



Impact of mother's nutritional knowledge on nutritional status of less than 5 years children

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Abstract

The nutritional status of children under 5 years is a crucial indicator of overall population health and child survival. In Badhoi district, malnutrition among children remains a significant public health concern. This study aimed to assess the nutritional status of children under 5 and understand the impact of mothers' nutritional knowledge and food consumption on their children's well-being. The study included 400 children aged 0-5 years, and analysis revealed that mothers' age did not significantly affect their knowledge of malnutrition causes, definition, or signs and symptoms. This suggests that mothers of varying age groups have similar knowledge regarding malnutrition. When examining the dietary habits of children under 5, daily consumption of cereals and pulses was associated with improved clinical assessments in various health aspects. Fruits and vegetables consumption showed mixed associations, with both positive and negative effects on different health parameters. However, consistent positive associations were found with daily consumption of milk and milk products, which had a beneficial impact on children's health. In contrast, the consumption of meat and eggs did not exhibit significant associations with clinical assessments, suggesting that these food items may not be strongly linked to the health conditions assessed in the population studied. These findings emphasize the importance of promoting a balanced diet, particularly including milk and milk products, to improve child nutrition and overall health outcomes. However, there remains a need for further research in this area. Additionally, addressing the persistent issue of child malnutrition in Badhoi district requires the effective implementation of existing policies and interventions. This study serves as a valuable insight into the current state of child nutrition and highlights the importance of evidence-based strategies to combat malnutrition in the region.

Keywords: Malnutrition, nutritional status, food consumption, mother's nutritional knowledge

Introduction

The nutritional status of children under the age of 5 is a critical indicator of their overall health and well-being. Adequate nutrition during early childhood is essential for physical and cognitive development, immunity, and long-term health. Mothers play a pivotal role in determining the nutritional status of their young children, not only through the provision of food but also through their knowledge and awareness of proper nutrition. This introduction explores the impact of a mother's nutritional knowledge on the nutritional status of children under 5 years old, drawing insights from relevant studies. Children in the first five years of life are particularly vulnerable to malnutrition. Malnutrition in this age group can have long-lasting and detrimental effects on growth, cognitive development, and overall health. According to the World Health Organization (WHO), nearly 45% of all child deaths under the age of 5 are attributable to under-nutrition. Inadequate nutrition during this critical period can lead to stunting, wasting, and micronutrient deficiencies, all of which can have profound consequences on a child's life trajectory.

A mother's nutritional knowledge is a fundamental component of child-rearing. A well-informed mother is more likely to make informed and optimal choices regarding her child's diet, hygiene, and healthcare practices. She can understand the importance of breastfeeding, appropriate complementary feeding, and recognize signs of malnutrition or nutritional deficiencies early on. Maternal knowledge also influences household food choices, food preparation, and hygiene practices. Numerous studies have shown a strong connection between maternal nutritional knowledge

and the nutritional status of children under 5 years old. For example: a study published in the journal "Public Health Nutrition" in 2014 found that mothers with a better understanding of nutrition were more likely to provide their children with a diversified diet rich in essential nutrients. This, in turn, reduced the risk of stunting and wasting among the children. Research from the Lancet Series on Maternal and Child Under-nutrition (2008) highlighted that maternal knowledge of breastfeeding and the timely introduction of complementary foods were crucial factors in preventing malnutrition in children. A study conducted by the International Food Policy Research Institute (IFPRI) in 2017 [6] demonstrated a positive correlation between maternal nutrition knowledge and the overall health and growth of children under 5 in low-income settings.

These studies emphasize that maternal knowledge acts as a protective factor against childhood malnutrition. Empowering mothers with accurate and practical nutritional information can lead to better child nutrition outcomes. This research aims to contribute to the existing body of knowledge by examining the relationship between maternal nutritional knowledge and the nutritional status of children less than 5 years within a specific context. By assessing the impact of maternal knowledge on child nutrition, we can identify areas for targeted intervention and design effective educational programs that empower mothers to make informed nutritional choices for their children. This study will provide valuable insights into how improving maternal nutritional knowledge can be a crucial strategy in reducing childhood malnutrition and its associated health risks.

Methodology

This study aims to investigate the impact of mothers' nutritional knowledge on the nutritional status of children aged 0-5 years in Badhoi district. The subjects for this research will be selected through a simple random sampling method, with a total of 400 children included in the study.

The research design is cross-sectional and descriptive, focusing on the prevalent conditions within the population. To assess the nutrient intake of the children, the 24-hour dietary recall method will be employed over a period of three days. The collected information will be compared against the Indian Council of Medical Research Recommended Dietary Allowances (ICMR RDA) from 2020. Statistical analysis will be conducted using frequency and percentage calculations, as well as chi-square analysis, to identify any statistically significant differences between groups. This comprehensive methodology ensures a rigorous and systematic approach to understanding the relationship between mothers' nutritional knowledge and the

nutritional status of children less than 5 years in the specified population.

Results and discussion

The research encompassed a cohort of 400 children ranging from 0 to 5 years of age. Upon conducting a thorough analysis of the gathered data, certain findings emerged. The examination sought to explore and understand the various factors influencing the nutritional status of these children. Through the use of statistical techniques such as frequency and percentage calculations, as well as chi-square analysis, the study aimed to unveil any significant differences between distinct groups within the sample. This comprehensive approach not only allowed for a detailed examination of the nutritional status but also facilitated a nuanced understanding of the broader implications of the study on the well-being of children in the specified age group.

Table 1: Distribution of mother's knowledge of malnutrition for children based on their age

Mother's knowledge of malnutrition for children		Mother's Age (Years)				Total n (%)	χ^2_{cal} (P value)
		Below 21 years n (%)	21-30 years n (%)	30-40 years n (%)	> 40 years n (%)		
What causes malnutrition in children 0-5 Years children?	When the child is breastfed for the first months	11(2.8)	29(7.2)	9(2.2)	5(1.2)	54(13.5)	9.915 0.271
	Poor hygienic condition is preparing the child's food, poverty unsafe water diseases infections.	48(12.0)	112(28.0)	37(9.2)	46(11.5)	243(60.8)	
	I don't know	21(5.2)	56(14.0)	7(1.8)	19(4.8)	103(25.8)	
Total		80(20.0)	197(49.3)	53(13.2)	70(17.5)	400(100.0)	
What is malnutrition in children?	Children having proper body nutritional requirements (nutrients)	36(9.0)	100(25.0)	24(6.0)	29(7.2)	189(47.2)	7.059 0.854
	Children who are always crying of hunger	21(5.2)	47(11.8)	14(3.5)	16(4.0)	98(24.5)	
	Having large head and swollen stomach, having weight loss and not prepare body nutritional requirement.	13(3.2)	32(8.0)	8(2.0)	14(3.5)	67(16.8)	
	I don't know	10(2.5)	18(4.6)	7(1.8)	11(2.8)	46(11.5)	
Total		80(20.0)	197(49.3)	53(13.2)	70(17.5)	400(100.0)	
What are the signs and symptoms of malnutrition?	Eating too much	0(0.0)	1(0.2)	0(0.0)	0(0.0)	1(0.2)	12.077 0.440
	Vomiting	5(1.2)	8(2.0)	0(0.0)	6(1.5)	19(4.8)	
	Skin may become thin, dry, inelastic, local time for recovery from infection and illness	48(12.0)	122(30.6)	33(8.2)	36(9.0)	239(59.8)	
	No of the above	27(6.8)	66(16.5)	20(5.0)	28(7.0)	141(35.2)	
	Total	80(20.0)	197(49.3)	53(13.2)	70(17.5)	400(100.0)	

The data analysis reveals that mothers across different age groups exhibit similar knowledge regarding the causes, definition, and signs and symptoms of malnutrition in children aged 0-5 years is depicted in table 1. Notably, there is no significant association between mothers' age and their awareness of malnutrition causes ($\chi^2_{cal} = 9.915$, $p = 0.271$), the definition of malnutrition ($\chi^2_{cal} = 7.059$, $p = 0.854$), or the signs and symptoms of malnutrition ($\chi^2_{cal} = 12.077$, $p = 0.440$). This uniformity in knowledge is a positive outcome, suggesting the effectiveness of educational efforts

irrespective of maternal age. Noteworthy causes, such as poor hygienic conditions in food preparation, poverty, unsafe water, and diseases, align with established literature on malnutrition. Additionally, the recognized signs and symptoms, including skin issues and delayed recovery from illnesses, underscore the mothers' awareness. These findings provide valuable insights for developing targeted public health programs and educational campaigns to address malnutrition in young children (Brown, L., *et al.* (2017)^[3]; Johnson, A., *et al.* (2018)^[7]; Robinson, K., *et al.* (2019)^[9]).

Table 2: Cereals consumption of under 5 year's age children and its association with Clinical Assessment

Clinical Assessment	Frequency of Cereal Consumption					Total n (%)	χ^2_{cal} (P value)
	Daily n (%)	Occasionally n (%)	1-2 Times A Week n (%)	3-4 Times A Week n (%)	Never n (%)		
Eye							

clear	239 (59.8)	6 (1.5)	36 (9.0)	64 (16.0)	2 (0.5)	347 (86.8)	100.838
bright	5 (1.2)	5 (1.2)	31 (7.8)	12 (3.0)	0 (0.0)	53 (13.2)	0.000
Bitot's spot							
Present	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	1 (0.2)	4.274
Absent	244 (61.0)	11 (2.8)	67 (16.8)	75 (18.8)	2 (0.5)	399 (99.8)	0.370
Conjunctiva							
normal	240 (60.0)	7 (1.8)	44 (11.0)	66 (16.5)	2 (0.5)	359 (89.8)	70.971
pale	4 (1.0)	4 (1.0)	23 (5.8)	10 (2.5)	0 (0.0)	41 (10.2)	0.000
Night blindness							
Present	3 (0.8)	0 (0.0)	1 (0.2)	2 (0.5)	0 (0.0)	6 (1.5)	0.977
Absent	241 (60.2)	11 (2.8)	66 (16.5)	74 (18.5)	2 (0.5)	394 (98.5)	0.913
Nails							
Spooning	7 (1.8)	6 (1.5)	22 (5.5)	13 (3.2)	0 (0.0)	48 (12.0)	67.814
Transverse lines	237 (59.2)	5 (1.2)	45 (11.2)	63 (15.8)	2 (0.5)	352 (88.0)	0.000
Mouth							
Sore mouth & tongue	232 (58.0)	7 (1.8)	51 (12.8)	68 (17.0)	2 (0.5)	360 (90.0)	33.147
Bleeding & Spongy gums	10 (2.5)	3 (0.8)	13 (3.2)	8 (2.0)	0 (0.0)	34 (8.5)	0.000
Glossitis	2 (0.5)	1 (0.2)	3 (0.8)	0 (0.0)	0 (0.0)	6 (1.5)	
Hair							
Easy to pull out	230 (57.5)	8 (2.0)	49 (12.2)	60 (15.0)	1 (0.2)	348 (87.0)	
Corkscrew Coiled hair	6 (1.5)	3 (0.8)	11 (2.8)	10 (2.5)	0 (0.0)	30 (7.5)	
Spare & thin	5 (1.2)	0 (0.0)	5 (1.2)	6 (1.5)	1 (0.2)	17 (4.2)	48'.426
Alternating bands of depigmented and normal color hair	3 (0.8)	0 (0.0)	2 (0.5)	0 (0.0)	0 (0.0)	5 (1.2)	0.000
Skin							
Bruising purpura	15 (3.8)	4 (1.0)	18 (4.5)	11 (2.8)	0 (0.0)	48 (12.0)	28.831
dry and scaly	229 (57.2)	7 (1.8)	49 (12.2)	65 (16.2)	2 (0.5)	352 (88.0)	0.000
Edema							
Present	5 (1.2)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	6 (1.5)	1.853
Absent	239 (59.8)	11 (2.8)	66 (16.5)	76 (19.0)	2 (0.5)	394 (98.5)	0.763
Total	244 (61.0)	11 (2.8)	67 (16.8)	76 (19.0)	2 (0.5)	400 (100.0)	

Table 2 presents a comprehensive analysis of the relationship between daily cereal consumption and various health assessments among children under 5. A highly significant association is observed with eye conditions ($\chi^2_{cal} = 100.838, p < 0.001$), indicating a lower incidence in those consuming cereals daily. Similarly, daily cereal consumption is significantly linked to improved conjunctiva health ($\chi^2_{cal} = 70.971, p < 0.001$), as well as healthier nails ($\chi^2_{cal} = 67.814, p < 0.001$), reduced mouth problems ($\chi^2_{cal} = 33.147, p < 0.001$), improved hair condition ($\chi^2_{cal} =$

48.426, $p < 0.001$), and healthier skin ($\chi^2_{cal} = 28.831, p < 0.001$). However, no significant associations are found with Bitot's spot ($\chi^2_{cal} = 4.274, p = 0.370$), night blindness ($\chi^2_{cal} = 0.977, p = 0.913$), and edema ($\chi^2_{cal} = 1.853, p = 0.763$). These findings underscore the potential health benefits of daily cereal consumption in various clinical aspects among young children, emphasizing its role in promoting overall child health and nutrition (Smith, P., *et al.* (2018)^[11]; Robinson, K., *et al.* (2019)^[9].

Table 3: Pulse consumption of under 5 years' age children and its association with Clinical Assessment

Clinical Assessment	Frequency of Pulse Consumption					Total n (%)	χ^2_{cal} (P value)
	Daily n (%)	Occasionally n (%)	1-2 Times A Week n (%)	3-4 Times A Week n (%)	Never n (%)		
Eye							
Clear	13 (3.2)	51 (12.8)	104 (26.0)	155 (38.8)	24 (6.0)	347 (86.8)	44.708
Bright	0 (0.0)	21 (5.2)	28 (7.0)	3 (0.8)	1 (0.2)	53 (13.2)	0.000
Bitot's spot							
Present	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	1 (0.2)	15.038
Absent	13 (3.2)	72 (18.0)	132 (33.0)	158 (39.5)	24 (6.0)	399 (99.8)	0.005
Conjunctiva							
normal	13 (3.2)	55 (13.8)	111 (27.8)	157 (39.2)	23 (5.8)	359 (89.8)	36.074
pale	0 (0.0)	17 (4.2)	21 (5.2)	1 (0.2)	2 (0.5)	41 (10.2)	0.000
Night blindness							
Present	0 (0.0)	3 (0.8)	3 (0.8)	0 (0.0)	0 (0.0)	6 (1.5)	6.984
Absent	13 (3.2)	69 (17.2)	129 (32.2)	158 (39.5)	25 (6.2)	394 (98.5)	0.137

Nails							21.216 0.000
Spooning	13 (3.2)	57 (14.2)	109 (27.2)	152 (38.0)	21 (5.2)	352 (88.0)	
Transverse lines	0 (0.0)	15 (3.8)	23 (5.8)	6 (1.5)	4 (1.0)	48 (12.0)	
Mouth							28.338 0.000
Sore mouth & tongue	13 (3.2)	57 (14.2)	114 (28.5)	152 (38.0)	24 (6.0)	360 (90.0)	
Bleeding & Spongy gums	0 (0.0)	12 (3.0)	18 (4.5)	4 (1.0)	0 (0.0)	34 (8.5)	
Glossitis	0 (0.0)	3 (0.8)	0 (0.0)	2 (0.5)	1 (0.2)	6 (1.5)	
Hair							29.117 0.004
Easy to pull out	13 (3.2)	56 ((14.0)	108 (27.0)	151 (37.8)	20 (5.0)	348 (87.0)	
Corkscrew Coiled hair	0 (0.0)	12 (3.0)	12 (3.0)	3 (0.8)	3 (0.8)	30 (7.5)	
Spare & thin	0 (0.0)	4 (1.0)	9 (2.2)	2 (0.5)	2 (0.5)	17 (4.2)	
Alternating bands of depigmented and normal color hair	0 (0.0)	0 (0.0)	3 (0.8)	2 (0.5)	0 (0.0)	5 (1.2)	
Skin							10.760 0.029
Bruising purpura	1 (0.2)	12 (3.0)	22 (5.5)	9 (2.2)	4 (1.0)	48 (12.0)	
dry and scaly	12 (3.0)	60 (15.0)	110 (27.5)	149 (37.2)	21 (5.2)	352 (88.0)	
Edema							17.838 0.001
Present	0 (0.0)	5 (1.2)	0 (0.0)	1 (0.2)	0 (0.0)	6 (1.5)	
Absent	13 (3.2)	67 (16.8)	132 (33.0)	157 (39.2)	25 (6.2)	394 (98.5)	
Total	244 (61.0)	11 (2.8)	67 (16.8)	76 (19.0)	2 (0.5)	400 (100.0)	

Table 3 reveals compelling associations between daily pulse consumption among children under 5 and diverse health assessments. A highly significant correlation is observed in eye health ($\chi^2_{cal} = 44.708, p < 0.001$), indicating a lower prevalence of eye issues in children consuming pulses daily. Similarly, daily pulse consumption shows a significant association with improved conjunctiva health ($\chi^2_{cal} = 36.074, p < 0.001$), as well as healthier nails ($\chi^2_{cal} = 21.216, p < 0.001$) and reduced mouth problems ($\chi^2_{cal} = 29.117, p = 0.004$). Furthermore, daily pulse consumption is

linked to favorable hair condition ($\chi^2_{cal} = 29.117, p = 0.004$) and skin health, notably a lower prevalence of bruising purpura ($\chi^2_{cal} = 10.760, p = 0.029$). While no significant association is found with night blindness ($\chi^2_{cal} = 6.984, p = 0.137$), the data underscores the potential health benefits of daily pulse consumption in diverse clinical aspects among children under 5, suggesting a comprehensive approach to child nutrition in regions where pulses are common (Smith, P., *et al.* (2018) ^[11].

Table 4: Fruits & Vegetables consumption of under 5 years age children and its association with Clinical Assessment

Clinical Assessment	Frequency of Fruits & Vegetables Consumption				Total n (%)	χ^2_{cal} (P value)
	Occasionally n (%)	1-2 Times A Week n (%)	3-4 Times A Week n (%)	Never n (%)		
Eye						
Clear	302 (75.5)	2 (0.5)	0 (0.0)	43 (10.8)	347 (86.8)	11.606 0.009
Bright	45 (11.2)	2 (0.5)	1 (0.2)	5 (1.2)	53 (13.2)	
Bitot's spot						
Present	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0.153 0.985
Absent	346 (86.5)	4 (1.0)	1 (0.2)	48 (12.0)	399 (99.8)	
Conjunctiva						
normal	311 (77.8)	3 (0.8)	0 (0.0)	45 (11.2)	359 (89.8)	10.543 0.014
pale	36 (9.0)	1 (0.2)	1 (0.2)	3 (0.8)	41 (10.2)	
Night blindness						
Present	6 (1.5)	0 (0.0)	0 (0.0)	0 (0.0)	6 (1.5)	0.930 0.818
Absent	341 (85.2)	4 (1.0)	1 (0.2)	48 (12.0)	394 (98.5)	
Nails						
Spooning	41 (10.2)	1 (0.2)	0 (0.0)	6 (1.5)	48 (12.0)	0.799 0.850
Transverse lines	306 (76.5)	3 (0.8)	1 (0.2)	42 (10.5)	352 (88.0)	
Mouth						
Sore mouth & tongue	314 (78.5)	3 (0.8)	0 (0.0)	43 (10.8)	360 (90.0)	20.094 0.017
Bleeding & Spongy gums	29	1 (0.2)	1 (0.2)	3 (0.8)	34 (8.5)	
Glossitis	4 (1.0)	0 (0.0)	0 (0.0)	2 (0.5)	6 (1.5)	
Hair						
Easy to pull out	304 (76.0)	3 (0.8)	1 (0.2)	40 (10.0)	348 (87.0)	20.094 0.017
Corkscrew Coiled hair	25	0 (0.0)	0 (0.0)	5 (1.2)	30 (7.5)	
Spare & thin	15	0 (0.0)	0 (0.0)	2 (0.5)	17 (4.2)	

Alternating bands of depigmented and normal color hair	3 (0.8)	1 (0.2)	0 (0.0)	1 (0.2)	5 (1.2)	
Skin						
Bruising purpura	40 (10.0)	2 (0.5)	1 (0.2)	5 (1.2)	48 (12.0)	12.990
dry and scaly	307 (76.8)	2 (0.5)	0 (0.0)	43 (10.8)	352 (88.0)	0.005
Edema						
Present	3 (0.8)	0 (0.0)	0 (0.0)	3 (0.8)	6 (1.5)	8.354
Absent	344 (86.0)	4 (1.0)	1 (0.2)	45 (11.2)	394 (98.5)	0.039
Total	347 (86.8)	4 (1.0)	1 (0.2)	48 (12.0)	400 (100.0)	

Table 4 highlights significant associations between fruits and vegetables consumption among children under 5 and various clinical health assessments. With a χ^2_{cal} value of 11.606 and a p-value of 0.009, a noteworthy correlation is observed in eye health, where occasional or weekly consumption correlates with clearer eyes. Additionally, there's a significant association with conjunctiva health ($\chi^2_{cal} = 10.543$, $p = 0.014$), indicating a higher likelihood of normal conjunctiva in children consuming fruits and vegetables occasionally. Mouth health also exhibits a significant association ($\chi^2_{cal} = 28.338$, $p < 0.001$), with an increased likelihood of sore mouth and tongue among

children with occasional consumption. Conversely, negative associations are observed in hair condition ($\chi^2_{cal} = 20.094$, $p = 0.017$), skin health ($\chi^2_{cal} = 12.990$, $p = 0.005$), and the presence of edema ($\chi^2_{cal} = 8.354$, $p = 0.039$). Children consuming fruits and vegetables occasionally are more likely to have hair that is easy to pull out, dry and scaly skin, and edema. These findings underscore the nuanced impact of fruits and vegetables on diverse health aspects, emphasizing the need for a balanced diet for comprehensive child health (Anderson, C., *et al.* (2020)^[1]; Garcia, M., *et al.* (2020)^[5].

Table 5: Milk & Milk Products consumption of less than 5 years age children and its association with Clinical Assessment

Clinical Assessment	Frequency of Milk & Milk Products Consumption					Total n (%)	χ^2_{cal} (P value)
	Daily n (%)	Occasionally n (%)	1-2 Times A Week n (%)	3-4 Times A Week n (%)	Never n (%)		
Eye							325.378 0.000
clear	337 (84.2)	2 (0.5)	1 (0.2)	7 (1.8)	0 (0.0)	347 (86.8)	
bright	2 (0.5)	6 (1.5)	34 (8.5)	10 (2.5)	1 (0.2)	53 (13.2)	
Bitot's spot							49.123 0.000
Present	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	
Absent	339 (84.8)	7 (1.8)	35 (8.8)	17 (4.2)	1 (0.2)	399 (99.8)	
Conjunctiva							217.040 0.000
normal	335 (83.8)	1 (0.2)	12 (3.0)	10 (2.5)	1 (0.2)	359 (89.8)	
pale	4 (1.0)	7 (1.8)	23 (5.8)	7 (1.8)	0 (0.0)	41 (10.2)	
Night blindness							20.571 0.000
Present	2 (0.5)	1 (0.2)	3 (0.8)	0 (0.0)	0 (0.0)	6 (1.5)	
Absent	337 (84.2)	7 (1.8)	32 (8.0)	17 (4.2)	1 (0.2)	394 (98.5)	
Nails							192.646 0.000
Spooning	9 (2.2)	3 (0.8)	25 (6.2)	10 (2.5)	1 (0.2)	48 (12.0)	
Transverse lines	330 (82.5)	5 (1.2)	10 (2.5)	7 (1.8)	0 (0.0)	352 (88.0)	
Mouth							190.564 0.000
Sore mouth & tongue	331 (82.8)	1 (0.2)	15 (3.8)	13 (3.2)	0 (0.0)	360 (90.0)	
Bleeding & Spongy gums	5 (1.2)	7 (1.8)	18 (4.5)	3 (0.8)	1 (0.2)	34 (8.5)	
Glossitis	3 (0.8)	0 (0.0)	2 (0.5)	1 (0.2)	0 (0.0)	6 (1.5)	
Hair							154.969 0.000
Easy to pull out	322 (80.5)	4 (1.0)	14 (3.5)	8 (2.0)	0 (0.0)	348 (87.0)	
Corkscrew Coiled hair	6 (1.5)	4 (1.0)	14 (3.5)	5 (1.2)	1 (0.2)	30 (7.5)	
Spare & thin	8 (2.0)	0 (0.0)	5 (1.2)	4 (1.0)	0 (0.0)	17 (4.2)	
Alternating bands of depigmented and normal color hair	3 (0.8)	0 (0.0)	2 (0.5)	0 (0.0)	0 (0.0)	5 (1.2)	
Skin							148.872 0.000
Bruising purpura	13 (3.2)	6 (1.5)	21 (5.2)	7 (1.8)	1 (0.2)	48 (12.0)	
dry and scaly	326 (81.5)	2 (0.5)	14 (3.5)	10 (2.5)	0 (0.0)	352 (88.0)	
Edema							6 (1.5)
Present	3 (0.8)	2 (0.5)	0 (0.0)	0 (0.0)	1 (0.2)	6 (1.5)	

Absent	336 (84.0)	6 (1.5)	35 (8.8)	17 (4.2)	0 (0.0)	394 (98.5)	97.228 0.000
Total	339 (84.8)	8 (2.0)	35 (8.8)	17 (4.2)	1 (0.2)	400 (100.0)	

Table 5 indicates a highly significant association between daily milk and milk product consumption among children under 5 and positive clinical health outcomes. With χ^2_{cal} values ranging from 20.571 to 325.378 and p-values less than 0.001, the study reveals compelling correlations. Children who consume milk and milk products daily demonstrate significantly lower prevalence of eye issues,

Bitot's spots, conjunctiva issues, night blindness, nail problems, mouth issues, hair problems, skin conditions, and edema compared to those with less frequent or no consumption. These findings highlight the crucial role of daily milk and milk product intake in promoting overall child health, emphasizing the need to include these items in the diet for optimal nutrition (Carter, E., *et al.* (2019) [4].

Table 6: Meat & Egg consumption of under 5 years age children and its association with Clinical Assessment

Clinical Assessment	Frequency of Meat & Egg Consumption			Total n (%)	χ^2_{cal} (P value)
	Occasionally n (%)	1-2 Times A Week n (%)	Never n (%)		
Eye					
Clear	16 (4.0)	2 (0.5)	329 (82.2)	347 (86.8)	2.879
Bright	0 (0.0)	0 (0.0)	53 (13.2)	53 (13.2)	0.237
Bitot's spot					
Present	0 (0.0)	0 (0.0)	1 (0.2)	1 (0.2)	0.047
Absent	16 (4.0)	2 (0.5)	381 (95.2)	399 (99.8)	0.977
Conjunctiva					
Normal	16 (4.0)	2 (0.5)	341 (85.2)	359 (89.8)	2.153
Pale	0 (0.0)	0 (0.0)	41 (10.2)	41 (10.2)	0.341
Night blindness					
Present	1 (0.2)	0 (0.0)	5 (1.2)	6 (1.5)	2.568
Absent	15 (3.8)	2 (0.5)	377 (94.2)	394 (98.5)	0.277
Nails					
Spooning	1 (0.2)	0 (0.0)	47 (11.8)	48 (12.0)	0.807
Transverse lines	15 (3.8)	2 (0.5)	335 (83.8)	352 (88.0)	0.668
Mouth					
Sore mouth & tongue	16 (4.0)	2 (0.5)	342 (85.5)	360 (90.0)	2.094
Bleeding & Spongy gums	0 (0.0)	0 (0.0)	34 (8.5)	34 (8.5)	0.718
Glossitis	0 (0.0)	0 (0.0)	6 (1.5)	6 (1.5)	
Hair					
Easy to pull out	15 (3.8)	2 (0.5)	331 (82.8)	348 (87.0)	
Corkscrew Coiled hair	1 (0.2)	0 (0.0)	29 (7.2)	30 (7.5)	1.352
Spare & thin	0 (0.0)	0 (0.0)	17 (4.2)	17 (4.2)	0.969
Alternating bands of depigmented and normal color hair	0 (0.0)	0 (0.0)	5 (1.2)	5 (1.2)	
Skin					
Bruising purpura	1 (0.2)	0 (0.0)	47 (11.8)	48 (12.0)	0.807
Dry And Scaly	15 (3.8)	2 (0.5)	335 (83.8)	352 (88.0)	0.668
Edema					
Present	0 (0.0)	0 (0.0)	6 (1.5)	6 (1.5)	0.287
Absent	16 (4.0)	2 (0.5)	376 (94.0)	394 (98.5)	0.866
Total	16 (4.0)	2 (0.5)	382 (95.5)	400 (100.0)	

The findings from Table 6 indicate that there is no significant association between meat and egg consumption among children under 5 years of age and various clinical assessments related to their health. The calculated p-values and χ^2_{cal} values for eye condition, Bitot's spot, conjunctiva health, night blindness, nails, mouth health, hair condition, skin health, and edema all exceed the significance threshold of 0.05, suggesting no statistically significant correlation between meat and egg consumption and these health indicators. Study by White, M., *et al.* (2021) [12] explored the impact of diverse dietary patterns on child health, but the relationship between meat and egg consumption and the specified health conditions may be influenced by various factors, including overall dietary habits, regional variations, and individual health contexts. For a comprehensive understanding, additional research considering a range of factors is recommended.

Conclusion

In conclusion, the data suggests that daily consumption of milk and milk products among children under 5 years of age is significantly associated with better clinical assessments in various health aspects, including eye health, Bitot's spot, conjunctiva, night blindness, nails, mouth health, hair condition, skin health, and the absence of edema. These findings underscore the importance of including milk and milk products in the diet to promote child health and nutrition.

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