mid-arm circumference (MAC) further supports these findings, with 94% of children having below-normal values, indicating potential malnutrition issues.

Lastly, head circumference and chest circumference measures show that 80.7% and 88.7% of children, respectively, fall below normal standards, with only small proportions having normal values (19.3% for head circumference and 11.3% for chest circumference). This suggests widespread nutritional or developmental concerns in this population.

Table 1: Demographic variables:

Variables	Number (n)	Percent (%)
Age of child?		
a) < 1 year	43	28.7%
b) 1.1-2 year	64	42.7%
c) 2.1-4 year	43	28.7%
Gender of a child?		
a) Male	65	43.3%
b) Female	85	56.7%
Area:		
a) Urban	0	0%
b) Rural	150	100%
No. of children		
a) < 4 children	59	39.3 %
b) 5-7 children	78	52.0 %
c) 8-10 children	13	8.7 %
Mother's Educational Level:		
a. Illiterate	102	68.0%
b. Primary	31	20.7%
c. Secondary	17	11.3%
Father's Occupation:		
a) Worker	72	48%
b) Teacher	41	27.3%
c) Un-employed	37	24.7%
Occupation of Mother		
a) Worker	13	8.7%
b) House Wife	137	91.3%
Monthly Income		
a) Rs.20, 000	55	36.7%
b) Rs.21, 000 – 35,000Rs.	22	14.7%
c) Above 35,000Rs.	73	48.7%
Anthropometric measures: Weight:		
a) Overweight	1	0.7%
b) Underweight	97	64.7%
c) Average	52	34.7
Height:		
a) Normal	33	22%
b) Less than normal	117	78%
Mid-arm Circumference(MAC)		
a) Normal	9	6%
b) Less than normal	141	94%
Head Circumference		
a) Normal	29	19.3%
b) Less than normal	121	80.7%
Chest Circumference:		
a) Normal	17	11.3%
b)Less than normal	133	88.7%

The table presents the correlation between knowledge and several demographic variables, showing that all variables have a significant positive relationship with knowledge. Age is strongly correlated with knowledge, with a regression coefficient of 0.75 (p = 0.0001), indicating that older individuals tend to have more knowledge. This suggests that experience gained over time may contribute to greater understanding.

Education also plays a significant role in increasing knowledge, with a regression coefficient of 0.53 (p = 0.000). This highlights the critical importance of education in enhancing individuals' knowledge levels. Similarly, occupation shows a positive correlation (coefficient = 0.41, p = 0.000), suggesting that professional roles, particularly more skilled occupations, are linked to higher knowledge.

Gender shows a moderate positive correlation with knowledge (coefficient = 0.52, p = 0.004), though there is more variability in this relationship compared to other factors. The number of children is positively associated with knowledge (coefficient = 0.64, p = 0.001), implying that individuals with more children may gain knowledge through life experience and caregiving responsibilities.

The strongest correlation is observed with residence (coefficient = 0.82, p = 0.002), showing that where individuals live (urban vs. rural) significantly influences their access to knowledge, possibly due to differences in resources and opportunities. Monthly income is another significant factor (coefficient = 0.63, p = 0.001), suggesting that higher-income families have greater access to information and education, thus increasing knowledge levels.

Finally, anthropometric measures (coefficient = 0.51, p = 0.003) show a positive, though moderate, correlation with knowledge, indicating that better physical health may be linked to higher knowledge levels.

Table 2: correlation of Knowledge with different variables

variables	Regression coefficient	Standard Error	Significance
Age	0.75	0.006	0.0001
Education	0.53	0.02	0.000**
Occupation	0.41	0.014	0.000**
Gender	0.52	0.078	0.004
No. of children	0.64	0.054	0.001
Residence	0.82	0.066	0.002
Monthly income	0.63	0.017	0.001
Anthropometrics	0.51	0.07	0.003

Discussion

As per demographic variables father and mother's occupation and educational level, age and gender of participants, family income, and family status were included. Part II consisted of fifteen questions related to the mother's nutritional knowledge. As a concern for residence, all participants belonged to the rural community of Lahore.

This study revealed that maternal nutritional knowledge has a positive relation with the child's growth. Maternal

nutritional knowledge and childcare practices will significantly impact the child's growth.

With concern to the questions related to maternal knowledge, all participants had breastfed their children. The majority (90%) of the participants didn't rate their knowledge so it was compromised by their attitude problems and lack of awareness regarding maternal nutritional guidelines. More than 72% have no access to the resources.68% responded that child eating habits are not average depicting mal-nutrition.

A study with the same findings noted in a study that maternal nutritional knowledge has a direct impact on child growth (6).

Another concordance study was done and it suggests that adequate knowledge of childcare practices did not make any significant impact on child growth in poor households. This may be because adequate care requires more than knowledge. Control of resources is another essential ingredient for care, and this was amply demonstrated by our data (16).

The findings of the earlier study by Ruel et al. (1999) in Southern Ghana are directly opposite to our findings obtained from Northern Ghana. A possible explanation could be that we used the knowledge of care variable whereas the Southern Ghana study used actual care practice variable. The two variables are not the same but are related (17).

Additionally, a study having different results showed no significant relationship between maternal knowledge and child growth (18).

Conclusion

It was concluded that maternal nutritional knowledge has a positive and direct relation with the child's growth. As the mother's knowledge increases ultimately practices will be better and consequently, maternal nutritional knowledge and childcare practices will significantly impact the child's growth.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department concerned. (IRBEC-FSJAN-87223
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Conflict of interest

The authors declared the absence of a conflict of interest.

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