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"A case control study to assess the factors influencingobesityamong children with a view to develop informationbooklet on obesity at selected schools, Hyderabad, Andhra Pradesh."

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ABSTRACT
"A case control study was undertaken to assess the factors influencing obesity among children with a view to develop information booklet on obesity at selected schools, Hyderabad, Andhra Pradesh"*.*
The objectives of the study were
1. To assess the factors influencing obesity among cases and control group.
2. To co-relate the factors influencing obesity among cases and control group.
3. To find out the association between factors influencing obesity among the cases and control group with selected demographic variables.
4. To develop the information booklet on obesity.
Materials and Methods:*The research approach selected for the study was* ***Analytical approach*** *with* ***Nonexperimental- Retrospective-Case Control design.*** *The study was conducted among 60school children who are in the age group of 11-15 years at Don Bosco High school,Sultan Bagh, Hyderabad. Samples were selected for the study by using* ***Purposive sampling technique.*** *The data were collected using Semi-structured Questionnaire. Thisconsists of three sections. Reliability of the tool was elicited by Split half method andfindings were compared and it was found to be reliable r = 0.94.* ***Pilot study*** *wasconducted from 04-12-13 to 09-12-13 on 10 school children at Geetanjali Model School,Filmnagar, Hyderabad. Hence the tool was found reliable. The main study was conducted in Don Bosco High School, Sultan Bagh, Hyderabad. The period of data collection extended from 06-01-14 to 26-01-14.*
Results:*The overall knowledgeshows that mean score of Case group is 65.6 with standard deviation 5.13 and mean score of Control group is 52.6 with standard deviation 4.24. Since calculated value 10.74 at P= 0.05 significance is greater than the table value 2.00. Hence there was a significant difference between factors influencing obesity among cases and controls in terms ofphysical activity, dietary habits and lifestyle activities. The chi-square result shows thatthere was a significant association between factors influencing obesity among cases andcertain demographic variables such as Type of family, Number of members in the family,Birth order and any of family member obesity.*
Conclusion:*There was significant association between factors influencing obesity among controlsand certain demographic variables such as sex of the child, family income per month andbirth order of child.*

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I. Introduction

"Rise of childhood obesity has placed the health of an entire generation at risk"
-Tom Harkin

Childhood is the age span ranging from birth to adolescence. Each child's situation is unique and there is no one 'Ideal'environment that leads to normal healthy emotional development. Children grow up to be healthy adults in all sort of different situations. Incidence of childhood obesity is on the rise since last few decades and is continuing to rise. Unfortunately, parents are not aware of the danger. Children obviously need extra nutrition and nurturing for their growth and they consume the best within the family set up for their growth. The big question is – are they consuming the calories which they need? Are they following the right growth pattern? Very often they consume, are compelled to consume more than they need. Obesity in childhood is a key factor for adult obesity. There is significant evidence that children and adolescents of affluent families are overweight unlike is past possibly because of decreased physical activities, sedentary lifestyles, altered eating patterns and increased fat content of the diet. Early and middle adolescence is now bearing the brunt of too much junk food consumption like burger, pizza, noodles, ice cream etc. Pre and middle adolescence dietary

habits are important because food culture, once adopted, is apparently difficult to reverse. According to World Health Organization (WHO), 22 million children are overweight.

II. Methods

The research approach selected for the study was **Analytical approach** with **Nonexperimental- Retrospective-CaseControl design.** The study was conducted among 60school children who are in the age group of 11-15 years at Don BoscoHigh school,Sultan Bagh, Hyderabad. Samples were selected for the study by using **Purposive sampling technique.**

Hypotheses

Ho1: There is no significant association between factors influencing obesity among cases and controls.
HO2: There is no significant association in dietary habits influencing obesity among cases and controls".
H03: There is no significant association in Activities of daily living influencing obesity among cases and controls".
H04: There is no significant association in Physical activity influencing obesity among cases and controls".
HO5: There is no significant correlation between factors influencing obesity among cases and controls".

Sample size

The samples in the study were the children with obesity and without obesity at selected schools, Hyderabad. Thesample size was arbitrarily to be 60children, with 30 in case group and 30 in the control group.

Sampling Technique

In the present study Non-probability **"Purposive sampling"** technique was used.

Sampling Criteria

a) **Inclusion criteria**

- Cases were those children with body mass index (BMI) equal or more than 25 kg/m2 and control were those children with body mass index (BMI) below 24.9 kg/m2.
- Child within the age group of 11 -15 years studying VI to X standards.
- Children who were willing to participate in the study.
- Children who were available at the time of data collection.
- Children who can understand Telugu and English.

b) **Exclusion Criteria**

- Children below age group of 11 years.
- Children whose BMI level less than18.5kg/m2.
- Children with other chronic illnesses.

Conceptual framework

The Conceptual framework related to my study is based on "Bronfenbrenner (1977) Socio-Ecological model."

Four dimensions to this model are identified as:
1. Individual and their behavior
2. Social environment
3. The physical environment
4. Macro system.

Each dimension can be analyzed at four levels.
1. Intra-personal 2. Inter-personal

3. Community 4. Society.

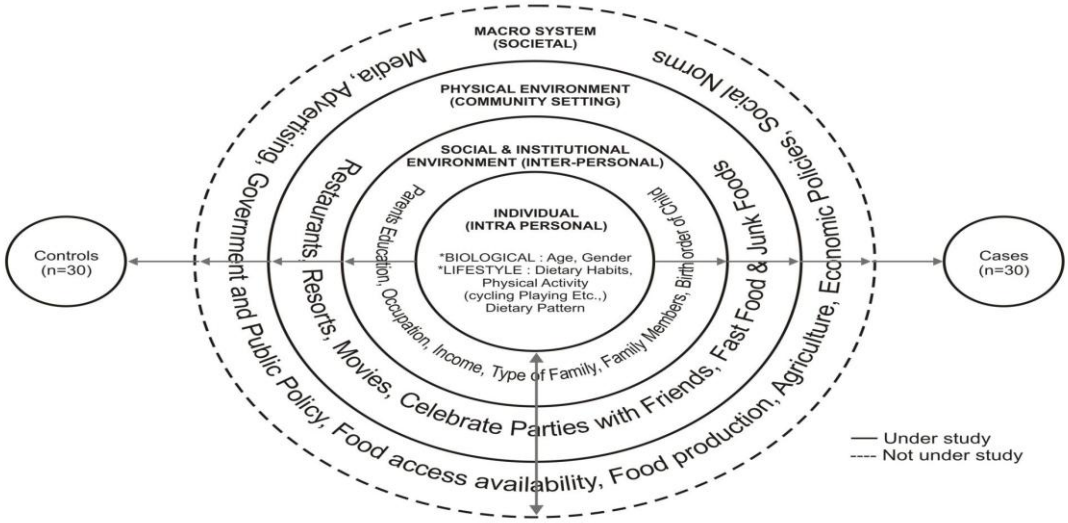

Fig 1.1 Schematic Representation of Conceptual Framework based on Socio - Ecological Model by : Bronfen Brenner (1977)

Tool for data collection

The tool used for data collection is a **Semi structured -Questionnaire** schedule developed by the investigator. The instrument is organizedunder the following sections.

Semi- Structured Questionnaire consisted of following sections.

I. Screening Tool: In this the children are screened out based on their body mass index (BMI) values.

II. Socio-Demographic Data

III.Semi-Structured Questionnaire: consists of 3 parts.

Part I: Consist of questions related to assessment of the physical activity

Part II: Consist of questions related to assessment of the dietary habits

Part III: Consist of questions related to assessment of the lifestyle activity

Data collection Process

Formal permission was obtained from the Principal of the schoolto conduct the study. The researcher initially established rapport with the selected sample student. The purpose of the study was explained. Anthropometric measurements are filled by the Researcher- The weight of the subjects was measured by using a standard balance scale with bare foot and wearing light inner clothing and the standing body height was measured with the shoulder in relaxed position and arms hanging freely and without shoes. Body mass index (BMI) was defined as the ratio of body weight to body height squared, expressed as kg/m2. Researcher applied WHO BMI classification. Semi structured questionnaire was administered. Anonymity and confidentiality were maintained throughout the study.

Data analysis

The collected data were analyzed and interpreted as per the objectives of the study by using descriptive & inferential statistics.

Descriptive statistics

- Frequency and percentage distribution were used to analyze the demographicvariables.
- Mean and Standard Deviation was used to associate and compare factorsinfluencing obesity between cases and controls.

Inferential statistics

- Pairedt- test was used to analyze the factors influencing obesity among casesand controls.
- Correlation coefficient was used to correlate the factors influencing obesityamong cases and controls.
- Chi square test used to associate the selected demographic variables with factorsinfluencing obesity among cases and controls.

III. Results

Findings related to Co-relation between the factors influencing obesity among cases and control group

The correlation between **Physical activity** among Cases and Controls score was 0.126 which was significant at 0.05 levels. The correlation between **Dietary habits** among Cases and Controls score was 0.299 which was significant at 0.05 levels. The correlation between **Lifestyle& Activity** among Cases and Controls score was 0.337 which was significant at 0.05 levels.
So finally, the researcher concluded that "There is significant correlation between factors influencing obesity among cases and controls".

Findings related to tests of significance of factors influencing obesity among school children

a) Significance difference of cases and control scores in the factors influencing obesity.
t shows that mean score of Cases is 65.6 with standard deviation 5.13 and mean score of Controls is 52.6 with standard deviation 4.24. Since calculated value 10.74 at P= 0.05 significance is greater than the table value 2.00. **Hence null hypothesis (H01) is rejected**. So, the researcher concluded that "There will be significant differences between factors influencing obesity among cases and controls".

b) Significance difference of cases and control scores in the dietary habits influencing obesity.
It shows that mean score of Cases on Dietary Habits is 4.43 with standard deviation 0.62 and mean score of Controls on Dietary Habits is 1.66 with standard deviation0.55. Since calculated value 19.7 at P= 0.05 significance is greater than the table value 2.05. **Hence null Hypothesis(H02) is rejected.** So, the researcher concluded that "There will be significant differences in dietary habits influencing obesity among cases and controls".

c) Significance difference of cases and control scores in the Activities of daily living influencing obesity.
It shows that mean score of Cases on Activities of daily living is 4.53 with standard deviation 1.9 and mean score of Controls on Activities of daily living is 1.66 with standard deviation0.72. Since calculated value 18.65 at P= 0.05 significance is greater than the table value 2.05. **Hence null Hypothesis (H03) is rejected.** So, the researcher concluded that "There will be significant differences in Activities of daily living influencing obesity among casesand controls".

d) Significance difference of cases and control scores in the Physical activity influencing obesity.
It shows that mean score of Cases on Physical activity is 62.7 with standard deviation 1.725 and mean score of Controls on Physical activity is 59 with standard deviation 2.477. Since calculated value 6.72 at P= 0.05 significance is greater than the table value 2.05. **Hence nullHypothesis (H04) is rejected.** So, the researcher concluded that "There will be significant differences in Physical activity influencing obesity among cases and controls".

The chi-square result shows that there was a significant association between factors influencing obesity among cases and certain demographic variables such as Type of family, Number of members in the family, Birth order and any of family member obesity. There was significant association between factors influencing obesity among controls and certain demographic variables such as sex of the child, family income per month and birth order of child.

IV. Discussion

Findings related to Socio Demographic Variables among Cases and Controls
Out of 30 school children among cases, majority 9(30%) school children were in the agegroup of 14years, 8(26.66%) of them were in the age of 11years, 6(20%) of them were inage group of 12 years, 4(13.33%) were in the age of 15years and 3(10%) are in the agegroup of 13years.
Out of 30 school children among controls, majority 10(33.33%) of school children werein the age group of 13years,9(30%) of them were in the age of 12years, 7(23.33%) ofthem were in age group of 11 years, 3(10%) were in the age of 14years and 1(3.33%) wasin the age group of 15years.
Out of 30 school children among cases, majority 16(53.33%) school children werefemales and 14(46.66%) of them were males.
Out of 30 school children among controls, majority 16(53.33%) school children werefemales and 14(46.66%) them were males.
Out of 30 school children among cases, majority 17(56.66%) school children wereHindus, 9(30%) of them were Christians and 4(13.33%) of them were Muslims.

Out of 30 school children among controls, majority 18(60%) school children wereHindus, 8(26.66%) of them wereChristians and 4(13.33%) were Muslims.
Out of 30 school children among cases, majority 25(83.33%) school children belongedto Nuclear family, 4(13.33%) of them belonged to Joint family and 1(3.33%) belonged toExtended family.
Out of 30 school children among controls, majority 25(83.33%) school children belongedto Nuclear family, 4(13.33%) of them belonged to Joint family and 1(3.33%) belonged toExtended family.
Out of 30 school children among cases, majority 9(30%) children's families had incomebetween Rs 10,001-Rs 15,000/-, 8(26.66%) of their families had the income betweenRs 5001-Rs 10,000/-, and 1 child's family had the income of Rs<5000/-
Out of 30 school children among controls, majority 12(40%) children's families had theincome between Rs 10,001-Rs 15,000/-, 9(30%) of their families had the income betweenRs 15001-Rs 20,000/-, and 1(3.33%) child's family had the income of Rs <5000/-.
Out of 30 school children among cases, majority 21(70%) children had 3-4members inthe family, 7(23.33%) of them had 5-6members in the family and 2(6.66%) of them had>6members in the family.
Out of 30 school children among controls, majority 19(63.33%) children had 3-4members in the family, 11(36.66%) of them had 5-6members in the family.
Out of 30 school children among cases, majority 12(40%) children were first and secondborn, whereas only 2(6.66%) children were fourth born.
Out of 30 school children among controls, majority 13(43.33%) children were first born,11(36.66%) of them were second born and whereas only 2(6.66%) of them were fourthborn.
Out of 30 school children among cases, majority 18(60%) children were Non-vegetarian,8(26.66%) of them werevegetarian and only 4(13.33%) of them were Eggetarian.
Out of 30 school children among controls, majority 17(56.66%) of children were Nonvegetarian,7(23.33%) of them were vegetarian and only 6(20%) of them wereEggetarian.
Out of 30 school children among cases, majority 10(33.33%) children spent their pocketmoney on food, 5(16.66%) of them spent with friends and 1(3.33%) of them spent pocketmoney for playing items.
Out of 30 school children among controls, majority 7(23.33%) children spent theirpocket money on food, 4(13.33%) of them spent for entertainment and 3(10%) of themspent pocket money for playing items & with friends.
Out of 30 school children among cases, majority 13(43.33%) children's fathers wereobese, 7(23.33%) mothers were obese and 2(6.66%) of them grandparents were obese.
Out of 30 school children among controls, majority 10(33.33%) children's fathers wereobese, 6(20%) of their mothers were obese and 5(16.66%) of their siblings were obese.
Out of 30 school children parents among cases, 8 (26.66%) children's fathers wereeducated up to Higher secondary(intermediate) and Graduation, 5(16.66%) children'sfathers were Illiterates and postgraduates and only 4(13.33%) children's parents had theprimary education.
Out of 30 school children parents, 12(40%) children's mothers had primary education,8(26.66%) were educated up to Higher secondary (intermediate) and 2(6.66%) were postgraduates and above.
Most of children's fathers 20(66.66%) were employed, 12(40%) children's mothers wereemployed and unemployed. Whereas only 3(10%) children's fathers were unemployedand 6(20%) of children's mothers were self-employed.
Out of 30 school children parents among controls, 9 (30%) children's fathers had theprimary education and graduation respectively, 6(20%) were illiterates and 1(3.33%)child's father was post graduate and above.
Out of 30 school children parents, 9 (30%) children's mothers had primary education andilliterates respectively, 8(26.66%) had Higher secondary (intermediate) education.
Most of children's fathers 19(63.33%) were employed, 13(43.33%) children's motherswere employed. Whereas only 2(6.66%) children's fathers were unemployed and7(23.33%) children's mothers were self-employed.

Findings related to Co-relation between the factors influencing obesity among casesand control group

The correlation between **Physical activity** among Cases and Controls score was 0.126which was significant at 0.05 levels. It indicates that there is a positive correlationbetween Physical activity among Cases and Controls.The correlation between **Dietary habits** among Cases and Controls score was 0.299which was significant at 0.05 levels. This indicates that there is a positive correlationbetween Dietary habits among Cases and Controls.The correlation between **Lifestyle& Activity** among Cases and Controls score was0.337 which was significant at 0.05 levels. This indicates that there is a positivecorrelation between Lifestyle & Activity among Cases and Controls.So finally, the researcher concluded that "There is significant correlation between factorsinfluencing obesity among cases and controls".

Findings related to tests of significance of factors influencing obesity among schoolchildren

Researcher concluded that there will be significant differences between factorsinfluencing obesity among cases and controls, there will be significant differencesin dietary habits, Activities of daily living&Physical activity influencing obesity among cases and controls.

Findings related to Association of factors influencing obesity among cases withselected demographic variables

There was significant association between factors influencing obesity among cases andType of family, Number of members in the family, Birth order and any of family memberobesity& among controls there was significant association between factors influencing obesity among controlsand sex of the child, family income per month and birth order of child.

The study revealed that there was a significant association between factorsinfluencing obesity among cases and Type of family, Number of members in the family,Birth order and any of family member obesity. There was alsosignificant associationbetween factors influencing obesity among controls and Sex of the child, Family incomeper month and birth order of child.Hence there is significant difference between factors influencing obesity among casesand controls.

V. Conclusion

The present study was to assess the Factors influencing Obesity among Children with aview todevelop Information Booklet on Obesity at selected schools, Hyderabad, AndhraPradesh, showed the prevalence of obesity and factors influencing Obesity is a problemin preadolescent school children.Less level of Physical activity, poor Dietary habits and Lifestyle activity might have caused theobesity of school children.

VI. Recommendations

- A structured teaching program(STP) / video assisted teaching (VAT) can be conducted to see the effectiveness of knowledge of School children regarding Prevention of Obesity.
- A comparative study can be conducted among urban and rural School children.
- Similar study can be done on large sample for making broader generalization.
- The study can be taken up on investigation of body image perception, weight control practices and physical activity levels in school children.
- Experimental research is needed to provide stronger evidence for these factors influencing obesity.

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