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Perceived Expressed Emotion, Emotional and Behavioral Problems and Self Esteem in Obese Adolescents: A Case-Control Study

Çolpan M et al. Expressed Emotion and Psychopathology in Obese Adolescents

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What is already known on this topic?

Family climate is important in mental health of youths. Expressed Emotion (EE) is a measure of the family climate. Studies showed that EE is important in prevention and treatment obesity.

What this study adds?

In this study, the relationship between perceived expressed emotion and emotional and behavioural problems and self-esteem in obese adolescents was investigated. Although family attitude and psychopathology is important issue in obesity treatment, there is only one children and one adult study in this field in literature. To the best of our knowledge, no study concerning expressed emotion and psychopathology and self-esteem of obese adolescents has been carried out in Turkey to date. We aimed to emphasize the role of family climate in the treatment of obese patients in order to identify the risks and help the prevention and treatment.

Abstract

Objective: Obesity is a chronic disease which causes medical and psychiatric complications. Family climate is also a critical factor in the presence and treatment of obesity and comorbid psychiatric disorders. In our study, perceived expressed emotion (EE), psychopathology, self-esteem and emotional and behavioural problems among obese adolescents will be investigated by comparison with their non-obese peers.

Methods: This study was carried out with 49 obese adolescents and 47 non-obese adolescents as a control group. All participants were requested to fill out the Socio-demographic Data Form, Shortened Level of Expressed Emotion Scale, Rosenberg Self-Esteem Scale, Strength and Difficulties Questionnaire-Adolescent Form.

Results: In our study, obese adolescents showed a significant difference in perceived EE ($p<0.001$), and subscales of EE such as lack of emotional support ($p<0.001$), intrusiveness ($p<0.001$), irritability ($p<0.001$) and self-esteem ($p<0.001$), emotional and behavioural problems ($p<0.001$), attention deficit hyperactivity disorder ($p<0.001$), problems in peer relationships ($p<0.001$), and social skills ($p<0.001$) when compared with the control group. There is a strong relationship between EE and emotional and behavioural problems and self esteem.

Conclusion: A higher rate of perceived EE, psychopathology and low self-esteem among obese adolescents showed that obesity prevention and treatment are also crucial for mental health in adolescents. With the help of our study results, we aimed to emphasize the role of the family in obese adolescent's mental health and their treatment. By the help of our results we try to identifying risk factors in childhood that promote obesity in order to help develop targeted intervention and prevention programs

Keywords: Obesity, self-esteem, expressed emotion, psychopathology

Introduction

The prevalence of obesity among young people has recently increased dramatically in both developed and developing countries (1). Obesity affects all physiological systems of humans at every age, even youths.

Obese adolescents exhibit psychiatric problems such as body dissatisfaction, lower self-esteem, depression, and attention deficit-hyperactivity disorder (ADHD) (2-4). Behavior problems, neurocognitive functioning deficits, and ADHD symptoms in childhood have been found to predict weight gain over time (5). Also pathological family environment factors, such as mental illness and inadequate care, are found to be strongly associated with psychopathology of children and obesity (5). Thus, family-based programs have been shown to be effective in targeting childhood obesity (6). Expressed Emotion (EE) is a measure of the family climate in the home which is characterized by the communication styles of family members, such as emotional support, irritability, and intrusiveness. This concept was formulated because of the strong relationship between environmental changes in the family system and the mental health of family members (7). When we consider the association between obesity and mental health, EE becomes a notable issue. Although the relationship between EE and mental-physical illnesses is well understood, researchers generally focus on the relationship between EE and eating disorders such as anorexia nervosa, bulimia, binge eating and emotional eating (8, 9). However, EE is an under investigated issue in the obesity in literature. Even though the importance of the affect of the family on obesity has been shown (10, 11), there is still little information regarding the difference between perceptions of EE of obese adolescents and those of their healthy peers. To best of our knowledge, only one study regarding EE and obesity in children has been carried out and recommending that childhood obesity intervention programs may benefit from targeting maternal psychopathology, expressed emotion and coping skills (7). Also there is only one poster study in adult literature regarding obesity and EE and obese patients suggests that levels of EE be considered when planning treatment interventions to enhance compliance in obese patients (12).

The goal of the current study was to investigate the perception of the family climate and emotional and behavioral problems of obese adolescents by comparing the obese adolescents with a non-obese group. Another objective was to examine the association between perceived EE and psychopathology, self-esteem in the obese adolescents. To the best of our knowledge, no studies concerning this subject have been conducted in Turkey to date. With the help of our study results, we aimed to emphasize the role of the family in obese adolescent's mental health and their treatment. By the help of our results we try to identifying risk factors in childhood that promote obesity in order to help develop targeted intervention and prevention programs

Methods

The study was carried out with 49 obese adolescents and 47 healthy adolescents who had applied to Uludağ University Medical Faculty Department of Paediatric Endocrinology Outpatient Clinic between January 1st, 2015 and July 31st, 2015. The control group of adolescents was matched with the patient group by age and gender. The necessary legal permission and approval were obtained from the Uludağ University Ethics Committee before proceeding to the data collection stage (Date: 14.11.2014, No:2014-19/5). All participants in the study and their parents gave informed consent after being informed of the methods and objectives of this study. A child and adolescent psychiatrist evaluated all participants by a clinical interview based on DSM 5 (13). The exclusion criteria were the presence of a neurological disorder, clinical mental retardation, autism spectrum disorder, physical disability resulting in a significant functional impairment, alcohol and/or substance abuse, and any clinical conditions that cause obesity, such as steroid use or antipsychotic drug use. All participants were requested to fill out Strength and Difficulties Questionnaire - Adolescent Form and the socio-demographic form prepared by the researchers. Expressed emotion was assessed using the Shortened Level of Expressed Emotion Scale (S-LEES), the Rosenberg Self-Esteem Scale assessed self-esteem and Strength and Difficulties Questionnaire assessed emotional and behavioural problems of adolescents. A total of 108 participants were evaluated. 12 participants were excluded previously according to exclusion criteria (2 participants with clinical intellectual disabilities, 2 participant with epilepsy, 2 participant who had undergone treatment with exogenous steroids, and 6 adolescent who did not complete all of the questionnaires) and study was completed with 96 adolescents.

Data Collection Materials

Socio-Demographic Form

Socio-Demographic Form was created by the researchers. It surveyed participants about their socio-demographic characteristics, including age, gender, educational level of the parents, employment status of the parents, number of siblings, birth order, and economic status. Income levels were determined based on the official starvation and poverty limits of 2015.

Shortened Level of Expressed Emotion Scale in Adolescents

The scale developed by Nelis et al. (14) was translated into Turkish by Vural et al. in 2013 (15). The S-LEES consists of 33 items measuring the EE of the person perceived to be most important in the participant's life over the previous 3 months. The three subscales of the S-LEES include lack of emotional support, irritability and intrusiveness. Higher scores indicate higher levels of EE. In the study of Nelis et al., Cronbach's alpha coefficients were 0.88, 0.82 and 0.70 for the S-LEES, Irritability and intrusiveness subscales, respectively. When the reliability scale was evaluated in Vural et al., Cronbach's alpha coefficient was found to be as high as 0.90. The forms were completed by the adolescents themselves. Items were answered on a Likert scale with 4 units ranging from "(1) not true" to "(4) true".

Strength and Difficulties Questionnaire- Adolescent Form

The SDQ was translated into Turkish by Güvenir et al (16). It was developed in 1997 by British psychiatrist Robert Goodman for screening behavioral and emotional problems in children and adolescents (17). The SDQ has 25 items evaluating both positive and negative emotions and behavioral features. These items are grouped into 5 sub-scales, which contain 5 items each according to both appropriate diagnostic measures and the results of factor analysis: ADHD, behavioral problems, emotional problems, peer relationship problems and social behaviors. In Turkey, the Cronbach's alpha for the SDQ was found to be 0.73 in a study by Güvenir et al (16).

Rosenberg Self-Esteem Scale

In order to evaluate self-esteem in children and adolescents, the Rosenberg Self-Esteem Scale was adopted. This scale was developed by Rosenberg (18) The scale consists of 12 sub-tests, with the first 10 articles used to evaluate self-esteem. The numerical levels of self-esteem are considered to be as follows: 0 to 1 points high, 2 to 4 points middle and 5 to 6 points low. In our study, we used the first subtest to evaluate self-esteem. In Turkey, the scale's validity and reliability was tested by Çuhadaroğlu (19).

Statistical Analysis

Data were evaluated using IBM Statistical Package for the Social Sciences Statistics 22 statistical software package program. The mean and the standard deviation values with minimal and maximal levels were used for the statistical expression of the groups. While the comparison of the continuous variables between, comparison of the abnormally distributed variables and non-parametric parameters was performed using the Mann-Whitney U test. Comparison of the categorical variables of the groups was performed using the chi square tests. Correlations were performed using Spearman's rho testing. A p-value of <0.05 was considered statistically significant.

Results

A hundred adolescents, including 49 obese adolescents and 47 healthy control subjects, completed the study. The overall median age was 14 (IQR: 3). The median age of the obese group was 14 (IQR: 3), and 52.0% (n=26) of the obese group were girls. The median age of the control group was 15 (IQR: 3) and 56.0% (n=28) of the control group were girls. The groups were similar in terms of average age (p=0.175) and gender (p=0.841).

To compare socio-economic status (SES), the poverty line defined as 250 dollars/month and the hunger line of 400 dollars/month, as defined by the Statistical Institute of Turkey, were used, and the groups were divided into two: high and low socioeconomic status. In terms of family income, the difference was not statistically significant between the patient and control group. The groups were similar in terms of cohabitation of parents, mother's and father's educational levels and living conditions (p >0.05).

The S-LEES scores of the patient and control groups are shown in Table 2. There was a significant difference in the total perceived EE scores between the groups, and also a significant difference in the subscales of LES, irritability and intrusiveness scores between the groups (Table 1).

Table 1

All cases were evaluated according to the RSES. According to this scale, there was a statistically significant difference between the obesity and control groups (p <0.001) (Table 1).

The presence of psychopathology in the two groups was evaluated using SDQ, and there was a statistically significant difference between the obese group and the control group in the subscales of SDQ, "emotional problems" (p<0.001), "behavioral problems" (p=0.001), "attention deficiency and hyperactivity" (p<0.001), "peer relationship problems" (p<0.001). However, there was no significant difference in prosocial behaviors when comparing the two groups (p=0.077) (Table 2).

Table 2

Correlation between EE scores and RSES Scores and SDQ scores in the obese group has shown in Table 4.

There was a strong correlation between EE emotional and behavioural problems and self-esteem in obese group (Table 3).

Table 3

Study limitations

The limitations of our study were the low number of the clinically obese patients who had consulted our outpatient clinic and failure to evaluate for psychopathology in the parents. Also lack of follow-up can be considered a limitation of this study. The strengths of our study were evaluating EE using a self-report scale specially designed for adolescents and comparing them with their healthy peers.

Additionally, this study is the first controlled study to evaluate the relationship between perceived EE and obesity in adolescents.

Although obesity is a common disorder, its social determinants and psychosocial consequences are still inadequately understood. Our results indicated that the effect of family climate, as evaluated by EE, is critical for the treatment of obesity, and a comprehensive approach to obesity treatment, including family interventions, is crucial. Prevention and treatment of obesity are also necessary for mental health of adolescents. When we consider the vulnerability and tendency to psychiatric disorders of obese adolescents, we require further studies regarding obese adolescents and their families. The findings of our study may enhance our understanding about the effects of family climate on obese adolescents and help to better manage our interventions.

Conclusion

In this study, we investigated perceived EE, psychopathology and self-esteem of obese youths by comparing them with their non-obese peers. A higher rate of perceived EE was observed in the obese group than in the control group. Psychopathology was observed to be higher in the obese adolescents. According to our findings, the obese adolescents had significantly lower levels of self-esteem than the control group. Besides, there was no significant difference in terms of age or gender distribution between the two groups and this strengthens the validity of our results.

Studies on interactions in the families of obese children are well known (20). The families of obese children have been reported to be more angry and critical towards to their obese children (10). Studies about family functioning and obesity have reported that obese children's families are more dysfunctional than those of their non-obese peers (11). In addition, inappropriate parental attitudes have been found to be associated with increased risk for abnormal eating behaviours' and obesity (21). EE is an empirical concept that was developed for evaluating family climate. When we examined the perceptions of adolescents regarding their families' expressed emotion, the obese adolescents perceived significantly lower levels of emotional support, higher irritability, and greater intrusiveness. The studies investigating the parents of obese adolescents and EE also recommended taking EE into account while providing treatment for obesity (12).

In the literature concerning the relationship between obesity and psychopathology a strong association between emotional and behavioural problems, peer problems and obesity has been shown (22-25). The strong relationship between ADHD and obesity was reported in the literature. Our finding also supports this finding. Even there are studies underlying the role of abnormal eating pattern, possible genetic factors and sedentary life style of the patients with ADHD in obesity, there are studies reported a causal role of ADHD in contributing to weight gain (25). According to a longitudinal study, anxiety and depression are more common in children and adolescents with obesity (23). Our results support these findings in adolescents. Another issue that we investigate in our study is self-esteem in obese adolescents. Lower self-esteem in obese adolescents has been reported in many studies (2, 26, 27). A strong relationship between body shame and vulnerability to eating problems has been reported and this increases the risk of low self-esteem and eating disorders among both obese and non-obese youngsters (28). A 4-year follow-up study by Strauss et al. with 1520 participants found that self-esteem was significantly lower in obese adolescents (26). Our findings support findings in the literature, and the self-esteem of the obese adolescents was found to be lower than that of non-obese adolescents. Our results support previously published reports, which show a higher ratio of psychiatric problems (depression, behavioural problems, and low esteem) among clinical obese adolescents than among non-obese adolescents.

In our study, additional to prior studies; a strong association has been observed between EE and emotional behavioral problems and self esteem of obese adolescents. When we investigate the subscale of EE, the relationship between LES seems to be critical in mental health of obese adolescents. Adolescents who perceived their parents less emotionally supportive have more psychiatric problems and lower self-esteem. Also intrusiveness of parents is associated with low self-esteem. In a six-month

follow up study it has been found the decrease of BMI during follow-up seems to be affected by the emotional response on behalf of caregivers (7). Thus we can recommend EE should be considered when planning treatment interventions to enhance compliance in obese adolescents.

Conflict of Interest Statement

The authors declare no conflict of interest.

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Table 1. Comparison of the obese and the control group perceived EE scores

	Mean (IQR)		p value
	Obese group	Control group	
Total Score	110 (31)	50 (17)	<.001
Lack Of Emotional Support	49 (15)	23 (14)	<.001
Irritability	41 (21)	16 (5)	<.001
Intrusiveness	21 (7.5)	13 (6)	<.001

Table 2. Comparison of the obese and the control group RSES Scores- -SDQ scores.

		Median (IQR)		p value
Rosenberg Self Esteem scale		Obese group	3.41 (2.08)	<.001
		Control group	0.75 (0.58)	
Strength and Difficulties Questionnaire	Emotional Symptoms	Obese group	6 (3)	<.001
		Control group	2 (2)	
	Behavioral Problems	Obese group	4 (3)	<.001
		Control group	2 (2)	
	Attention Deficit-Hyperactivity	Obese group	6 (2)	.001
		Control group	5 (3)	
	Peer Relationship Problems	Obese group	6 (2)	<.001
		Control group	2 (2)	
	Prosocial Behaviors	Obese group	8 (3)	.77
		Control group	9 (3)	

Table 3. Correlation between EE scores and RSES Scores--SDQ scores in the obese group

		Emotional Problems	Behavioral Problems	ADHD	Peer relationship problems	Prosocial Behaviors	SDQ total score	RSE Total Score
EE total Score	p (r)	.012 (.356)	.107 (.233)	.067 (.264)	.930 (.013)	.562 (-.085)	.015 - (.345)	.000 (.558)
Lack of Emotional Support	p (r)	.001 (.474)	.013 (.354)	.161 (.203)	.832 (.310)	.063 (-.268)	.003 (.421)	.000 (.530)
Irritability	p (r)	.094 (.242)	.226 (.176)	.267 (.162)	.185 (-.193)	.887 (.021)	.239 (.171)	.079 (.253)
Intrusiveness	p (r)	.058 (.273)	.645 (.067)	.330 (.142)	.328 (.143)	.998 (.000)	.080 (.252)	.001 (.460)