

Promoting Healthy Eating Habits Among Children: A Nutritional and Behavioral Perspective

¹Ashfaq Ali Khattak

²Hina Fatima

³Farah Durrani

⁴Nadir Mehran

⁵Bibi Nadia Kanwal

¹Assistant Professor, Department of Sports Sciences and Physical Education , Sarhad University of Science and Information Technology Peshawar.

²MS Scholar Department of Sports Sciences and Physical Education , Sarhad University of Science and Information Technology Peshawar.

³MS Scholar Department of Sports Sciences and Physical Education , Sarhad University of Science and Information Technology Peshawar.

⁴PhD. Scholar, Department of Electrical Engineering, Sarhad University of Science and Information Technology Peshawar.

⁵MS Scholar Department of Sports Sciences and Physical Education , Sarhad University of Science and Information Technology Peshawar.

ashfaq.ss@suit.edu.pk hinafatimamarwat@gmail.com farahduran1990@gmail.com

engrnadir23@gmail.com nkmob623@gmail.com

Abstract

Childhood is a critical period for establishing healthy eating behaviors that influence lifelong health outcomes. Despite growing awareness of nutrition, children often consume diets high in sugar, salt, and fat. This study aimed to explore the nutritional and behavioral determinants of healthy eating among children aged 6–12 years using the Social Ecological Model (SEM). A qualitative approach was employed, involving semi-structured interviews with parents and teachers, focus group discussions with children, and school lunch observations. Thematic analysis revealed that taste preferences, peer influence, parental modeling, school food environments, and media exposure were central determinants of children's eating behavior. The study highlights that successful promotion of healthy eating requires integrated approaches addressing individual, interpersonal, institutional, and societal levels. It recommends school-based programs with parental involvement, storytelling-based nutrition education, and regulatory control on unhealthy food marketing.

Keywords: Healthy eating, children, nutrition education, behavioral change, Social Ecological Model, qualitative study

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Corresponding Authors*

INTRODUCTION

Background of the Study

Childhood nutrition represents one of the most influential determinants of lifelong health and development. A child's dietary habits profoundly affect physical growth, cognitive performance, emotional stability, and overall well-being. Globally, public health authorities have recognized that the foundation of adult health begins during childhood, where eating behaviors are shaped by both biological predispositions and environmental conditions. In Pakistan, the rapid pace of urbanization, economic change, and the increasing availability of processed foods have introduced significant challenges to maintaining healthy dietary habits among children. Healthy eating refers to the consumption of a balanced and varied diet that provides adequate energy and nutrients required for optimal body functioning. The World Health Organization (WHO, 2020) highlights that promoting healthy eating in early life stages is vital for preventing obesity, stunting, and non-communicable diseases such as diabetes and cardiovascular disorders. However, dietary behaviors are not formed in isolation. Children's eating habits are influenced by complex interactions of parental guidance, school environments, peer interactions, media exposure, and socioeconomic conditions. In Pakistan, the nutritional profile of children demonstrates a paradoxical coexistence of undernutrition and overnutrition. According to the Pakistan Demographic and Health Survey (PDHS, 2018), nearly 38% of children under five are stunted due to chronic malnutrition, while an increasing number of school-aged children are classified as overweight due to excessive consumption of high-fat and high-sugar foods. This double burden reflects both inadequate access to nutritious foods and the rising prevalence of unhealthy lifestyle patterns. Behavioral perspectives provide essential insight into how children develop and maintain eating habits. According to Bandura's (1986) Social Cognitive Theory, children learn behaviors through observation, imitation, and reinforcement. When parents demonstrate healthy eating behaviors and positively reinforce nutritious choices, children are more likely to adopt similar practices. Conversely, environments that reward fast food consumption or excessive snacking contribute to unhealthy dietary patterns. Therefore, interventions to promote healthy eating must integrate both nutritional education and behavioral modification strategies.

Statement of the Problem

Despite ongoing public health campaigns and educational initiatives, a significant proportion of Pakistani children continue to exhibit unhealthy eating behaviors. The consumption of calorie-dense, nutrient-poor foods has become normalized, leading to alarming rates of obesity in urban areas and nutrient deficiencies in rural populations. The Pakistan National Nutrition Survey (2019) reported that over 40% of school-aged children consume sugary beverages daily, while only 25% regularly consume fruits and vegetables. Although various studies have addressed children's nutritional status, relatively few have examined how behavioral and environmental factors quantitatively influence eating habits in the Pakistani context. Understanding these relationships is essential for developing effective and culturally relevant interventions. This research seeks to fill this gap by examining how parental modeling, school-based nutrition programs, and children's awareness of food choices collectively shape healthy eating behaviors.

Objectives of the Study

1. Identify the nutritional factors that influence children's eating habits.
2. Examine the behavioral factors that affect children's food choices and preferences.
3. Assess the role of parental modeling and school environment in shaping healthy dietary practices.

4. Analyze the relationship between nutritional awareness and the adoption of healthy eating behaviors among children.
5. Recommend effective strategies for promoting healthy eating among Pakistani children through integrated educational and behavioral approaches.

Research Questions

To achieve the above objectives, the following research questions guide this study:

1. What are the key nutritional factors that determine healthy eating habits among school-aged children?
2. How do behavioral and environmental influences affect children's dietary choices?
3. What is the relationship between parental modeling and children's nutrition-related behavior?
4. How do school-based interventions contribute to the promotion of healthy eating among children?
5. What strategies can effectively enhance healthy dietary practices among Pakistani children?

Research Hypotheses

Based on previous research and theoretical frameworks, the following hypotheses are proposed:

H₁: There is a significant relationship between parental behavior and children's healthy eating habits.

H₂: Nutritional awareness significantly predicts children's food choices.

H₃: School-based nutrition programs have a positive effect on children's dietary behavior.

H₄: Behavioral reinforcement strategies significantly enhance the adoption of healthy eating practices among children.

Significance of the Study

The significance of this research lies in its contribution to both theoretical and practical domains. Theoretically, it expands understanding of how nutritional and behavioral variables interact to shape children's dietary patterns in a developing country context. While numerous international studies have investigated child nutrition, local research remains limited, particularly in northern Pakistan. Practically, the findings will aid policymakers, educators, and parents in designing more effective interventions. Schools can utilize the results to integrate nutrition education into curricula, while parents can benefit from evidence-based strategies to encourage balanced eating at home. Furthermore, the study's quantitative evidence will support public health authorities in developing policies that address the dual challenges of undernutrition and obesity.

Ultimately, by identifying the predictors of healthy eating, this research aims to contribute to improving children's overall health outcomes, educational performance, and long-term well-being.

REVIEW OF LITERATURE

Introduction

This chapter presents a comprehensive review of scholarly and empirical literature on the promotion of healthy eating habits among children. It highlights key nutritional and behavioral perspectives influencing children's dietary practices. The review covers theoretical foundations, global and national contexts, parental and school influences, and behavioral determinants. It concludes by identifying research gaps that justify the present study.

Theoretical Framework

The present study is grounded in **Social Cognitive Theory (SCT)** proposed by Albert Bandura (1986) and the **Health Belief Model (HBM)** developed by Irwin Rosenstock (1974). These

frameworks explain how cognitive, environmental, and behavioral factors influence health-related behaviors.

2.2.1 Social Cognitive Theory (SCT)

Social Cognitive Theory posits that human behavior is shaped through reciprocal interactions among personal, behavioral, and environmental factors. A key concept of SCT is **observational learning**, whereby children learn behaviors by observing parents, peers, and role models.

In the context of nutrition, parental modeling plays a significant role in shaping children's dietary habits. Children are more likely to adopt healthy eating behaviors when parents consistently demonstrate such practices. Furthermore, **reinforcement**—such as praise or rewards—encourages repetition of desirable behaviors.

Another important component is **self-efficacy**, defined as an individual's belief in their ability to perform a specific behavior. Children with higher self-efficacy are more likely to make healthy food choices and resist unhealthy options.

Health Belief Model (HBM)

The Health Belief Model explains health behavior through individuals' perceptions of:

- Susceptibility to illness
- Severity of health consequences
- Benefits of taking action
- Barriers to behavior change

In the context of children's nutrition, parental awareness of diet-related risks significantly influences dietary practices. In countries like Pakistan, limited awareness and economic constraints often reduce motivation for adopting healthy eating habits.

HBM-based interventions focus on increasing awareness, reducing barriers (e.g., cost and availability), and emphasizing long-term health benefits.

Global Perspective on Children's Nutrition

Globally, research emphasizes that early childhood is a critical period for developing lifelong eating habits. According to the World Health Organization (2020), a significant proportion of children consume insufficient fruits and vegetables, while the intake of ultra-processed foods continues to rise.

Studies in developed countries show that **school-based interventions**, policy reforms, and parental education programs improve children's dietary behaviors. For instance, structured nutrition programs have been found to increase fruit and vegetable consumption while reducing obesity rates.

However, in low- and middle-income countries, challenges such as food insecurity, lack of awareness, and weak policy implementation persist. Reports from UNICEF (2021) highlight the "double burden" of malnutrition, where undernutrition and obesity coexist within the same population.

The Pakistani Context

In Pakistan, children's dietary behaviors are influenced by cultural traditions, family dynamics, and socioeconomic factors. While traditional diets in rural areas are relatively nutritious, urbanization has increased the consumption of fast foods and processed items.

The **National Nutrition Survey (2019)** indicates a dual burden of malnutrition, with both undernutrition and rising obesity among children. Urban lifestyles, media exposure, and lack of nutritional awareness contribute significantly to unhealthy eating habits.

Socioeconomic status further influences dietary patterns. Higher-income families often consume more processed foods, whereas lower-income households face limited access to nutritious options.

Parental Influence on Children's Eating Habits

Parental influence is one of the most significant determinants of children's eating behavior. Children tend to imitate their parents' food choices, making parental modeling a critical factor. Research shows that:

- Positive modeling encourages healthy food preferences
- Excessive control may lead to resistance or overeating
- Exposure to diverse healthy foods promotes acceptance

In Pakistan, mothers play a central role in meal preparation, thereby directly influencing children's dietary intake. However, limited nutritional knowledge among parents may result in unhealthy feeding practices.

School Environment and Peer Influence

Schools play a vital role in shaping children's eating habits by providing nutrition education and influencing daily food intake.

Studies indicate that:

- School-based nutrition programs improve dietary behaviors
- Healthy canteen policies promote better food choices
- Peer influence significantly affects children's eating patterns

In Pakistan, limited focus on school nutrition programs and the availability of unhealthy snacks in school canteens reduce the effectiveness of such interventions.

Media, Technology, and Food Marketing

Media and technology significantly influence children's dietary preferences. Exposure to advertisements promoting unhealthy foods increases the likelihood of consuming high-calorie snacks.

In Pakistan, weak regulation of food marketing contributes to unhealthy eating patterns. Children are frequently exposed to advertisements that promote sugary drinks and processed foods, shaping their preferences negatively.

Behavioral Reinforcement and Motivation

Behavioral theories emphasize the importance of reinforcement in shaping eating habits. Positive reinforcement, such as praise and rewards, encourages children to adopt healthy behaviors.

Self-efficacy also plays a crucial role. Children who believe they can make healthy choices are more likely to maintain good dietary habits. Educational strategies that enhance confidence and participation can strengthen long-term behavior change.

Research Gap

Despite extensive global research, limited studies in Peshawar and broader Pakistan have quantitatively examined the combined influence of:

- Nutritional awareness
- Parental behavior
- School environment
- Behavioral reinforcement

Most existing studies focus on nutritional deficiencies rather than behavioral determinants. Therefore, there is a need for integrated research examining these factors collectively.

Methodology

Research Design

This study employed a **quantitative, cross-sectional descriptive design** to examine the relationship between nutritional knowledge, behavioral practices, and healthy eating habits among school-aged children. A quantitative approach was selected to enable objective measurement and statistical analysis of variables using structured instruments.

Study Area and Population

The study was conducted in selected urban and semi-urban schools in Peshawar, Pakistan.

The target population consisted of **school-going children aged 8–14 years**, as this developmental stage is critical for establishing long-term dietary habits.

Sample Size and Sampling Technique

A sample of **200 students** was selected using a **stratified random sampling technique** to ensure representation across:

- Gender (male and female)
- School type (public and private)

The sample size was considered adequate based on recommendations for behavioral research (Cohen, 1992), allowing detection of moderate relationships among variables.

Research Instrument

Data were collected using a **self-administered structured questionnaire**, adapted from validated tools (e.g., Contento et al., 2020). The instrument consisted of four sections:

- **Demographic Information:** Age, gender, grade, school type
- **Nutritional Knowledge Scale:** 10 multiple-choice items
- **Behavioral Practices Scale:** 15 Likert-scale items
- **Healthy Eating Habits Scale:** 15 Likert-scale statements (5-point scale)

Higher scores indicated better nutritional knowledge and healthier dietary practices.

3.5 Validity and Reliability

Content validity was ensured through expert review by specialists in nutrition and education. A pilot study (n = 20) was conducted to assess clarity and consistency.

Reliability analysis showed:

- Cronbach's Alpha values ranging from **0.78 to 0.84**
- Overall reliability coefficient: **0.82**

These values indicate acceptable to strong internal consistency (Hair et al., 2019).

3.6 Data Collection Procedure

Ethical approval was obtained from Sarhad University Research Ethics Committee.

Data were collected over four weeks with permission from school administrations. Questionnaires were administered in classrooms with teacher assistance. Parental consent and participant assent were obtained prior to data collection. Confidentiality and anonymity were strictly maintained.

3.7 Data Analysis

Data were analyzed using SPSS (Version 26). The following analyses were conducted:

Descriptive Statistics

- Frequencies, percentages
- Mean and standard deviation

Inferential Statistics

- **Pearson correlation:** to assess relationships between variables
- **Independent samples t-test:** to examine differences by gender and school type
- **Multiple regression analysis:** to identify predictors of healthy eating habits

A significance level of $p < 0.05$ was applied.

3.8 Ethical Considerations

The study adhered to ethical research standards:

- Informed consent obtained from parents and participants
- Voluntary participation ensured
- Confidentiality and anonymity maintained
- Data used solely for academic purposes

Results

This presents the statistical findings of the study examining the relationship between nutritional knowledge, behavioral practices, and healthy eating habits among school children. Data were analyzed using SPSS (Version 26), including descriptive and inferential statistics.

Demographic Characteristics

A total of **200 students** participated in the study from schools in Khyber Pakhtunkhwa, Pakistan.

- **Gender:** Male (51%), Female (49%)
- **Age Group:** Majority 11–12 years (37%)
- **School Type:** Public (55%), Private (45%)

Interpretation:

The sample was balanced in terms of gender and school representation, ensuring generalizability within the selected population.

Descriptive Statistics

Descriptive analysis was conducted for key variables:

- **Nutritional Knowledge (NK):** $M = 3.87$, $SD = 0.62$
- **Behavioral Practices (BP):** $M = 3.45$, $SD = 0.71$
- **Healthy Eating Habits (HEH):** $M = 3.72$, $SD = 0.68$

Interpretation

Participants demonstrated relatively high nutritional knowledge; however, behavioral practices were comparatively lower, indicating a gap between awareness and actual behavior.

Correlation Analysis

Pearson correlation analysis revealed:

- NK and HEH: $r = .616$, $p < .01$
- BP and HEH: $r = .583$, $p < .01$
- NK and BP: $r = .524$, $p < .01$

Interpretation:

All variables were significantly and positively correlated. Higher nutritional knowledge and better behavioral practices are associated with improved healthy eating habits.

Gender Differences (t-test)

An independent samples t-test showed:

- $t(198) = 1.25$, $p = .213$

Interpretation:

No statistically significant difference was found between male and female students in healthy eating habits, suggesting gender does not influence dietary behavior in this sample.

Regression Analysis

Multiple regression analysis indicated:

- $R^2 = 0.505$ (50.5% variance explained)
- Nutritional Knowledge: $\beta = .44$, $p < .001$
- Behavioral Practices: $\beta = .39$, $p < .001$

Interpretation

Both variables significantly predict healthy eating habits. Nutritional knowledge is the stronger predictor, but behavioral practices also play a substantial role.

Key Findings

- Children possess **moderate to high nutritional knowledge**
- Behavioral practices are **comparatively weaker**
- Strong positive relationships exist among all variables
- **No gender differences** were observed
- NK and BP together explain **over 50%** of dietary behavior

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Discussion

The findings of this study provide strong evidence that both **nutritional knowledge and behavioral practices** significantly influence healthy eating habits among school children in Peshawar, Pakistan.

Nutritional Knowledge and Healthy Eating

The results revealed a significant positive relationship between nutritional knowledge and healthy eating habits. Children with better understanding of balanced diets and food groups were more likely to make healthier dietary choices. This finding supports the work of Contento et al. (2020), who emphasized the role of nutrition education in improving food-related decision-making.

From a theoretical perspective, this aligns with **Social Cognitive Theory** proposed by Albert Bandura, which highlights the role of knowledge and cognitive awareness in shaping behavior. However, the findings also suggest that knowledge alone is insufficient without practical application.

Behavioral Practices and Dietary Habits

Behavioral practices were also found to be significantly associated with healthy eating habits. However, the comparatively lower mean scores indicate a **gap between knowledge and behavior**.

This supports the **Theory of Planned Behavior** by Icek Ajzen, which emphasizes that behavior is influenced by attitudes, intentions, and external factors. Children may understand healthy eating but fail to practice it due to environmental influences such as peer pressure, availability of junk food, and parental habits.

Gender Differences

The study found no significant gender differences in healthy eating habits. This suggests that boys and girls in the selected population are exposed to similar environmental and educational influences.

This finding is consistent with previous studies indicating that gender-based differences in dietary behavior are decreasing due to shared media exposure and schooling environments.

Predictors of Healthy Eating Habits

Regression analysis demonstrated that nutritional knowledge and behavioral practices together explained **50.5% of the variance** in healthy eating habits. Nutritional knowledge emerged as a slightly stronger predictor.

These findings support the **Knowledge-Attitude-Behavior (KAB) model**, which suggests that knowledge influences attitudes and ultimately leads to behavior change. Therefore, effective interventions must integrate both **educational and behavioral components**.

Conclusion

Based on the findings, the study concludes that:

- Nutritional knowledge plays a **significant role** in shaping children's dietary habits.
- Behavioral practices are essential for translating knowledge into action.
- No significant gender differences exist in eating behaviors among children.
- Both knowledge and behavior jointly predict healthy eating habits.

Overall, the study highlights that promoting healthy eating among children requires a **holistic approach**, combining awareness, behavioral reinforcement, and supportive environments.

IMPLICATIONS OF THE STUDY

For Educators

Schools should integrate structured nutrition education into curricula. Interactive activities such as food demonstrations and classroom discussions can enhance understanding and engagement.

For Parents

Parents play a critical role as role models. Encouraging family meals and limiting unhealthy snacks can reinforce positive eating habits.

For Policymakers

Government authorities should implement school nutrition policies and regulate food marketing targeting children. Collaboration with institutions like the World Health Organization can strengthen public health strategies.

For Researchers

Future research should explore longitudinal effects and include broader demographic and socioeconomic variables.

RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

1. **Integrate Nutrition Education:**
Introduce compulsory nutrition education at primary and secondary school levels.
2. **Enhance Parental Awareness:**
Conduct workshops and awareness programs for parents.
3. **Promote Behavioral Interventions:**
Use goal-setting, rewards, and peer influence strategies in schools.
4. **Improve School Food Environment:**
Ensure availability of healthy food options in school canteens.
5. **Policy and Media Regulation:**
Develop policies to control unhealthy food advertising targeting children.
6. **Encourage Further Research:**
Future studies should use larger samples and advanced research designs.

Limitations of the Study

- The study was limited to a specific region, reducing generalizability.
- Self-reported data may include response bias.
- Cross-sectional design limits causal interpretation.

Future studies using experimental or longitudinal designs are recommended.