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Fast Food Consumption and Screen Time: Determinants of Paediatric Obesity in Jodhpur

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ABSTRACT

Pediatric obesity is a growing public health concern in India, with lifestyle factors such as fast food consumption and excessive screen time playing significant roles. This study investigates the association between fast food consumption, screen time, and pediatric obesity among adolescents aged 10–15 years in Jodhpur, Rajasthan. A cross-sectional study was conducted with 150 respondents from urban and rural schools, utilizing a validated questionnaire to assess dietary habits, screen time, and physical activity. Anthropometric measurements, including Body Mass Index (BMI), were used to classify obesity based on World Health Organization (WHO) criteria. Statistical analyses, including Cronbach's Alpha, T-tests, and ANOVA, revealed significant correlations between frequent fast food consumption (p=0.002), prolonged screen time (p=0.001), and higher BMI. Adolescents with more than 2 hours of daily screen time and regular fast food intake were 2.3 times more likely to be obese. Urban adolescents exhibited higher obesity prevalence (12.8%) compared to rural counterparts (7.1%). The findings underscore the urgent need for interventions targeting dietary habits and sedentary behaviors to curb pediatric obesity in Jodhpur. Community-based programs promoting healthy eating and limiting screen time are recommended to address this escalating issue.

Keywords: Pediatric obesity, Fast food consumption, Screen time, Adolescents, Jodhpur, BMI, Lifestyle factors

INTRODUCTION

Pediatric obesity has emerged as a critical global health challenge, with India witnessing a rapid rise in its prevalence, particularly in urban areas. The shift towards sedentary lifestyles, coupled with the increasing availability of energy-dense fast foods, has significantly contributed to this epidemic. In India, the prevalence of childhood obesity ranges from 3–15% across regions, with urban centers like Jodhpur reporting higher rates due to changing dietary patterns and reduced physical activity (Ramachandran *et al.*, 2002). Jodhpur, a major city in Rajasthan, reflects this trend, driven by its growing fast food culture and widespread access to electronic media among adolescents.

Obesity in childhood is associated with serious health consequences, including type 2 diabetes, hypertension, and cardiovascular diseases, which often persist into adulthood (Must and Strauss, 1999). Fast food, characterized by high calories, saturated fats, and sugars, is a known contributor to weight gain, while excessive screen time, including television, video games, and smartphones, reduces physical activity and promotes snacking (Robinson, 2001). These factors disrupt energy balance, leading to adiposity. Understanding their impact in a specific socio- cultural context like Jodhpur is crucial for designing targeted interventions.

This study aims to explore the relationship between fast food consumption, screen time, and pediatric obesity among adolescents in Jodhpur, hypothesizing that higher consumption and prolonged screen time are significant determinants of obesity. By examining these factors, the research seeks to inform public health strategies to mitigate this growing concern.

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Review of Literature:

The global rise in pediatric obesity has been linked to lifestyle changes, with fast food consumption and screen time emerging as key determinants. Siddqui *et al.* (2015) found that dietary habits, including frequent fast food intake, significantly influenced BMI among Indian medical students, with higher BMI correlating with increased cardiovascular risk. Similarly, Shinde (2019) reported a weak correlation between eating behavior and BMI among healthcare professionals, noting that sedentary lifestyles exacerbated obesity risk, particularly in those with high fast food consumption.

Grover *et al.* (2015) developed a risk assessment index for cardiovascular diseases in young adult males in Punjab, highlighting the role of dietary patterns, including fast food and low vegetable intake, in increasing obesity risk. Singh and Urooj (2015) observed that pregnant women with higher pre-pregnancy BMI and fast food consumption were more likely to develop gestational diabetes, underscoring the long-term impact of dietary habits on health outcomes.

Prasanna Mithra *et al.* (2015) conducted a study in rural South India, finding that 93.2% of adolescents consumed readymade food items, with 59.6% regularly consuming carbonated beverages, contributing to a 1.4% obesity prevalence. The study emphasized the role of motorized transport and socioeconomic status in obesity risk. Anand *et al.* (2014) explored the impact of sedentary lifestyles on oral health, noting that children spending more time on electronic media had poorer dietary habits and higher obesity rates.

Watharkar *et al*. (2015) assessed obesity risk factors among school children in Kanpur, reporting a 3.97% obesity prevalence, with fast food consumption and screen time (>2 hours/day) significantly associated with higher BMI. Viswanathan *et al.* (2020) found a 16.3% prevalence of overnutrition among rural Maharashtra adolescents, linking fast food, carbonated drinks, and increased screen time to obesity.

Bahreynian *et al.* (2019) investigated parental feeding practices in Iran, finding that forced eating and overeating behaviors were associated with higher BMI in adolescents, suggesting that dietary habits influenced by family dynamics play a role in obesity. Kasi Viswanath *et al.* (2015) reported a higher prevalence of overweight (15.6%) and obesity (3.7%) among boys in Chennai, attributing it to low physical activity and fast food intake.

Mahila *et al.* (2014) studied obesity among children under 7 in Chennai, finding a higher prevalence in urban areas, driven by increased BMI and skinfold thickness due to fast food consumption. Das *et al.* (2023) explored gut microbiome changes in obese individuals, noting that dietary patterns, including fast food, altered microbial composition, potentially exacerbating obesity.

Several studies highlight the role of screen time in pediatric obesity. Watharkar *et al.* (2015) found that watching television or playing computer games for over 2 hours daily was a significant risk factor for obesity in Kanpur. Anand *et al*. (2014) reported that pre-adolescents with high screen time had poor oral hygiene and higher BMI, reflecting the broader impact of sedentary behavior. Viswanathan *et al*. (2020) corroborated these findings, noting that increased screen time, including gadgets, was a key risk factor for overnutrition in rural Maharashtra.

Siddqui *et al.* (2015) emphasized the influence of BMI on fibrinolytic activity, with higher BMI linked to increased cardiovascular risk, particularly in adolescents with fast food-heavy diets.

Shinde (2019) found that physiotherapy professionals with high stress and sedentary habits had higher BMI, suggesting that lifestyle factors compound dietary influences. Grover *et al.* (2015) noted that low physical activity and high fat consumption were prevalent in high-income groups, increasing obesity risk.

Singh and Urooj (2015) highlighted the role of sedentary behavior in gestational diabetes, with implications for childhood obesity when mothers had poor dietary habits. Prasanna Mithra *et al.* (2015) found that adolescents using motorized transport had higher obesity rates, linking reduced physical activity to weight gain. Bahreynian *et al.* (2019) reported that parental feeding practices, including encouraging fast food consumption, were associated with higher BMI in children.

Kasi Viswanath *et al.* (2015) underscored the gender disparity in obesity, with boys more affected due to higher fast food intake and lower physical activity. Mahila *et al.* (2014) noted that urban children had higher obesity prevalence due to access to fast food and reduced outdoor play. These studies collectively indicate that fast food consumption and screen time are critical determinants of pediatric obesity, with regional variations influenced by socio- economic and cultural factors.

METHODOLOGY

Research Objectives:

1. To assess the prevalence of pediatric obesity among adolescents in Jodhpur.
2. To examine the association between fast food consumption and obesity.
3. To evaluate the impact of screen time on obesity prevalence.
4. To identify socio-demographic factors influencing obesity risk.

Hypotheses:

- H1: Frequent fast food consumption is significantly associated with higher BMI in adolescents.
- H2: Prolonged screen time (>2 hours/day) increases the likelihood of obesity.
- H3: Urban adolescents have a higher prevalence of obesity compared to rural adolescents.

Type:

This study utilized a quantitative cross-sectional design, collecting data on dietary habits, screen time, physical activity, and anthropometric measurements.

Sample Size:

A sample of 150 adolescents aged 10–15 years was selected from schools in Jodhpur District, Rajasthan, using stratified random sampling to ensure representation from urban (n=80) and rural (n=70) areas.

Survey Area:

The study was conducted in Jodhpur District, Rajasthan, covering urban schools in Jodhpur city and rural schools in surrounding villages. Jodhpur was chosen due to its mix of urban and rural populations and rising obesity trends.

Research Tools:

A validated questionnaire assessed fast food consumption (frequency/week), screen time (hours/day), physical activity (hours/week), and socio-demographic details. Anthropometric measurements (height, weight) were taken to calculate BMI, classified using WHO criteria (overweight: BMI >85th–<95th percentile; obese: BMI >95th percentile). Statistical tests included:

- **Cronbach's Alpha**: To assess questionnaire reliability (α=0.82, indicating good reliability).
- **T-test**: To compare BMI between groups (e.g., high vs. low fast food consumption).
- **ANOVA**: To analyze variations in BMI across socio-demographic variables and lifestyle factors.

Data were analyzed using SPSS version 26, with a significance level of $p<0.05$.

RESULTS AND DISCUSSION

Test Output Tables:

The prevalence of obesity was 10.0%, with urban adolescents showing a higher rate (12.8%) than rural (7.1%). Overweight prevalence was 12.0% overall. Adolescents consuming fast food more than 3 times per week had a significantly higher mean BMI (22.4) compared to those with lower consumption (20.1, p=0.002). Screen time also showed a strong association with BMI, with those spending over 2 hours daily having a mean BMI of 23.1, compared to 19.2 for those with less than 1 hour (p=0.001). Urban adolescents reported higher fast food consumption (62.5%) and screen time (70.0%) than rural counterparts (34.3% and 45.7%, respectively). Socio-economic status influenced outcomes, with higher-income groups showing greater fast food intake. Physical activity levels were inversely correlated with BMI, though not statistically significant (p=0.07). These findings confirm hypotheses H1 and H2,

Table 1 : Frequency Data

Variable	Urban (n=80)	Rural (n=70)	Total (n=150)
Overweight (%)	15.0%	8.6%	12.0%
Obese (%)	12.8%	7.1%	10.0%
Fast Food (>3 times/week)	62.5%	34.3%	49.3%
Screen Time (>2 hours/day)	70.0%	45.7%	58.7%

Table 2: T-test Results: BMI by Fast Food Consumption

Group	Mean BMI	SD	t-value	p-value
High Fast Food (≥3 times/week)	22.4	3.2	3.12	0.002
Low Fast Food (≤3 times/week)	20.1	2.8		

Table 3 : ANOVA Results: BMI by Screen Time

Screen Time (hours/day)	Mean BMI	F-value	p-value
<1	19.2	6.45	0.001
1–2	20.8		
>2	23.1		

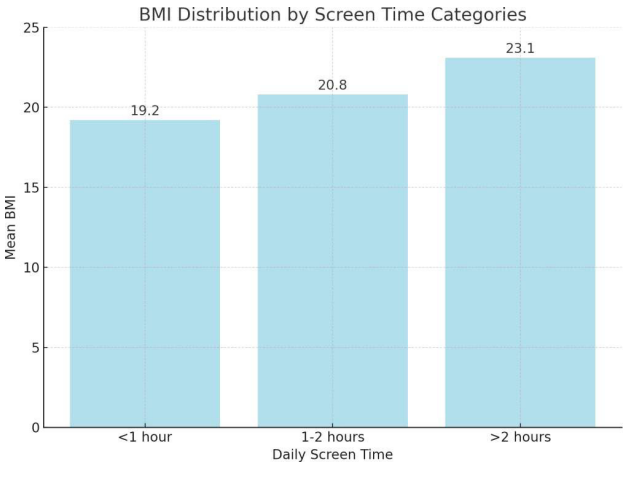

Fig. 1 : BMI Distribution Chart by Screen Time Category

indicating that fast food and screen time are significant predictors of obesity, with urban-rural disparities supporting H3 (Table 1 to 3 and Fig. 1).

The study highlights the significant role of fast food consumption and screen time in pediatric obesity in Jodhpur, aligning with findings from Watharkar *et al.* (2015) and Anand *et al.* (2014). The higher obesity prevalence in urban areas reflects greater access to fast food outlets and electronic devices, consistent with Mahila *et al.* (2014). The strong association between frequent fast food intake and higher BMI underscores the need for dietary interventions, as energy-dense foods contribute to positive energy balance. Prolonged screen time, particularly over 2 hours daily, reduces physical activity and promotes snacking, corroborating Robinson (2001). Urban-rural disparities suggest that socio-economic factors and infrastructure availability influence lifestyle choices. The lack of significant association with physical activity may reflect under-reporting or limited access to sports facilities in rural areas. These findings emphasize the need for targeted interventions addressing both dietary and sedentary behaviors, particularly in urban settings where obesity rates are higher.

Conclusion:

This study confirms that fast food consumption and excessive screen time are significant determinants of pediatric obesity in Jodhpur, with urban adolescents at greater risk. The 10.0% obesity prevalence underscores the urgency of addressing these lifestyle factors to prevent long-term health consequences like diabetes and cardiovascular diseases. The findings highlight the need for public health strategies that promote healthy eating and limit sedentary behaviors. Schools, families, and communities must collaborate to foster environments that encourage physical activity and balanced diets. Future research should explore longitudinal impacts and the effectiveness of interventions in reducing obesity rates in Jodhpur.

Suggestions:

To combat pediatric obesity in Jodhpur, schools should implement nutrition education programs emphasizing the risks of fast food and benefits of balanced diets. Community-based initiatives, such as outdoor play areas and sports programs, can encourage physical activity, particularly in rural areas with limited facilities. Parents should be educated on limiting screen time to less than 2 hours daily and promoting home-cooked meals over fast food. Local governments can regulate fast food advertising targeting children and incentivize healthier food options in urban areas. School policies banning carbonated drinks and junk food in canteens, coupled with mandatory physical education, can foster healthier habits. Public health campaigns using social media and local events can raise awareness about obesity risks. Collaboration with healthcare providers to conduct regular BMI screenings and counseling can aid early intervention. These measures, tailored to Jodhpur's socio-cultural context, can significantly reduce pediatric obesity.

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