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PREVALENCE AND ASSOCIATED FACTORS OF OBESITY AMONG CHILDREN AND ADOLESCENTS

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Abstract

Background: *Childhood obesity has emerged as a major public health challenge worldwide, affecting both developed and developing countries.*

Objective: *To determine the prevalence of obesity and associated risk factors among children and adolescents presenting to the pediatric outpatient department of Sheikh Zayed Hospital, Rahim Yar Khan.*

Methodology: *This cross-sectional study was conducted from October 2024 to April 2025, in the Department of Pediatric Medicine, Sheikh Zayed Hospital, Rahim Yar Khan. A total of 159 children aged 5–15 years were enrolled using non-probability consecutive sampling. Obesity was defined as BMI ≥95th percentile for age and sex according to WHO reference charts. Data regarding demographic characteristics, exclusive breastfeeding, physical activity, screen time, junk food consumption, family history of obesity, socioeconomic status, and timing of last meal before bedtime were collected using a structured proforma.*

Results: *Out of 159 participants, a considerable proportion were found to be obese. Obesity was significantly associated with increased screen time (>2 hours/day), lack of physical activity, frequent consumption of junk food, positive family history of obesity, non-exclusive breastfeeding, higher socioeconomic status, and shorter interval (≤2 hours) between last meal and bedtime ($p \leq 0.05$).*

Conclusion: *Childhood obesity is prevalent in our local setting and is strongly associated with modifiable lifestyle and behavioral factors. Early identification and targeted interventions involving parents, teachers, and healthcare providers are essential to curb the growing burden of childhood obesity and its complications.*

INTRODUCTION

Childhood obesity is a rapidly growing public health concern worldwide, affecting both developed and developing countries [1]. In Bangladesh and the surrounding region, health claims, especially among the wealthy and the middle class, have increased among children in the recent past and in previous years [2]. Childhood overweight and obesity are observed worldwide. The prevalence of children suffering from overweight and obesity in the years of the '90 was estimated to be 4.2%. This estimate increased to 6.7% in 2010, and from 2010-2020, it was estimated that 9.1% suffered from overweight

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and obesity [3]. The health problems associated with obesity are numerous, including psychosocial issues, loss of self-esteem, and social and emotional well-being [4]. Other health problems include disturbances in metabolism, psychosocial issues, heart problems, skeletal issues, problems in the nervous system, and lung problems [5]. Identifying the issues that lead to corrective action is of great importance in averting childhood obesity. Studies conducted in various parts of the world show that obesity is positively associated with dietary habits, physical inactivity, prolonged periods of watching television or playing video games, family obesity, socioeconomic status, and parental education [6,7]. Most of these studies have correlated socioeconomic status with obesity conditions and the long-term effects of that obesity [8]. Hossain et al. examined the problem in 150 children aged 5 to 16 years, of whom 100 were overweight or obese and 50 were of normal weight. Among those children, firstborn children comprised 62%, while those who watched TV for 3 hours represented 16%, and those who were breastfed for less than 6 months were 21%. Maternal BMI greater than 24.9, excessive daily caloric intake greater than 6%, and being over 42% were cases compared to controls [9]. A study in Sharjah (United Arab Emirates) involving 678 children aged 6 to 11 years reported similarly, with 28.2% being overweight or obese, 23.9% physically inactive, and high consumption of candies and fast food (54.6% and 47.8% respectively) [10].

Objectives

The objectives of this study were to determine the prevalence of obesity among children aged 5–15 years presenting to the pediatric outpatient department of Sheikh Zayed Hospital, Rahim Yar Khan, and to assess the frequency of various factors associated with obesity among these children.

Methodology

This cross-sectional study was conducted in the Department of Pediatric Medicine, Sheikh Zayed Hospital, Rahim Yar Khan, from October 2024 to April 2025. A total of 159 children were enrolled in the study. The sample size was calculated using the WHO sample size calculator, taking an expected prevalence of obesity of 28.2%, a confidence level of 95%, and an absolute precision of 7%. Participants were selected using a non-probability consecutive sampling technique. Children aged 5–15 years, of either male or female gender, visiting the pediatric medicine outpatient department either as attendants with other patients or with acute viral illnesses such as flu or cough, were included. Children whose parents refused to give consent, those with known diabetes mellitus or hypothyroidism, and children receiving long-term steroid therapy were excluded from the study.

Data Collection Procedure

After approval from the Institutional Ethics Review Committee, informed consent was obtained from parents and assent from children aged ≥7 years. Age, gender, and socioeconomic status based on the demographic characteristics were captured. Using standardized methods, anthropometric measurements such as height and weight were obtained, and body mass index (BMI) was calculated. The status of obesity was assessed using the BMI-for-age percentile charts of the World Health Organization (WHO). Data on exclusive breastfeeding, physical exercise, screen time, junk food intake, family obesity history, time between the last meal and sleep, and interval were obtained by means of a pre-designed proforma.

Data Analysis

Data were analyzed using SPSS version 23. Quantitative variables were expressed as mean ± standard deviation or median (range), while qualitative variables were presented as frequencies and percentages. Stratification was done for age, gender, and socioeconomic status to control confounders. Chi-square test or Fisher's exact test was applied where appropriate. A p-value ≤0.05 was considered statistically significant.

Results

A total of 159 children aged 5–15 years were included in the study. Among them, 41 children (25.8%) were classified as obese (BMI ≥95th percentile), while 118 children (74.2%) had normal BMI for age. There were no statistically significant differences between obese and non-obese children with respect to gender distribution and mean age (p

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> 0.05), indicating comparability between the two groups.

Table 1: Comparison of Lifestyle and Behavioral Factors Between Obese and Non-Obese Children

Factor	Obese (n=41)	Non-Obese (n=118)
Screen time >2 hours/day	28 (68.3%)	42 (35.6%)
Physically inactive	26 (63.4%)	39 (33.1%)
Junk food consumption ≥2–3 times/week	30 (73.2%)	46 (39.0%)
Non-exclusive breastfeeding	24 (58.5%)	39 (33.1%)
Family history of obesity	25 (61.0%)	38 (32.2%)
Last meal ≤2 hours before bedtime	27 (65.9%)	44 (37.3%)

Children classified as obese had significantly higher screen time, lower physical activity, and more frequent junk food intake compared to non-obese children. A positive family history of obesity and non-exclusive breastfeeding were also significantly more common among obese children. Obesity was more prevalent among children from upper-middle and high socioeconomic classes compared to lower socioeconomic groups, and this association was statistically significant ($p \leq 0.05$).

Discussion

The findings of this study demonstrate that childhood obesity is a significant health problem in our local population, aligning with evidence from regional and international studies [6,7]. Its simplicity in measurement and clinical relevance make body mass index (BMI) a widely used tool for screening obesity in paediatric settings, including those with no advanced tools for measuring body composition [4, 5]. There have been multiple studies on childhood obesity, including obesity in children due to multiple factors, including, but not limited to excessive screen time, poor and unhealthy diet, and lack of physical exercise [8, 12, 13]. Lifestyle factors and obesity correlate on a greater scale, and this is reflected in both national and international level findings, and these results come from a representative paediatric sample. Another important key factor which cannot be modified is family history of obesity which emerged from our cohort study. This shows us the interaction of genetic tendencies and the family styles of living that are shared [10,14]. This is consistent with studies in genetic epidemiology which show the components of obesity and the aggregation of obesity in families [15,16]. The exclusive breastfeeding, which is the only one studied and seen, is in favour of the protection which is noticed and in the early evidence that supports the notion of children being breastfed resulting in lower levels and risks of obesity. Many meta-analyses have shown that breastfeeding is a factor in early life and is associated with less obesity in later life, that is, the adiposity is lesser and this is seen to be mediated through metabolic pathways, appetite regulation, programming, and other activations [9,17,18]. The obesity in the study and the socioeconomic status in the study were correlated strongly and this is also the same in other studies. These children from higher socioeconomic backgrounds are seen to be more obese and this is due to the fact that they have greater access to food, which is calorie dense, and also the leisure activities are more sedentary. This finding integrates with other research in the region that shows urbanisation and economic advancement have changed lifestyles in a way that promotes an environment highly conducive to obesity [14,19,20]. There are also other recent findings on childhood obesity that highlight more risk factors than those studied here. As an example, the length and quality of sleep are increasingly noted as predictors of the risk of obesity, as shortened sleep is associated with changes in appetite regulating hormones and higher caloric consumption [21]. The association of obesity risk in children with psychosocial stress and specific

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environmental factors such as community walkability and availability of recreational resources has also been documented [22,23].

Conclusion

This study highlights that childhood obesity is a significant and growing public health concern among children presenting to the pediatric outpatient department of Sheikh Zayed Hospital, Rahim Yar Khan. The prevalence observed reflects a trend comparable to regional and international data, underscoring the urgent need for preventive measures. Multiple modifiable risk factors, including excessive screen time, low physical activity, frequent consumption of calorie-dense foods, and short intervals between the last meal and bedtime, were strongly associated with obesity. Non-modifiable factors such as family history of obesity also contribute to increased risk, while exclusive breastfeeding appears to offer a protective effect.

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