EFFECTIVENESS OF EARLY CARE TUTORING ON QUALITY OF LIFE, LIFESTYLE BEHAVIORS AND BIO PHYSIOLOGICAL OUTCOME AMONG OBESE ADOLESCENTS AND KNOWLEDGE ON OBESITY MANAGEMENT AMONG MOTHERS AT SELECTED SCHOOLS IN CHENNAI.

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ABSTRACT
Background: The rising prevalence of adolescent obesity is associated with an increase in co-morbidities and Up to three-fourth of children with overweight/obesity remain so in adulthood.[4].
Objectives: 1.To assess and compare the level of Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents between experimental and control group.
2. To assess and compare the level of knowledge among obese adolescent's mothers between experimental and control group.
3. To assess the Effectiveness of Early Care Tutoring on Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents between experimental and control group.
4. To assess the Effectiveness of Early Care Tutoring on the level of knowledge among obese adolescent's mothers between experimental and control group.
5. To correlate the Mean differed score of Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents in experimental and control group.
Methodology: A quasi experimental research design was adopted. After screening a total 20 elderly people, 10 for each experimental and control group were selected were selected by using non probability purposive sampling technique in a selected Schools. The pre test data was collected through the structured and modified tools for Quality of Life (QOL), Lifestyle behavoirs and Biophysiological out comes was given for a period of 4 weeks and post test was conducted. Collected data were analyzed by using descriptive and inferential statistics. **Results:** Majority of the adolsecents aged 14,female,first child of the family. Socioeconomical staus was upper class. All of them were residing in urban . distance from school was <1kn and using either bi-cycle or bike.The present study showed that there was an improvement between pre test and post test 2 and 3 in QOL and Lifestyle behaviors. Only BMI showed significance in post test 2 and 3, other anthropometrics were not significant. There was a correlation between QOL and LSB & QOL and BMI. Early care tutoring packages had a strong impact on adolescents' QOL, LSB and Biophysiologicaloutcomes. **Conclusion:** The overall statistically significant difference in the level Early Care Tutoring was effective and found to be significant in modifying the Quality of Life, Life style Behavior and biophysiological outcome among Obese Adolescents.

KEYWORDS : BMI-Body mass index,QOL-Quality of Life, LSB-Lifestyle Behavior

INTRODUCTION
Adolescence is the critical phase of life, and is a period of major physical, physiological, psychological, and behavioral changes with changing patterns of social interactions and relationships.[1] Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique stage of human development and an important time for laying the foundations of good health. Adolescents experience rapid physical, cognitive, and psychosocial growth.

Globally 1.2 billion (18%) of adolescents aged 10-19. 243 million (one quarter of Indian population) adolescents in India.12.4 million (17.2%) of Adolescents in Tamilnadu. A rapid increase of adolescent obesity is an upcoming national public health concern. Obese adolescents are at significant risk of becoming obese adults and its co-morbidities.[3] elobal prevalence of obesity in children of 5-17 years has been calculated to be 10% by International Obesity Task Force (IOTF). Globally 31.5 millions obese ,age between 5-19 years. A research showed total prevalence of total 19.3% of childhood overweight and obesity in India. Adolescents Obesity is the 5th leading risk in India.Childhood Obesity Prevention in Schools (COPS) stated that India ranked as 3rd Obese Nation and Tamilnadu as 4th state in India.(2018). 1 in 5 Tamilnadu kids are Overweight or Obese.

Globalization brings more lifestyle modification among adolescents and also were exposed to risk behaviors. It is important to take measure to control,manage and prevent the complication. Home is the place where this learning is incorprated. Family involvement especially mother have role in mending the living way of adolescents future like Nipping the adolescent obesity in the bud . Adolescent Obesity has greater impact on Adolescent's health and well being for present and Hence, there is a need to implement Early care tutoring package in bringing changes on Quality of life ,Lifestyle behavior and body weight among adolescents in view of obesity.

STATEMENT OF THE PROBLEM
A study to assess Effectiveness of Early Care Tutoring on Quality Of Life, Life Style Behaviors and Bio physiological Outcome among Obese Adolescents and knowledge on Obesity Management among Mothers at selected schools in Chennai.

OBJECTIVES
1. To assess and compare the level of Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents between experimental and control group.
2. To assess and compare the level of knowledge among obese adolescent's mothers between experimental and control group.
3. To assess the Effectiveness of Early Care Tutoring on Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents between experimental and control group.
4. To assess the Effectiveness of Early Care Tutoring on the level of knowledge among obese adolescent's mothers between experimental and control group.
5. To correlate the Mean differed score of Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents in experimental and control group.

NULL HYPOTHESES
1.NH1: There is no significant difference between the pre and posttest level of Quality of life , Lifestyle behavior and Biophysiological outcome among obese adolescents between the experimental and control group level.

2.NH2: There is no significance difference between the pre and post test level of knowledge among obese adolescent's mothers between experimental and control group level.
3.NH3: There is no correlation between the mean differed score of Quality of life , Lifestyle behavior and Biophysiological outcome among obese adolescents between experimental and control group level.

II MATERIALS AND METHODS
Quasi experimental design. (Non Equivalent Pretest-Post test). After screening a total 20 adolescents, 10 for each experimental and control group were selected by using a nonprobability purposive sampling technique in selected schools.

Description of the tool
DATA COLLECTION INSTRUMENT: The data collection instrument was prepared by the investigator after an extensive review of literature and with expert's guidance. The tool used for the present study consisted of the following:

The tool consists of two parts
- **PART-A:** Data Collection Tool
- **PART-B:** Intervention Tool

PART-A: Data Collection Tool
Collects the detail on background variables which comprise demographic variables and Biophysiological variable, Knowledge questionnaire, Behaviors pattern scale and QOL scale.

Section A:
I. Demographic Variables:
Age, Gender, Birth Order, Education, Father Education, Mother Education, Father Occupation, Mother Occupation, Type of family, size of family, Monthly family income, Religion.

II .Background variables of mother:
Age and Marital status, Menopause Status, Co-Morbitiy

Section B: Biophysiological variables
Recording of height, weight and estimated Body Mass Index, Skinfolds thickness, waist circumference, Hip circumference, and calculated Waist-Hip ratio.

Section C: Knowledge Questionnaire
The tool consist of 25 multiple choice question on meaning and general information, causes and predisposing factors, assessment and anthropometric measurement, preventive measures, dietary measures, physical activity, recreational activity, quality of life and complication of adolescent obesity.

Section D:Life Style Behaviors
These questions were like the "Behaviors pattern scale" where the Adolescents will respond to their appropriate Behaviors 36 items against the frequency/episodes per week on Dietary intake patterns-7, Physical activity patterns-3, Recreational activity patterns-16, and sleep patterns-10

Section E: Quality Of Life
The 23-item PedsQL Generic Core Scales were modified to 21 items which will be measured the core dimensions of health as well as role (school) functioning. The 4 Multidimensional Scales: Physical functioning-8, Emotional functioning-5, Social functioning-5 and School functioning-3.

Ethical consideration
The study was approved by the Ethical clearance obtained from International Centre for Collaborative Research (ICCR) official Ethics Review Board of Omayal Achi College of Nursing, Chennai. Necessary permission from the school authority was obtained. Before data collection, written consent was obtained from the samples. Confidentiality and individual anonymity were maintained throughout the study.

Data Collection Procedure
After formal permission from the schools, pilot study was executed. Adolescents were screened and samples who fulfilled the criteria were selected. Pre- test conducted by assessing selected self -administered questionnaire related to knowledge which consisted of 25 multiple choice question among Obese Adolescent's Mothers on day 1 for the duration of 30 minutes. After pretest, Early Care Tutoring I to Obese Adolescent's Mother on the same day3-5 in a group which last for 30-45 minutes. Post test to Obese Adolescent's Mother on day 7. Early Care Tutoring II a,b,c on Day 7th day a.Video show presentation for 30 minutes, b.Group discussion changes for 30-45 minutes. through c.Zumba and Handout of recommended Dietary requirement, Water consumption and Healthy Snacks for 15-30 minutes with 3-5 in a group on 7th day and Reinforcement of ECT II to Adolescent after 1st ,3rd,6th week.

DATA ANALYSIS PROCEDURE
Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS, version 16) and STATA (version 10) and Epi info (Version 3.5.1) statistical software's.

III Results
Demographic Variables
The majority of the adolescents were aged 14,female, studying 9th standard. 60% of them were first children and four members in their family. Parents were graduated and professional and supervisors by occupation.40% of mothers were housewives. All of them were urban and upper-class socioeconomic status. Distance from home was < 1 km and using either bi-cycle or bike to do school.

Objective 1
To assess and compare the level of Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents between experimental and control group.

Table 1:Distribution of Pretest, Posttest-I, Posttest-II and Posttest-III Level of Quality of Life score among Experiment and Control group of obese adolescents

Assessment	Level of QOL	Life style behavior score			
		Experimental Group		Control Group	
		N	%	N	%
Pre test	Poor	0	0	0	0
	Fair	0	0	0	0
	Good	7	70	5	50
	Excellent	3	30	5	50
Post test-I	Poor	0	0	0	0
	Fair	0	0	0	0
	Good	4	40	5	50
	Excellent	6	60	5	50
Post test-II	Poor	0	0	0	0
	Fair	0	0	0	0
	Good	3	30	4	40
	Excellent	7	70	6	60
Post test-III	Poor	0	0	0	0
	Fair	0	0	0	0
	Good	2	20	4	40
	Excellent	8	80	6	60

Above table 1 shows domains QOL score comparison between the experiment and control group .. In posttest -2and posttest-3 there is a improvement in experiment group.
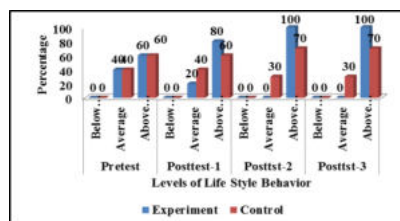

Figure 1: Distribution of Pretest, Posttest-I, Posttest-II and Posttest-III Level of Life Style Behaviors score among Experiment and Control group of obese adolescents

This figure 1,the level of LSB score between the experimental and control group of obese adolescents showed improvement to (100%) in post test 2 and 3 .

Table 2: Comparison Of Anthropometric Measurements

Anthropometric Measurements	Test	Group				Student independent t-test
		Experiment		Control		
		Mean	SD	Mean	SD	
BMI	Pre test	26.42	1.44	26.58	1.40	t=0.25 p=0.80(NS)
	Post test-1	25.57	.93	26.58	1.40	t=1.90 p=0.07(NS)
	Post test-2	25.30	1.16	26.54	1.42	t=2.13 p=0.05*(S)
	Post test-3	25.24	1.12	26.50	1.47	t=2.15 p=0.05*(S)
TSFT	Pre test	22.00	3.13	22.60	3.13	t=0.43 p=0.57(NS)
	Post test-1	21.40	2.99	22.50	3.10	t=0.81 p=0.43(NS)
	Post test-2	21.30	2.41	22.40	3.10	t=0.89 p=0.40(NS)
	Post test-3	21.00	2.87	22.20	3.19	t=0.89 p=0.40(NS)
WHR	Pre test	.80	.04	.79	.02	t=0.20 p=0.85(NS)
	Post test-1	.80	.04	.79	.02	t=0.20 p=0.85(NS)
	Post test-2	.79	.05	.79	.02	t=0.00 p=1.00(NS)
	Post test-3	.78	.05	.79	.02	t=0.61 p=0.54(NS)

This table 3 depicts that There is no significant difference between the experiment and control except BMI among Obese Adolescents in post test 2 and 3.

Objective 2
- To assess the Effectiveness of Early Care Tutoring on Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents.

Table 3: Comparison Of Level Of Knowledge Score   N=20

Level of Knowledge	Group				Chi square test
	Experiment (n-10)		Control(n-10)		
	n	%	N	%	

Pretest	Inadequate	4	40.00%	3	30.00%	2=0.22p=0.64 DF=1(NS)
	Moderate	6	60.00%	7	70.00%	
	Adequate	0	0.00%	0	0.00%	
Posttest	Inadequate	0	0.00%	2	20.00%	2=9.33p=0.01** DF=2(S)
	Moderate	4	40.00%	8	80.00%	
	Adequate	6	60.00%	0	0.00%	

Above table 3 shows the comparison of mean knowledge score among mothers between experimental and control groups.In the pretest, experimental group mothers are having 13.70 score and control group mothers are having 14.80 score, so the difference is 1.10 score. This difference is small and it is not a statistically significant difference.

Objective 3
To assess the Effectiveness of Early Care Tutoring on Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese

Table 4: Comparison of mean QOL score During Pretest, Posttest-I, Posttest-II and Posttest-III among experimental and control group (within group analysis)   N=20

	Pre-test		Post test-I		Post test-II		Post test-III		Mean difference	One way Repeate
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Experimental	63.00	5.14	69.30	5.64	72.30	3.50	75.50	4.03	12.50	F=15.88 p=0.01** (S)
Control	64.20	5.85	64.50	5.52	64.70	5.46	65.10	5.30	0.90	F=1.57 p=0.21 (NS)

Table 4 shows that In experimental group, Repeated measures F-test analysis shows that, mean overall QOL score is statistically significant different between pre-test and posttest-III(F = 15.88, P = 0.01). Therefore, we can conclude that a Early Care Tutoring improves significantly QOL score among adolescents.Similarly, in control group, Repeated measures F-test analysis shows that, mean overall QOL score is not statistically significant different between pre-test and posttest-III(F = 1.57, p=0.21). Therefore, we can conclude that a routine care not improving QOLscore significantly among adolescents.

Table 5: Comparison of mean LSB score During Pretest, Posttest-I, Posttest-II and Posttest-III among experimental and control group (within group analysis)   N=20

	Pre-test		Post test-I		Post test-II		Post test-III		Mean difference	Oneway Repeated measures ANOVA F-test
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Experimental	69.50	6.02	73.60	5.62	76.90	3.60	80.60	2.50	11.10	F=17.09 p=0.01** (S)
Control	70.10	6.69	70.60	6.79	70.90	7.02	71.10	7.25	1.00	F=0.55 p=0.60 (NS)

Table 5 shows that In experimental group, Repeated measures F-test analysis shows that, mean overall LBS score is statistically significant different between pre-test and posttest- III(F = 17.09, P = 0.01). Therefore, we can conclude that a Early Care Tutoring improves significantly LBS score among adolescents.

Table 6: Comparison of mean Anthropometric measurementsduring Pretest, Post test-I, Post test-II and Post test-III among experimental group   N=20

	Pre-test		Post test-I		Post test-II		Post test-III		Mean difference	One way Repeated measures ANOVA F-test
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
BMI	26.42	1.44	25.57	.93	25.30	1.16	25.24	1.12	1.18	F=2.73p=0.05* (S)
TSFT	22.00	3.13	21.40	2.99	21.30	2.41	21.00	2.87	1.00	F=0.75p=0.56 (NS)
	.80	.04	.80	.04	.79	.05	.78	.05	1.67	F=0.55p=0.20 (NS)

This table 6 depicts that In the experimental group, Anthropometric measurements during Pretest, Posttest-I,Posttest-II and Posttest-III were assessed using oneway repeated measures of ANOVA F-test. Thereis no significant difference except BMI.

Objective 4
To assess the effectiveness of Early Care Tutoring on the level of knowledge among mothers between experimental and control group.

Table 7: Comparison Of Mean Knowledge Score N=20

	Group	N	Mean score	Std. Deviation	Mean difference	Student's independent t-test
Pre test	Experiment	10	13.70	2.71	1.10	t=0.86 p=0.36 DF=18, (NS)
	Control	10	14.80	2.97		
Post test	Experiment	10	20.90	1.52	5.30	t=6.12 p=0.001*** DF=58, (S)
	Control	10	15.60	2.27		

The table 7 shows the comparison of mean knowledge scores among mothers between experimental and control groups. In pretest, experimental group mothers are having 13.70 score and control group mothers are having 14.80 score, so the difference is 1.10 score. This difference is small and it is not a statistically significant difference. In posttest, experimental group mothers are having 20.90 score and control group mothers are having a 15.60 score, so the difference is 5.30 score. This difference is large and it is statistically significant difference.

Objective 5
To correlate on mean differed score of Quality Of Life, Life Style Behaviors and Biophysiological Outcome among obese adolescents in experimental and control group
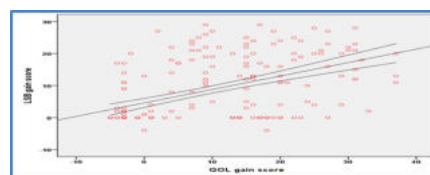

Figure 2 - Scatter diagram with 95% confidence interval regression estimate shows the positive moderate correlation between LSB gain score and QOL gain score
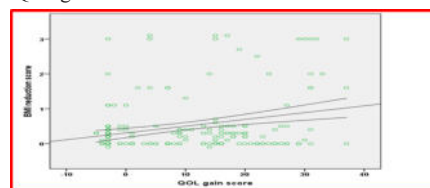

Figure 3: Scatter diagram with 95% confidence interval regression estimate shows the Fair correlation between Quality of Life gain score and Body Mass Index reduction score among obese adolescents in experimental group.

DISCUSSION
Ahmar Shamim etal.(2015),said that 50% of obese children consumed

excess calorie food(p<0.001),watched TV (p<0.002).Jayawardena,etal(2017) Daily milk/yoghurt consumption and a family supper have shown a protective effect against overweight/obesity. Higher family earnings (Odds ratio [OR], 2.79, 95% confidence interval [CI] 1.29-6.38), Skipping breakfast (3.09, 1.11-8.30), Television viewing > 2 hours/ day (2.16, 1.3-6.2), Energy intake (2.98, 1.19-15.6), significantly increased the risk of adolescent obesity whereas increased physical activity (5.34, 1.68-15.58) decreased the odds of getting obese. Dr Gayathri D etal.(2020),showed the prevalence of overweight and obesity were 18% & 6% respectively.

Deepika S,Rasika,T Sujatha (2020),The study was conducted at Maraimalai Nagar. Reliability of the tool was established by a split-half method. The results reveal 17.5 % of subjects had inadequate knowledge, 81.4% had moderate knowledge, and only 1 % had adequate knowledge on childhood obesity. The study concludes that the mothers ignore to take preventive measures where their children could be a victim of child obesity.

Srivatsan P etal.(2021), studied Randomised controlled multifactorial intervention in to 3 groups like exercise,dietary advice and control group with no intervention. Primary outcome measures are the level of PA and behavioural changes. Secondary outcome are dietary change,behaviuoral change,food behaviour,QOL,parent behaviour etc.Positive intervention resulted to reduce OB in adolescent and promote a healthier LSB.

Gildazacarias (2019) the program niño sano adulto sano was developed using the intervention mapping approach and the social cognitive theory frameworks to provide mexican mothers with knowledge and skills to positively modify their children's food behavior, thus preventing future weight gain. The program was developed, piloted and delivered to the target population with positive results on the mothers' nutrition knowledge and children's BMI.

Ramya ramanathan , Janani shanmugavadivu mohan (2022) Overweight and obesity were significant in children whose mothers were unaware of the risk factors like eating unhealthy foods and physical inactivity. Health education and interventional programs have to be planned to educate mothers as they play a major role in preventing obesity in children.

Zhenzhen Qin, Na Wang (2021) HRQoL was positively associated with physical activity and sleep duration, but negatively with screen time and consumption of sugar-sweetened beverage and fast food. M. Murray,J . L. Pearson (2018) Meta-analyses determined a positive effect on quality of life (mean difference 0.20 [0.11, 0.29]; p < 0.01) and weight (mean difference 0.30 [0.12, 0.47]; p < 0.01) following weight management intervention.

The present study showed that there was an improvement between pre test and post test 2 and 3 in QOL and Lifestyle behaviors. Only BMI showed significance in post test 2 and 3,other anthropometrics were not significant. There was a correlation between QOL and LSB & QOL and BMI.Early care tutoring packages had strong impact on adolescents QOL,LSB and Biophysiologicaloutcomes. In addition , mothers had enhanced knowledge which guide and direct the adolescents in healthy lifestyle pathway.

Implications

- A study on regular aerobic exercises for weekly thrice for 3 to 6 months towards obese adolescents can be done.
- A study on Individualized intervention on diet changes among obese adolescents can be done.
- A study of obese Adolescent counselling on lifestyle changes by one-one interaction can be done.
- Periodical awareness program on lifestyle behaviour medication among parents on obesity management.
- Qualitative studies can be done to know the lived experiences of the adolescents with obesity

Limitations

- The time constraints and small sample size were the limitations of the present study.

STATISTICIAN OPINION AND SUGGESTION

Statistician appreciated the study and suggested that the techniques adopted were fit for the study and encouraged to proceed the study

CONCLUSION

The result of the pilot study revealed that there is a significant difference in the pre-test and post test-II and Post test-III score of Quality of life , Lifestyle behavior, BMI of adolescents. The suggestions of the pilot study were incorporated in the main study.

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