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Research Article

Public Knowledge and Attitudes towards Childhood Obesity and Prevention in Chamba

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Abstract: Background: Childhood obesity is a rapidly growing public health concern globally, with significant implications for both short-term and long-term health outcomes. In India, particularly in rural areas like Chamba, Himachal Pradesh, the dual burden of undernutrition and obesity is becoming increasingly evident. Despite the rising prevalence of obesity, knowledge and attitudes towards childhood obesity and its prevention remain underexplored in this region. **Materials and Methods:** This study employed a cross-sectional, quantitative research design to assess the knowledge and attitudes towards childhood obesity among parents in Chamba. A total of 500 parents with at least one child aged 18 years or younger were selected through systematic random sampling. Data were collected using a structured questionnaire, which was pretested for clarity and reliability. Descriptive statistics, chi-square tests, and logistic regression analysis were used to analyze the data and identify key predictors of high knowledge and positive attitudes. **Results**: The majority of parents (85.4%) recognized childhood obesity as a health issue, but knowledge gaps were identified in understanding specific risk factors, with only 63.8% correctly identifying them. Positive attitudes towards prevention strategies were prevalent, with 84.6% supporting healthy eating at home and 76.4% endorsing regular physical activity. However, 18.4% of parents were neutral or disagreed with the perception that obesity is a personal family issue. Higher education (OR = 3.1, 95% CI: 2.0-4.6) and high-income status (OR = 2.4, 95% CI: 1.4-3.7) were the strongest predictors of high knowledge and positive attitudes towards prevention. **Conclusion**: This study highlights the need for targeted, culturally tailored interventions in Chamba to address the knowledge gaps and socio-economic disparities that influence parents' attitudes towards childhood obesity prevention. By prioritizing education and income-related barriers, community-based strategies can be more effectively implemented to reduce the growing trend of childhood obesity in rural India, ultimately improving long-term health outcomes for children.

Keywords: Childhood obesity, public knowledge, attitudes, prevention, Chamba, rural India, socio-economic factors, community-based interventions, health education, Himachal Pradesh.

INTRODUCTION

Childhood obesity is a growing public health concern globally, with significant implications for both short-term and long-term health outcomes. The rise in childhood obesity rates has been linked to an increased risk of chronic conditions such as diabetes, cardiovascular diseases, and mental health issues, which can persist into adulthood. In India, the dual burden of undernutrition and obesity is evident, particularly in rural areas, where changing lifestyles and dietary patterns are contributing to this emerging health crisis.[1-6]

Chamba, a district in the northern Indian state of Himachal Pradesh, presents a unique setting to explore the public knowledge and attitudes towards childhood obesity and its prevention. Despite being a predominantly rural region, Chamba is not immune to the influences of globalization, urbanization, and socio-economic changes that have contributed to the rising prevalence of obesity in other parts of the country. However, the specific perceptions, awareness levels, and preventive practices related to childhood obesity in this region remain underexplored.

Understanding the public's knowledge and attitudes is crucial for developing effective community-based interventions aimed at preventing childhood obesity. In regions like Chamba, where cultural, socio-economic, and educational factors play a significant role in health behaviors, tailored interventions can bridge the gap between awareness and action. This study aims to assess the current state of public knowledge and attitudes towards childhood obesity in Chamba, with a focus on identifying key barriers and facilitators to effective prevention strategies.

By examining the perspectives of parents, educators, healthcare providers, and community leaders, this research seeks to provide a comprehensive understanding of the local context. The findings will contribute to the development of culturally appropriate, evidence-based interventions that can be implemented at the community level to curb the growing trend of childhood obesity in rural India.

MATERIALS AND METHODOLOGY

Study Design

This study employed a cross-sectional, quantitative research design to assess public knowledge and attitudes towards childhood obesity and its prevention among parents in Chamba, a rural district in Himachal Pradesh, India. The study was conducted over a period of two months, from Jan to June, 2024.

Study Population and Sampling

The study population consisted exclusively of parents residing in Chamba who had at least one child aged 18 years or younger. A multistage sampling technique was utilized to ensure a representative sample across different demographic groups and geographical areas within the district.

- **Sample Size**: A total of 500 parents were selected for the study. The sample size was calculated based on the estimated population of Chamba, with a confidence level of 95% and a margin of error of 5%.
- **Sampling Method**: Systematic random sampling was employed to select participants. Both urban and rural areas within the district were included in the sampling frame to capture a diverse range of parental perspectives.

Data Collection Tool

A structured questionnaire was developed specifically for parents to assess their knowledge and attitudes towards childhood obesity and its prevention. The questionnaire consisted of three main sections:

1. **Demographic Information**: This section collected data on participants' age, gender, education level, occupation, household income, and area of residence (urban or rural).
2. **Knowledge of Childhood Obesity**: This section included questions to evaluate parents' awareness of childhood obesity, including its causes, risk factors, and potential health consequences for children. The questions were adapted from validated tools used in previous studies and tailored to the local context.
3. **Attitudes Towards Prevention**: This section focused on assessing parents' attitudes towards various strategies for preventing childhood obesity, such as promoting healthy eating habits, encouraging physical activity, and the perceived role of schools and healthcare providers in prevention efforts.

The questionnaire was pretested on a small sample of parents to ensure its clarity, validity, and reliability. Based on feedback from the pretest, necessary modifications were made to the questionnaire.

Data Collection Procedure

Trained field researchers conducted face-to-face interviews with parents using the structured questionnaire. The interviews were conducted in the local language to ensure that participants fully understood the questions and were able to respond accurately. Data collection took place at various locations across Chamba, including households, community centers, and public spaces where parents frequently gather.

Each interview lasted approximately 20-30 minutes. The data collection process was carefully standardized to minimize potential interviewer bias and ensure consistency across all interviews. The entire data collection process was completed within the two-month study period.

Data Analysis

The collected data were entered into a statistical software package (e.g., SPSS) for analysis. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were calculated to summarize the data and describe the distribution of knowledge and attitudes among the participants.

- **Knowledge Scores**: Parents' knowledge about childhood obesity was quantified based on their responses, with scores categorized into low, moderate, and high levels of knowledge.
- **Attitude Analysis**: Parents' attitudes towards childhood obesity prevention strategies were analyzed to identify common themes and preferences. Chi-square tests were used to examine associations between demographic variables (e.g., education level, household income) and knowledge and attitudes.
- **Multivariate Analysis**: Logistic regression analysis was performed to identify predictors of high knowledge levels and positive attitudes towards childhood obesity prevention. Key demographic variables, such as age, education level, and area of residence, were included in the model.

Ethical Considerations

Written informed consent was obtained from all participants prior to their participation in the study. Participants were assured of the confidentiality of their responses and were informed that their participation was voluntary. They were also made aware of their right to withdraw from the study at any time without any consequences.

RESULTS

Table 1 presents the demographic characteristics of the 500 parents who participated in the study. The sample comprised 42.6% males and 57.4% females, indicating a slight predominance of female respondents. The majority of the participants were between the ages of 30-39 years (47.6%), followed by those aged 40-49 years (27.4%). A smaller proportion of respondents were in the 18-29 years (16.6%) and 50 years and above (8.4%) age groups. In terms of education, 39.6% of parents had completed secondary education, while 26.4% had higher education, 23.4% had primary education, and 10.6% had no formal education. Most participants resided in rural areas (63.6%), with 36.4% living in urban areas. Regarding household income, 53.6% of the participants were in the middle-income group (₹10,000-₹30,000 per month), 30.4% were in the low-income group (< ₹10,000 per month), and 16.0% were in the high-income group (> ₹30,000 per month). These demographics provide a well-rounded view of the study population, capturing a diverse range of backgrounds.

Table 1: Demographic Characteristics of the Study Population

Demographic Variable	Category	Frequency (n=500)	Percentage (%)
Gender	Male	213	42.6
	Female	287	57.4
Age	18-29 years	83	16.6
	30-39 years	238	47.6
	40-49 years	137	27.4
	50 years and above	42	8.4
Education Level	No formal education	53	10.6
	Primary education	117	23.4
	Secondary education	198	39.6
	Higher education	132	26.4
Area of Residence	Urban	182	36.4
	Rural	318	63.6
Household Income (monthly)	Low-income (< ₹10,000)	152	30.4
	Middle-income (₹10,000-₹30,000)	268	53.6
	High-income (> ₹30,000)	80	16.0

Table 2 summarizes the knowledge of childhood obesity among parents, reflecting both strengths and gaps in awareness. A significant 85.4% of parents recognized childhood obesity as a health issue, demonstrating high general awareness. However, knowledge of specific risk factors was lower, with 63.8% correctly identifying them, and 60.4% recognizing physical inactivity as a cause of obesity. Awareness of the health consequences of obesity, such as diabetes, was relatively high, with 78.4% of parents knowledgeable in this area. Additionally, 69.6% of parents understood the importance of a balanced diet in preventing obesity. While overall awareness is promising, the data highlight areas where further education on specific causes and prevention strategies may be needed.

Table 2: Knowledge of Childhood Obesity Among Parents

Knowledge Item	Correct Responses (%)	Incorrect Responses (%)
Awareness of childhood obesity as a health issue	427 (85.4)	73 (14.6)
Knowledge of obesity risk factors	319 (63.8)	181 (36.2)
Awareness of health consequences (e.g., diabetes)	392 (78.4)	108 (21.6)
Understanding the importance of balanced diet	348 (69.6)	152 (30.4)
Recognition of physical inactivity as a cause	302 (60.4)	198 (39.6)

Table 3 details parents' attitudes towards various strategies for preventing childhood obesity. The vast majority (84.6%) agreed on the importance of promoting healthy eating at home, and 79.6% acknowledged the role of schools in obesity prevention. Additionally, 76.4% supported the need for regular physical activity for children, and 69.4% were in favor of government intervention programs. However, when it came to perceiving obesity as a personal family issue, only 63.6% agreed, while 18.4% were neutral, and 18.0% disagreed. These findings indicate a strong inclination towards external support and structured prevention programs, while some parents may still view obesity as primarily a family matter.

Table 3: Attitudes Towards Childhood Obesity Prevention

Attitude Item	Agree (%)	Neutral (%)	Disagree (%)
Importance of promoting healthy eating at home	423 (84.6)	58 (11.6)	19 (3.8)
Role of schools in obesity prevention	398 (79.6)	72 (14.4)	30 (6.0)

Need for regular physical activity for children	382 (76.4)	78 (15.6)	40 (8.0)
Support for government intervention programs	347 (69.4)	101 (20.2)	52 (10.4)
Perception of obesity as a personal family issue	318 (63.6)	92 (18.4)	90 (18.0)

Table 4 explores the relationship between education level and knowledge of childhood obesity, revealing a clear correlation. Parents with higher education were significantly more likely to have high knowledge levels (62.2%), compared to those with no formal education, where only 11.3% demonstrated high knowledge. Conversely, low knowledge levels were most prevalent among parents with no formal education (58.5%). This association was statistically significant (p-value = 0.003), highlighting the critical role of education in enhancing parents' understanding of childhood obesity. The findings suggest that educational interventions could be particularly beneficial in improving knowledge among less educated parents.

Table 4: Association Between Education Level and Knowledge of Childhood Obesity

Education Level	Low Knowledge (%)	Moderate Knowledge (%)	High Knowledge (%)
No formal education	31 (58.5)	16 (30.2)	6 (11.3)
Primary education	49 (41.9)	52 (44.4)	16 (13.7)
Secondary education	31 (15.7)	81 (41.1)	85 (43.2)
Higher education	11 (8.3)	39 (29.5)	82 (62.2)
p-value	0.003	-	-

Table 5 examines the relationship between household income and attitudes towards childhood obesity prevention. Higher income levels were strongly associated with more positive attitudes towards prevention strategies, with 86.3% of high-income parents expressing positive attitudes, compared to 52.3% of low-income parents. Neutral and negative attitudes were more common among lower-income groups. This association was statistically significant (p-value = 0.004), indicating that economic factors may influence how parents perceive and prioritize obesity prevention. The data suggest that income-based disparities could impact the effectiveness of public health interventions, making it essential to consider economic barriers in prevention efforts.

Table 5: Association Between Household Income and Attitudes Towards Prevention

Household Income (monthly)	Positive Attitudes (%)	Neutral Attitudes (%)	Negative Attitudes (%)
Low-income (< ₹10,000)	79 (52.3)	39 (25.8)	33 (21.9)
Middle-income (₹10,000-₹30,000)	191 (71.3)	49 (18.3)	28 (10.4)
High-income (> ₹30,000)	69 (86.3)	11 (13.7)	0 (0.0)
p-value	0.004	-	-

Table 6 presents the results of logistic regression analysis, identifying key predictors of high knowledge and positive attitudes towards childhood obesity prevention. Higher education was the strongest predictor, with parents who had higher education being significantly more likely to have high knowledge (OR = 3.1, 95% CI: 2.0-4.6) and positive attitudes (OR = 2.8, 95% CI: 1.9-4.2). High-income status also emerged as a significant predictor for both high knowledge (OR = 2.4, 95% CI: 1.4-3.7) and positive attitudes (OR = 3.0, 95% CI: 2.0-4.5). Age (40-49 years) and urban residence were additional predictors, though their effects were less pronounced. These findings underscore the multifaceted influences of education, income, and demographic factors on parents' knowledge and attitudes, emphasizing the need for targeted interventions that address these variables.

Table 6: Logistic Regression Analysis of Predictors for High Knowledge and Positive Attitudes

Predictor Variable	High Knowledge (OR, 95% CI)	Positive Attitudes (OR, 95% CI)
Age (40-49 years)	1.7 (1.1-2.5)	1.4 (1.0-2.2)
Education (Higher education)	3.1 (2.0-4.6)	2.8 (1.9-4.2)
Income (High-income)	2.4 (1.4-3.7)	3.0 (2.0-4.5)
Urban Residence	1.3 (0.9-1.9)	1.6 (1.1-2.4)
Note: OR = Odds Ratio; CI = Confidence Interval	-	-

DISCUSSION

The findings of this study provide valuable insights into the public knowledge and attitudes towards childhood obesity and its prevention among parents in Chamba, Himachal Pradesh. The results highlight both strengths and areas for improvement, with significant implications for public health strategies aimed at curbing the growing trend of childhood obesity in rural India.

The high level of awareness regarding childhood obesity as a health issue (85.4%) indicates that most parents in Chamba recognize the significance of this condition. However, knowledge gaps remain concerning specific risk factors and causes, such as the role of physical inactivity and dietary habits. Only 63.8% of parents correctly identified obesity risk factors, and 60.4% recognized physical inactivity as a contributing factor. These findings suggest that while general awareness is strong, more targeted education is needed to enhance parents' understanding of the specific behaviors and environmental factors that contribute to childhood obesity. This is particularly important in a region like Chamba, where traditional lifestyles are rapidly changing due to globalization and urbanization.[7-10]

Parents in Chamba generally exhibited positive attitudes towards obesity prevention strategies, with strong support for promoting healthy eating at home (84.6%) and recognizing the role of schools in prevention (79.6%). The majority of parents also acknowledged the importance of regular physical activity (76.4%) and supported government intervention programs (69.4%). However, a notable proportion of parents (18.4%) remained neutral or disagreed (18.0%) with the perception that obesity is a personal family issue. This ambivalence may reflect a tension between recognizing the need for external support and the traditional view of family responsibility in health matters. These findings underscore the need for public health initiatives that not only provide external support but also empower families to take active roles in preventing childhood obesity.[8-12]

The association between education level and knowledge of childhood obesity was particularly striking. Parents with higher education were significantly more likely to have high knowledge levels (62.2%) compared to those with no formal education (11.3%). This finding aligns with existing literature that highlights education as a key determinant of health literacy and behavior. Similarly, household income was strongly associated with positive attitudes towards obesity prevention, with 86.3% of high-income parents expressing positive attitudes compared to 52.3% of low-income parents. These disparities suggest that both educational and economic barriers may limit the effectiveness of obesity prevention efforts among less educated and lower-income families. Public health interventions in Chamba should therefore consider addressing these barriers by offering accessible, culturally appropriate education and support to all socio-economic groups.10-14

The logistic regression analysis identified higher education and high income as the strongest predictors of both high knowledge and positive attitudes towards childhood obesity prevention. This reinforces the critical role of socio-economic factors in shaping health-related knowledge and behaviors. Interestingly, age (40-49 years) and urban residence were also associated with higher knowledge and more positive attitudes, though to a lesser extent. These findings suggest that older parents and those living in urban areas may have greater exposure to information and resources related to obesity prevention. However, it is essential to ensure that rural populations, who may have less access to such resources, are not left behind in public health initiatives.[15-18]

Implications for Public Health Interventions

The findings of this study have important implications for the development of effective, community-based interventions to prevent childhood obesity in Chamba. Given the clear influence of education and income on knowledge and attitudes, interventions should prioritize reaching lower-income and less-educated families. This could be achieved through culturally tailored health education programs delivered in community settings, schools, and healthcare facilities. Additionally, efforts should be made to strengthen the role of schools in obesity prevention, as well as to promote the benefits of physical activity and healthy eating across all socio-economic groups.

Furthermore, the ambivalence observed among some parents regarding the family's role in obesity prevention highlights the need for interventions that not only provide external support but also foster a sense of empowerment within families. This could involve family-centered approaches that engage parents and children together in learning about healthy lifestyles and making positive changes.

Limitations and Future Research

While this study provides valuable insights, it is not without limitations. The reliance on self-reported data may introduce response bias, and the cross-sectional design limits the ability to establish causality between demographic factors and knowledge or attitudes. Future research could explore longitudinal designs to better understand how knowledge and attitudes evolve over time and the impact of specific interventions.

Moreover, expanding the scope of research to include other stakeholders, such as educators and healthcare providers, could provide a more comprehensive understanding of the community's perspectives on childhood obesity prevention. This would also allow for the development of more holistic interventions that engage all relevant sectors of society.

CONCLUSION

This study underscores the critical role of education, income, and socio-economic factors in shaping parents' knowledge and attitudes towards childhood obesity and its prevention in Chamba, Himachal Pradesh. While general awareness of childhood obesity is high, significant gaps remain in the understanding of specific risk factors and prevention strategies, particularly among less educated and lower-income families. The findings highlight the need for culturally tailored, community-based interventions that prioritize these vulnerable groups, empowering families to take an active role in preventing childhood obesity. By addressing these disparities and fostering a collaborative approach involving schools, healthcare providers, and communities, effective public health strategies can be developed to curb the rising trend of childhood obesity in rural India, ultimately improving long-term health outcomes for children.

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