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RESEARCH ARTICLE
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AN EXPERIMENTAL STUDY TO CHILDHOOD OBESITY INFORMATION EDUCATION AND COMMUNICATION (IEC) AMONG PARENTS OF OBESE CHILDREN

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Abstract
Initial data was collected on demographic and clinical variables and then pretest was given on knowledge, attitude and compliance towards weight reducing measures on childhood obesity for both the groups through a structured questionnaire before implementing IEC. Subjects who fulfilled the inclusion criteria, during the period of study were considered as sample. They were randomly assigned to study or control group by using lottery method. there were 100 samples in the study group and 100 samples in control group. Researchers found that students who participated in school-based treatments had a significant decrease in their body mass index. Involving parents in health promotion programs at school encourages students to keep up their healthy habits, which helps significantly in the fight against childhood obesity. The children really take to the group program and excel in it. Children's inactive time must be limited, and they must be encouraged to participate in physical activity.

Keywords: IEC, Obesity, Teacher, Food, Parent, child

INTRODUCTION

Childhood obesity has emerged recently in India, unlike in west, where it existed for long. Obesity in children as young as two years onwards has been reported from the Indian population (Sharma 2002). Since ages, weight gain in children and adults has been considered as a sign of personal health, family wealth and as an indicator of socio-economic prosperity among societies. According to Shetty (1999) in developing countries, being thin has been equated with poor health and at being high risk of developing illnesses. As developing societies become industrialized and urbanized with increasing standards of life style, weight gain and obesity have begun to pose a growing threat to the health of the citizens.

It is observed that 30% of obesity begins in childhood and out of that 50 % to 80 % become obese-adults (Styne DM., 2001). In the Harvard study, morbidity from cardiovascular disease, diabetes, obesity related cancers and arthritis were 50-100% higher in obese individuals who were also obese as children (MUST A., et al., 1992). The increase in childhood obesity worldwide has gained much recent attention, from healthcare professionals, health policy experts, children's advocates, and parents. There is much concern that today's overweight and obese children, will turn into tomorrow's overweight and obese adults, with all the health problems and health care costs associated with obesity.

Being obese or overweight is determined by a percentile measurement of Body Mass Index (BMI), which uses height and weight to determine if a person is normal, underweight, overweight or obese. The BMI is an indirect estimate of body fat that is valid for most individuals. Since children grow in height as well as weight, the standards for children need to be matched for age and sex. A BMI of 95th percentile places the child in obese category and at the 85th percentile, is considered as overweight.

A healthy focus on nutrition can't be underestimated. Hectic schedules, both for kids and parents, have resulted in a decline in breakfasts and an increase in dinners outside the home. Use of fast-food restaurants with their high calorie, high salt and high fat and carbohydrate entrees, along with their super-sized, sugary soft drinks, is a big contributor to our current obesity epidemic, especially among the lower and middle socioeconomic groups.

Over the last decades, food has become more affordable to larger numbers of people as the price of food has decreased substantially relative to income and the concept of 'food' has changed from a means of nourishment to a marker of lifestyle and a source of pleasure. Supervising mealtimes will help to control what the kids eat and create an opportunity to offer encouragement. It's also important to cut down on the snacking, as well as on processed, pre-prepared food. Making healthy foods easily accessible is key, so have fresh fruit washed and ready to eat in a big bowl where everyone can reach it. (Goran, M.I, 2001). Same with washed and cut vegetables and low-calorie dip. What parents eat is important, too, because kids develop preferences based on foods their parents eat.

LITERATURE REVIEW

Sahoo, et al (2015) In both affluent and developing nations, childhood obesity has reached pandemic proportions. Childhood obesity is associated with a variety of physical and mental health problems. Children who are overweight or obese are at increased risk for developing noncommunicable illnesses like diabetes and cardiovascular disease at an earlier age, and they are also more likely to remain overweight or obese throughout adulthood. Obesity is thought to have numerous origins, the mechanism of which is still poorly understood. The increasing global incidence of obesity may be attributed in large part to the interplay of environmental variables, individual lifestyle choices, and cultural norms and expectations. The common belief is that eating too much, particularly too much fat, causes weight gain. However, there is mounting evidence that the growing prevalence of obesity throughout the globe may be attributed in large part to the excessive sugar consumption seen in soft drinks, greater portion sizes, and a continuous drop-in physical activity. Obesity in children may have serious consequences for their health, happiness, and confidence. It's also linked to a decrease in the child's quality of life and performance in school. Childhood obesity is associated with a wide range of secondary medical problems. These include metabolic, cardiovascular, musculoskeletal, neurological, hepatic, pulmonary, and renal illnesses.

Bucher Della Torre, et al (2018) Providers of medical treatment are crucial in the setting of a global obesity pandemic. Avoiding stigma requires familiarity with current recommendations and mentalities. The purpose of this research was to examine the professional medical staff at a university hospital in Switzerland to ascertain their level of obesity-related knowledge, attitudes, beliefs, perceived potential for intervention, proclaimed behaviors, and need for training and material. There were a total of 834 medical professionals that participated in the online poll. Literature, exploratory interviews, and a team of experts informed the development of the questionnaire. Fifteen doctors and nurses participated in the preliminary testing. The majority of respondents said they did not have unfavorable views of those who struggle with obesity. The findings, however, revealed a deficiency in both the confidence in making a diagnosis of obesity in adults and children and the training necessary to care for patients who are overweight. About a third of doctors and nurses could not determine a patient's BMI. Despite 55% of physicians believing they lacked the necessary training, 50% said it was part of their responsibility to care for patients who were overweight or obese. The nurses and doctors at a university hospital had somewhat positive views about obesity, but they lacked the knowledge and abilities necessary to effectively treat the condition. Patients who are overweight

or obese should have equitable access to effective treatments, hence it is important that those who work with this group have better training.

Bass, Rosara & Eneli, Ihuoma. (2015) Overweight children need to be addressed immediately as a public health crisis. Over the last decade, researchers in the United States and others have worked tirelessly to find and implement educational, medical, and public health treatments that might slow the epidemic's spread. There has been a two-year pause in the increase of the prevalence rate of childhood obesity, which is likely due to the efficacy of these measures. Data from the same cohort show a worrying rising trend in the number of children with severe obesity, despite the encouraging reduction in the overall incidence of childhood obesity. Extreme juvenile obesity may have life-threatening repercussions. Children with extreme obesity have a higher chance of developing obesity as adults, as well as of developing atherosclerosis, hypertension, type 2 diabetes, the metabolic syndrome, fatty liver disease, and dying at an early age than their moderately obese counterparts. The same behavioral, environmental, family, and social risk factors associated with overweight or obesity are also associated with severe obesity. While it is important to look for all of these things, early-onset obesity may be more affected by hereditary variables. Lifestyle modification, very low-calorie diets, and bariatric surgery are all options for treating morbidly obese children. Bariatric surgery is head and shoulders above the other two procedures in terms of both short- and long-term weight reduction outcomes. Extreme childhood and teenage obesity continue to be a serious public health issue. There is an urgent need to do more research, standardize treatment methods, and improve results because of the huge physical, emotional, and financial hardship these children and their families bear.

Leung, Alexander & Wong, Alex & Hon, Kam. (2022) Overweight children are a major international health concern. Objective The purpose of this page is to teach doctors about pediatric assessment, treatment, and prevention. Methods Clinical Queries was used to run a PubMed search for the phrases "obesity" and "obese" in May 2021. Meta-analyses, observational studies, clinical recommendations, case reports, case series, and reviews were also searched for in addition to randomized controlled trials, case control studies, cohort studies, and meta-analyses. The search was limited to works written for young people in English. This article was written with the help of the data found via the aforementioned search. Results Exogenous obesity, which affects the vast majority of overweight children, is defined by a growth rate for height above the 50th percentile, normal IQ, normal genitalia, and the absence of any known endocrine problem or congenital condition in either the family history or the child's physical examination. Dyslipidemia, high blood pressure, diabetes mellitus, non-alcoholic fatty liver disease, sleep apnea, behavioral and emotional problems, poor quality of life, and a shortened lifespan are all associated with childhood obesity. The plethora of significant comorbidities calls for efficient treatment methods. Modifying one's diet, engaging in therapeutic activity, and altering one's behavior are the cornerstones of therapy. Those who continue to struggle with their weight after these interventions should be evaluated for pharmacotherapy and/or bariatric surgery. Conclusion Once established, obesity in children is notoriously difficult to manage. Most treatments only result in temporary weight reduction followed by fast regain after treatment is finished. Therefore, the best way to combat the epidemic of children obesity is by preventative measures, such as the advocacy of a healthy diet, the encouragement of regular physical exercise, and the adoption of other behavioral changes. Parents should be encouraged to participate in after-school and community activities aimed at enhancing their children's health via better diet and exercise.

Thomas-Eapen, Neena. (2021) Obesity in children is a disease with complex origins. There's a large variety of causes. Morbidity rates are higher due to obesity since it causes long-term health problems. Everyone from the patient and their loved ones to the school, community, and even government may need to be involved in order to effectively manage obesity. The cornerstone of therapy is a shift toward a healthier lifestyle, which includes eating better and doing more exercise. Some more severe instances may benefit from medication or bariatric surgery. Practical ways to combat the growing obesity pandemic may be made possible by changes in community and policy about diet and physical activity. In doing so, it will aid families and healthcare systems in their fight against childhood obesity.

RESEARCH METHODOLOGY

Criteria for selection of sample

Inclusion criteria

1. Mothers whose children were aged 5-17 years and BMI > 95 percentile for his/her age.
2. Mothers who speak and read either English / Tamil or both.
3. Mothers who are willing to participate in the study.

Exclusion criteria

- Mothers of obese children who had endocrine / medical problems.

Pilot Study

The pilot study was conducted with 20 samples of parents of obese children, allotted using randomization with 10 to study group and 10 to control group. These parents were excluded for the main study. The results proved that the instruments are valid and reliable.

Validity and Reliability

The tool was developed based on review of literature and validated by the experts in the field of study. Reliability of the tool was established through pilot study. The reliability of knowledge was tested by test-retest method, the score was (r=0.86), the attitude and compliance were tested by split-half method, the score was (r=0.94).

DATA ANALYSIS

Analyze the Information Education and Communication (IEC) module's impact on childhood obesity

Table 1: Level of Knowledge on Childhood Obesity among Parents of Obese Children in Study and Control Group in pretest (N=200)

Knowledge Aspects	Study Group Level of knowledge (n=100)						Control Group Level of knowledge (n=100)					
	Inadequate (< 50%)		Moderately Adequate (50-75%)		Adequate (>75%)		Inadequate (< 50%)		Moderately Adequate (50-75%)		Adequate (>75%)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
In relation to childhood obesity	60	60.0	29	29.0	11	11.0	83	83.0	14	14.0	0	0.0
Pre disposition factor	91	91.0	9	9.0	0	0.0	92	92.0	8	8.0	0	0.0
Causes	75	75.0	25	25.0	0	0.0	83	83.0	17	17.0	0	0.0
Problem due to obesity	68	68.0	30	30.0	2	2.0	97	97.0	3	3.0	0	0.0
Complication	81	81.0	19	19.0	0	0.0	94	94.0	6	6.0	0	0.0
Importance of prevention	2	2.0	98	98.0	0	0.0	10	10.0	90	90.09 90.0	0	0.0
Dietary management	66	66.0	34	34.0	0	0.0	79	79.0	21	21.0	0	0.0
Exercise management	85	85.0	15	15.0	0	0.0	96	96.0	4	4.0	0	0.0
Importance of follow up	58	58.0	42	42.0	0	0.0	64	64.0	36	36.0	0	0.0
Overall knowledge	**79**	**79.0**	**21**	**21.0**	**0**	**0.0**	**91**	**91.0**	**9**	**9.0**	**0**	**0.0**

Table 1 reveals that in pretest none of the parents had adequate knowledge on childhood obesity both in study and control group. About 79% of parents in study group and 91% of control group parents had inadequate knowledge in pretest.

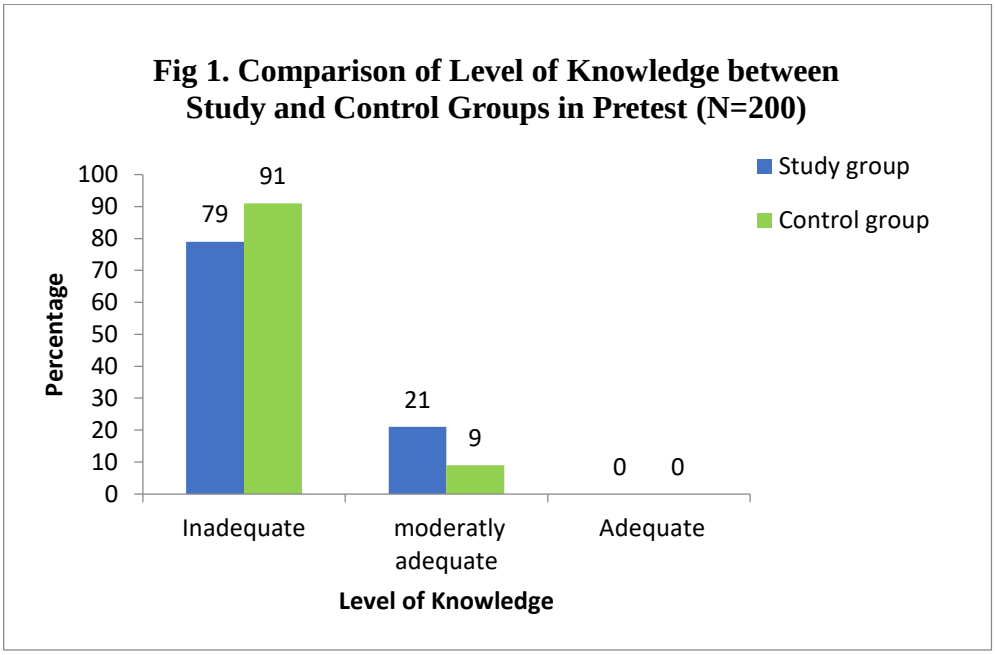

Table 2. Effective Knowledge on Childhood Obesity among Parents of Obese Children between Study and Control Group (N=200)

Variables	Study Group (n=100)		Control Group (n=100)		Independent t test & P value
	Improvement Mean	S.D.	Improvement Mean	S.D.	
In relation to childhood obesity	9.67	15.20	1.67	4.30	t = 4.744, P=0.000***
Pre disposition factor	31.50	13.11	0.25	6.87	t = 21.105, P=0.000***
Causes	56.14	17.14	2.43	9.75	t = 27.240, P=0.000***
Problem due to obesity	47.78	13.35	2.11	5.84	t = 31.328, P=0.000***
Complication	61.12	16.18	1.00	6.07	t = 34.798, P=0.000***
Importance of prevention	42.00	20.98	0.0	0.0	t = 20.014, P=0.000***
Dietary management	41.00	15.85	0.36	5.77	t = 24.091, P= 0.000 ***
Exercise management	51.75	14.33	0.50	5.00	t = 34.435, P=0.000***
Importance of follow up	34.00	37.52	0.0	0.0	t = 9.061, P=0.000***
Overall Knowledge	**44.44**	**7.97**	**1.0**	**3.49**	**t = 49.893, P=0.000*** **

Note: *** - P<0.001 Level of Significant

Table 2 depicts the effective mean knowledge assessments and it reveals that in study group the overall mean score was 44.44 with standard deviation of 7.97, which indicates that comparatively the study group has higher level of mean than control group, with significant difference of t' value of 49.893 at P<0.001. It reflects the effectiveness of IEC. The mean difference score of study group was increased in all the aspects of knowledge at the level of P<0.001.

Table 3. Distribution of Level of Overall Compliance for Study and Control Group in Pretest (N=200)

Level of Compliance	Study Group (n=100)		Control Group (n=100)	
	No.	%	No.	%
Non-Compliance (0-50%)	84	84.0	87	87.0
Moderate Compliance (51 – 75%)	16	16.0	13	13.0
Most Compliance (76 – 100%)	0	0.0	0	0.0
Total	100	100.0	100	100.0
Chi square Value & P value	**χ 2 = 0.363, D.F. = 1, P= 0.547 (N.S)**			

Note: N.S. – Not Significant

Table 3 shows that 84% of parents in study group and 87% in control group were under non-compliance category. And none of the parents in both groups have most compliance towards weight reducing measures about childhood obesity.

The areas of compliance analysed are compliance on diet management, exercise and follow-up. The overall compliance on weight reducing measures suggested that all parents in control and study group were non-compliance during the pretest. After administration of IEC package in posttest, 45% of parents in the study group had moderate compliance and 7% had most compliance towards weight reducing measures of their children. Among these 100 children comparatively with the pretest weight, 32 % of them had reduced less than 500 grams of weight and 7 children had reduced 500 to 1000 grams of weight after the post test.

CONCLUSION

The investigator concludes and say that the IEC on childhood obesity will be a very useful module in preventing and controlling childhood obesity in our country. Because in our culture the mothers play a greatest role in shaping the dietary practices of children. Effectiveness of IEC on knowledge, attitude and compliance on childhood obesity among parents of obese children. Correlate between knowledge, attitude and compliance on childhood obesity among parents of obese children. Associate between socio-demographic variables of parents whose children are obese and their knowledge, attitude and compliance on childhood obesity before and after IEC.

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