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## Childhood Obesity Prevention and Intervention: A Comprehensive Paediatric Medicine Approach.

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### ABSTRACT

Childhood obesity is major global health concern necessitating effective preventive and intervention strategies. Our study investigates the efficacy of a comprehensive paediatric medicine approach in addressing childhood obesity. A retrospective cohort design was used with 60 paediatric patients (aged 5-12 years), randomly assigned to intervention and control groups. Baseline demographic, anthropometric, and behavioural data were collected. The intervention group received personalized dietary counselling, physical activity recommendations, and family-centered behavioural interventions over 12 months, while the control group received standard paediatric care. Outcome measures included changes in BMI, lifestyle factors, and participant satisfaction. The intervention group demonstrated a significant reduction in BMI, improved lifestyle factors, and heightened participant satisfaction compared to the control group. Multidisciplinary, personalized interventions within the comprehensive paediatric medicine approach contributed to positive outcomes. This study underscores the effectiveness of a comprehensive paediatric medicine approach in mitigating childhood obesity. Tailored interventions, involving paediatricians, dietitians, and behavioural therapists, exhibited promising results in improving health outcomes.

**Keywords:** Childhood obesity, Paediatric medicine, Comprehensive intervention, Personalized care

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## INTRODUCTION

Childhood obesity is major public health issue with far-reaching implications for the well-being of future generations [1]. As the prevalence of obesity among children continues to rise globally, there is an urgent need for comprehensive and effective prevention and intervention strategies. Our research study aims to explore and propose innovative approaches within the realm of paediatric medicine [2]. By synthesizing current evidence, leveraging multidisciplinary perspectives, and considering the complex interplay of genetic, environmental, and behavioural factors, this study seeks to contribute to a nuanced understanding of childhood obesity [3, 4]. The study will not only shed light on the factors contributing to obesity in children but also propose tailored interventions that can be integrated into paediatric care, emphasizing the importance of early identification and proactive management to curb the alarming trend of childhood obesity.

## MATERIAL AND METHODS

In our study, a retrospective cohort design was employed to investigate the effectiveness of the comprehensive paediatric medicine approach in preventing and intervening in childhood obesity. The study included a total of 60 paediatric patients, aged 5 to 12 years, who were recruited from a diverse range of healthcare facilities. Patient selection criteria focused on those with a documented history of obesity or at risk of developing obesity based on relevant health indicators. The study cohort comprised both genders and encompassed various socioeconomic backgrounds to ensure a representative sample.

Baseline data, including demographic information, medical history, and anthropometric measurements, were collected for each participant. The research team utilized standardized assessment tools to evaluate dietary patterns, physical activity levels, and relevant psychosocial factors contributing to obesity. The intervention group received the comprehensive paediatric medicine approach, consisting of personalized dietary counseling, physical activity recommendations, and family-centered behavioural interventions. The control group received standard paediatric care without the additional intervention. Follow-up assessments were conducted at regular intervals over a 12-month period, with data on weight status, lifestyle behaviours, and psychosocial factors systematically recorded and analyzed.

Statistical analyses, including descriptive statistics and inferential tests such as t-tests and chi-square tests, were employed to compare outcomes between the intervention and control groups. The study methodology aimed to provide a robust framework for assessing the impact of the comprehensive paediatric medicine approach on childhood obesity, considering both short-term and long-term outcomes.

## RESULTS

**Table 1: Demographic Characteristics of Study Participants (N=60)**

Characteristic	Intervention Group (n=30)	Control Group (n=30)	p-value
Age (years), mean $\pm$ SD	8.5 $\pm$ 1.2	8.7 $\pm$ 1.4	0.42
Gender (% male)	53%	47%	0.68
Socioeconomic status	Middle-class: 70%	Middle-class: 65%	0.51

**Table 2: Baseline Anthropometric Measurements (N=60)**

Measurement	Intervention Group (n=30)	Control Group (n=30)	p-value
Body Mass Index (BMI)	29.1 $\pm$ 3.2	28.5 $\pm$ 2.9	0.26
Waist circumference	85.2 $\pm$ 7.8 cm	83.5 $\pm$ 6.5 cm	0.41
Body fat percentage	32.4 $\pm$ 4.1%	31.8 $\pm$ 3.5%	0.59

**Table 3: Lifestyle and Behavioural Factors at Baseline (N=60)**

Factors	Intervention Group (n=30)	Control Group (n=30)	p-value
Dietary patterns	Balanced: 65%	Balanced: 58%	0.43
Physical activity levels	Moderate: 75%	Moderate: 68%	0.51
Screen time (hours/day)	2.5 ± 0.8	2.7 ± 0.9	0.36
Family support (%)	82%	78%	0.58

**Table 4: Follow-up Outcomes at 12 Months (N=60)**

Outcome Measures	Intervention Group (n=30)	Control Group (n=30)	p-value
Change in BMI	-2.3 ± 1.0	-0.8 ± 0.6	<0.001
Improvement in lifestyle	Significant improvement	Some improvement	0.02
Reduction in obesity-related comorbidities	60% reduction	20% reduction	0.01
Participant satisfaction	High: 90%	Moderate: 65%	0.03

### DISCUSSION

Childhood obesity is a pervasive public health concern, and addressing it necessitates a comprehensive paediatric medicine approach [5-7]. The findings of our study contribute to the evolving understanding of effective strategies for preventing and intervening in childhood obesity. In this discussion, we interpret and contextualize the results, considering the implications for clinical practice, policy, and future research [8].

The demographic characteristics of the study participants revealed a diverse sample, reflective of the broader population. The comparable age distribution, gender representation, socioeconomic status etc between the intervention and control groups enhance the generalizability of our findings. These baseline characteristics provide a solid foundation for evaluating the impact of the comprehensive paediatric medicine approach across different demographic subgroups [9].

Anthropometric measurements at baseline, including body mass index (BMI), waist circumference, and body fat percentage, highlighted the initial health status of the participants. The slightly higher BMI in the intervention group may be attributed to the randomization process, emphasizing the need for statistical adjustments in subsequent analyses. Notably, the baseline measurements establish a baseline against which the effectiveness of the intervention can be assessed.

Lifestyle and behavioural factors play a crucial role in the development and perpetuation of childhood obesity. The baseline assessment revealed a generally balanced distribution of dietary patterns and physical activity levels between the two groups. However, the intervention group demonstrated a higher percentage of participants with balanced dietary patterns, emphasizing the potential impact of the comprehensive paediatric medicine approach on fostering healthier behaviors. The modest difference in screen time and family support between the groups suggests a need for targeted interventions addressing these factors comprehensively.

The 12-month follow-up outcomes demonstrated promising results in the intervention group. A significant reduction in BMI was observed, surpassing the changes observed in the control group. The substantial improvement in lifestyle factors, particularly dietary patterns and physical activity levels, underscores the effectiveness of personalized counselling and behavioural interventions within the comprehensive approach. Furthermore, the notable reduction in obesity-related comorbidities in the intervention group highlights the potential long-term health benefits of early and proactive intervention. The high level of participant satisfaction in the intervention group is a noteworthy finding. This positive feedback suggests that the comprehensive paediatric medicine approach was well-received by both children and their families. The emphasis on family-centered interventions likely contributed to increased participant engagement and adherence to the recommended lifestyle changes. However, the moderate satisfaction reported in the control group indicates that standard paediatric care may not be entirely sufficient in addressing the complex nature of childhood obesity.

Several factors may have contributed to the success of the comprehensive paediatric medicine approach. The personalized nature of the intervention, including tailored dietary counseling and

behavioural strategies, aligns with the growing recognition of the importance of individualized care in obesity management. The multidisciplinary nature of the approach, involving paediatricians, dietitians, and behavioural therapists, ensures a holistic and collaborative strategy. Moreover, the integration of family support recognizes the influential role of the family environment in shaping children's health behaviours [10].

While the findings are promising, this study has certain limitations that warrant consideration. The relatively small sample size may limit the generalizability of the results, and future research with larger cohorts is needed to validate our findings. Additionally, the short follow-up period of 12 months may not capture the full extent of the intervention's long-term impact. Longer-term studies are essential to assess the sustainability of the observed improvements and to monitor potential relapses in obesity-related outcomes.

The study also faced challenges related to self-reported data, particularly in assessing lifestyle factors. Social desirability bias may have influenced participants' responses, leading to an overestimation of positive behaviours. Future research should explore objective measures, such as accelerometry for physical activity and dietary biomarkers, to enhance the accuracy of data collection.

In terms of policy implications, our findings underscore the importance of integrating comprehensive paediatric medicine approaches into standard healthcare practices. Paediatricians and healthcare providers should be equipped with the necessary training and resources to implement personalized interventions effectively. Furthermore, our study advocates for a shift toward preventive strategies that start early in childhood, emphasizing the role of paediatric healthcare in fostering a foundation for lifelong health.

## CONCLUSION

In conclusion, our study provides valuable insights into the effectiveness of a comprehensive paediatric medicine approach in preventing and intervening in childhood obesity. The positive outcomes observed in terms of BMI reduction, lifestyle improvement, and participant satisfaction underscore the potential impact of personalized, multidisciplinary interventions. As childhood obesity continues to pose a significant global health challenge, the integration of such comprehensive approaches into routine paediatric care holds promise for mitigating the long-term health consequences associated with obesity. Future research should focus on expanding the evidence base, addressing study limitations, and exploring the scalability and sustainability of these interventions in diverse healthcare settings. Ultimately, a concerted effort from healthcare providers, policymakers, and communities is essential to combat the multifaceted issue of childhood obesity and promote the health and well-being of future generations.

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