



Evaluation of the Emotion Regulation Skill of Overweight-Obese Preschool Children and Maternal Mental Well-Being

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ABSTRACT

Objective: The aim of the present study was to investigate the emotion regulation skill of overweight–obese preschool children and to compare the maternal mental well-being of mothers with overweight–obese children with those of mothers with normal-weight children.

Materials and Methods: The sample of the study consisted of 219 4–6-year-old children studying in seven kindergartens in a city center located in the Cappadocia region of Turkey, as well as their parents. A questionnaire, the Emotion Regulation Checklist, and the General Health Questionnaire 12 were used to collect data. The body weight and height measurements of the children were obtained, and their body mass index was calculated.

Results: It was determined that 14.6% of preschool children were obese, 15.5% were overweight, and the median emotion regulation total scores of overweight–obese children were higher than those of normal-weight students ($p=0.027$). In addition, it was found that although the mental well-being status of mothers with overweight–obese children was similar to those of mothers with normal-weight children, mothers with obese children were more overweight than mothers with normal-weight children ($p=0.020$).

Conclusion: It is considered appropriate to monitor the weight and height of children at regular intervals and to evaluate children at risk along with their mothers (parents) to identify and prevent childhood obesity at an early stage.

Keywords: Maternal well-being, emotion regulation of children, obesity, preschool child

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INTRODUCTION

The World Health Organization (WHO) defines obesity as fat accumulation in the body to the extent that it adversely affects physical and psychosocial health. Obesity develops as a result of the impaired balance between caloric intake and expenditure. In 2018, the WHO estimated that 41 million infants and children were obese (1, 2). Being a serious health problem for advanced ages due to its results, obesity threatens both children and adults. Although obesity is seen in all age groups, it is seen more frequently in the first years of life, between the ages of 5 and 6 years, in puberty, and in the ages when physiologically rapid fat storage occurs (1, 2).

In addition, the prevalence of obesity in preschool age is increasing worldwide, in which 26%–41% of preschool age children are obese and 42%–63% of obese children at school ages continue to be obese in adult ages (2). Even though there are no comprehensive studies examining the prevalence of obesity in school age children in Turkey, regional studies have reported the prevalence of obesity as 9%–27% (2–4).

Obesity is a multifactorial disease. Effective factors in increasing the prevalence of obesity in children include excessive and incorrect feeding habits, nutritional behaviors of parents, inadequate physical activity, hormonal and metabolic factors, genetic factors, psychological factors, and parental behaviors (3, 4). Parents play an important role in determining the healthy lifestyles of children and provide the necessary related changes. It was observed that a number of parenting practices during infancy, childhood, and adolescence, such as breastfeeding, early addition of solid foods, physical activity of parents, screen-related parenting, and parental feeding type, played a role in the weight development of children (5–8).

Again, although psychiatric symptoms are seen more frequently in obese children and adults, the frequency of obesity in children of mothers suffering from psychological problems has been evaluated less. Maternal well-being can affect the mother's interest in the child and mother–child attachment. When a mother has an impaired mental health, the mother's interest in the child decreases, causing a cooler relationship between the mother and the child. It also affects the parental attitude and leads to a more authoritarian attitude and compulsive or restrictive feeding behavior. An impaired mental health may cause the mother, who typically plays a primary role in regulating children's emotions, to distance herself from their children, not to respond appropriately, and to have

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difficulties in the emotional regulation domain of children (9, 10). In addition, the impaired mental health of mothers may cause difficulties in the emotion regulation of children, and thus changes in their own eating behaviors lead children to adopt the eating styles of their parents and also affect the body weights of children. Controversial results have been obtained in studies investigating the role of maternal mental health in childhood obesity. Some studies have reported a correlation between maternal depression and the body mass index (BMI) of children (11).

Studies on adult obesity have revealed that there is a correlation between BMI and emotional eating and emotion regulation difficulties, and the more difficulties experienced in the emotion regulation difficulties, the higher the BMI (12). No studies in the literature have investigated the correlation between emotion regulation difficulty and childhood obesity. The fight against obesity, which is a multifactorial disease, is a problem that requires collaboration among different sectors. Physicians, nurses, and other health disciplines dealing with child health play an important role in determining the current situation of childhood obesity and the influencing factors. Therefore, the aim of the present study was to examine the emotion regulation skill of overweight-obese preschool children and to compare the maternal mental well-being status of their mothers with mothers with normal-weight children. Additionally, the BMI profiles of children in kindergarten and their mothers were examined.

MATERIALS and METHODS

The study was conducted on children aged 4–6 years attending seven kindergartens affiliated with the Republic of Turkey Ministry of National Education (MEB) in a city center in the Cappadocia region in Turkey and their parents. There were 1134 students attending kindergartens in 2016–2017 in the city where the study was conducted. The study was approved by the ethics committee of Nevşehir Hacı Bektaş Veli University (2017/05.06). Consent was obtained from the parents.

The sample of the study was randomly selected from children in the total kindergarten population by obtaining the consents of their parents. The sample was composed of 269 children. Children who had chronic diseases ($n=2$), had no consent from their parents ($n=7$), and were involved in slim percentiles according to BMI ($n=41$) were excluded from the study. A total of 219 children were included in the study. Their parents were also included.

Data were collected between December 2017 and March 2018 using a questionnaire, the Emotion Regulation Checklist (ERC), and the General Health Questionnaire (GHQ) 12.

Data Collection Tools

Questionnaire

The questionnaire included 10 questions about the sociodemographic characteristics of preschool children and their parents.

Emotion Regulation Checklist

The ERC, which was developed by Shields and Cicchetti (1997) and adapted to Turkish by Kapçı et al. (2009) (13), is a 4-point Likert-type scale with 24 items that evaluate the emotion regulation competence of children. It is completed by the parent, teacher, or an adult who knows the child. It was completed by the moth-

ers in the study. The total score of ERC is 24–96. A high total score indicates a low level of emotion regulation skill. The checklist consists of two factors named as Lability/Negativity and Emotion Regulation. The Lability/Negativity factor contains items regarding oscillations in emotion state, reactions with anger, emotional intensity, and non-regulation of positive emotions. This factor contains 15 items, and the score can range from 15 to 60. The Emotion Regulation factor reflects the adaptive emotion regulation, such as understanding emotions, empathy, and equanimity. This factor contains nine items, and the score can range from 9 to 36 (13).

General Health Questionnaire 12

The GHQ 12 was developed by David Goldberg (1970) to determine the common acute mental problems in society. Its Turkish validity and reliability study was conducted by Kılıç (1996) (14). The GHQ 12 is rated through a 4-point scale ranging from 0 to 3 points. In another method, the 4-point scale is transformed to dyadic form (yes/no) by scoring 0 and 1 point as 0 and 2 and 3 points as 1. This questionnaire is a Likert-type scale rated with the scores ranging between 0 and 36. The form includes statements related to the last few weeks. Higher scores signify the increased prevalence of mental problems (anxiety and depression) (14).

Anthropometric Measurements

Weight Measurement

The children were weighed using electronic scales (Tefal Premiss, France) with ± 100 g sensitivity by removing their shoes and clothes and having them step on the platform with their feet on the center of the scale, and the value seen on the electronic display was immediately recorded.

Height Measurement

The researcher measured the heights of the children by using a steel strip meter after ensuring that they were in the vertical position by standing with bare feet, which were both touching and parallel to each other, and their shoulders and gluteal region were in contact with the wall.

After weighing and measuring the children, the BMI of the mothers was calculated according to their weight and height values ($\text{BMI}=\text{kg}/\text{m}^2$). The growth curves developed by Neyzi et al. (15) for children in Turkey were used to evaluate the BMI of the children. The BMI of the children is evaluated as normal weight between the 15th and 84.9th percentile, overweight between the 85th and 94.9th percentile, and obese above the 95th percentile curve. Maternal BMI was evaluated based on the obesity classification of the WHO. A BMI ≤ 18.5 kg/m^2 is evaluated as slim, 18.6–24.9 kg/m^2 as normal, ≥ 25 kg/m^2 as overweight, and ≥ 30 kg/m^2 as obese.

Data Assessment

Data were analyzed via the IBM SPSS Statistics 21.0 (IBM SPSS Inc., Chicago, IL, USA) packaged software. Data obtained through the measurements are expressed as arithmetic mean and standard deviation, and numerical data are presented as percentage. Shapiro–Wilk test was used to determine the compatibility of normally distributed data, and non-parametric analyses were used for non-normally distributed data. Data were evaluated using the chi-square test, Spearman correlation analysis, and Mann–Whitney U test. A p value < 0.05 was accepted as statistically significant.

RESULTS

Of the 219 children included in the study, 52.0% were aged 5 years. Slightly more than half (50.7%) of the participants were male, 70.7% of mothers were aged 30–39 years, 42.4% were university graduates, and 69.4% of families had incomes more than expenses (Table 1).

It was determined that while 15.5% of preschool children were overweight and 14.6% were obese, 31.5% of mothers were overweight and 14.2% were obese (Table 2).

It was determined that the emotion regulation median total scores were significantly higher in overweight–obese children than in normal-weight students ($p=0.027$) (Table 3). The GHQ 12 scores of the mothers in both groups were close to each other ($p>0.05$).

There was a weak positive significant correlation between total general health scores of the mothers and total emotion regulation of male children with normal BMI ($r=0.288$, $p<0.01$ and $r=0.251$, $p<0.01$) (Table 4).

In other words, as emotion regulation total scores of male children with normal BMI increased, the general health scores of the mothers increased.

In addition, it was determined that the mothers of overweight–obese children (57.6%) were more overweight than their counterparts (40.5%) ($\chi^2=5.404$, $p=0.020$).

DISCUSSION

It has been shown that the prevalence of obesity among preschool age children has gradually increased in both Turkey and worldwide, and almost one in four overweight preschool children remain obese in adult ages (2). It was determined in the present study that 15.5% of preschool children were overweight and 14.6% were obese (Table 2), and that the obesity rates were similar to those found in school age children across Turkey (2–4).

Many factors are effective in the increased prevalence of obesity in children (3, 4). The present study investigated the correlation of emotion regulation difficulty in children and childhood obesity with the mental status of the mother, which is one of the poorly studied fields.

In the present study, it was determined that the emotion regulation total scores were significantly higher in overweight–obese children than in normal-weight children (Table 3). It was also found that the mental problems of the mothers in both groups were similar ($p>0.05$) (Table 3). In addition, the mothers of obese children were more overweight than those of normal-weight children.

Families are very important for social learning; this might be crucial for health-promoting behaviors, such as food choice and physical activity, thus affecting childhood obesity (16–18). Even though functioning of the family structure and childhood obesity has a potential importance, a limited number of studies have investigated this variable. The result of the present study showing that mothers of obese children were more overweight than mothers of normal-weight children may indicate that possible wrong food choices and less physical activity made by the mothers of obese children were

Table 1. Descriptive characteristics of the children and their mothers

Descriptive characteristics	n	%
Child's age (year)		
4	24	11.0
5	114	52.0
6	81	37.0
Child's sex		
Female	108	49.3
Male	111	50.7
Mother's age		
20–29 years	47	21.5
30–39 years	155	70.7
40–49 years	17	7.8
Mother's education		
Primary school	16	7.3
Secondary school	31	14.2
High school	79	36.1
University	93	42.4
Family's income status		
Income less than expenses	20	9.1
Income equal to expenses	47	21.5
Income more than expenses	152	69.4
Total	219	100.0

Table 2. Anthropometric characteristics of the children and their mothers

Descriptive characteristics	n	%
Child BMI percentile values		
15.0–84.9 (normal weight)	153	69.9
85.0–94.9 (overweight)	34	15.5
≥95. (obese)	32	14.6
Mother BMI		
≤18.5 (underweight)	2	0.9
18.6–24.99 (normal weight)	117	53.4
25–29.9 (overweight)	69	31.5
≥30 and higher (obese)	31	14.2
Total	219	100.0

BMI: Body mass index

also accepted and applied by their children and genetic factors were also effective in obesity.

Previous studies reported inconsistent findings about the correlation of mental health of mothers with obesity (19–21). Duarte et al. (22) and Ertel et al. (23, 24) found a correlation between the severity of depression as observed through the self-report scale of mothers and the BMIs of children. This cross-sectional study found no correlation between maternal depression and obesity in children aged 6–13 years (19). In a longitudinal study, it was stated

Table 3. Comparison of the mean scale scores of normal and overweight–obese children

Scale scores	BMI				Test* p
	Normal		Overweight-Obese		
	n	M (Q ₁ –Q ₃)	n	M (Q ₁ –Q ₃)	
Lability/negativity	153	32.0 (30.0–35.0)	66	33.0 (31.0–36.0)	-1.824 p=0.068
Emotion regulation (ERC Total)	153	49.0 (46.0–53.0)	66	50.5 (47.0–54.5)	-2.218 p=0.027
General Health Questionnaire (GHQ 12)	153	7.0 (5.0–10.0)	66	7.0 (5.0–10.0)	-0.224 p=0.823

BMI: Body mass index; *Mann Whitney U test; (Q₁–Q₃): 25.–75 percentile

Table 4. The correlation between lability/negativity ERC total and mothers' general health questionnaire mean scores with respect to children's sex and BMI

General health questionnaire	Emotional regulation checklist	Lability/negativity	ERC total
		rho	rho
Sex			
Female	Total general health	0.043	0.117
Male	Total general health	0.207**	0.288**
BMI			
Normal-weight	Total general health	0.179*	0.251**
Overweight-obese	Total general health	0.020	0.105

rho: Spearman correlation coefficient; BMI: Body mass index; *p<0.05; **p<0.01

that there was no correlation between maternal depression and being overweight in 7-year-old children (21). These conflicting results suggest that there is a complex correlation between childhood obesity and parental functioning. In the present study, there was no difference between the GHQ 12 scores of the mothers in the normal and overweight–obese groups, which may be related with the fact that the study was cross-sectional and the psychiatric evaluation of the mothers was subjective. Previous studies conducted in Western culture found no correlation between maternal depression and BMI (25). The correlation between maternal depression and childhood obesity may be more clearly understood by examining all psychiatric histories of the mothers and childhood obesity.

In contrast to an actual physiological need, eating tendency as a response to emotional triggers is described as emotional eating, which is closely associated with obesity. Emotional eating is described in almost half (57.3%) of all obese and overweight individuals (26). Emotional eating has a positive correlation with increased BMI (27) and is closely associated with emotion regulation difficulties (28). Although a correlation was determined between obesity and emotion regulation difficulties in adulthood, this topic has not been investigated in children and preschool children. In the present study, the median emotion regulation total scores were higher in overweight–obese children than in normal-weight students (p=0.027) (Table 3). In other words, overweight and obese children experience difficulties in emotion regulation. Similar to adults, this

result may also indicate a link between emotion regulation difficulties and emotional eating in preschool children. Preschool children may experience difficulties in their social lives or in kindergarten, and they can express their emotions by emotional eating.

Emotional and behavioral problems are frequently encountered in obese children and are closely associated with maternal depression and maternal anxiety disorders. Emotional and behavioral problems in children are also related to emotion regulation difficulties. It was determined in the present study that as the lability/negativity and emotion regulation total scores of boys increased, the general health scores of mothers also increased (Table 4, p<0.01); however, this was not seen among girls. In other words, when the mothers were more depressive, the boys had more problems in emotion regulation.

Many studies have revealed that the onset ages of emotional and behavioral problems in young boys and girls are different, attention-deficit/hyperactivity disorder (ADHD) symptoms are frequently seen in male children at preschool age, and ADHD is correlated with emotion regulation difficulties (29). In girls, emotional problems are seen more frequently especially during adolescence, and the results of the present study might be due to the differences between the onset and more frequent ages of emotional and behavioral problems between boys and girls (30).

Limitations

Since this was a cross-sectional study, we could not establish the causal relationship between obesity and ERC scores or GHQ 12 scores. Longitudinal studies are needed. The mothers and children participating in the study were evaluated via structured psychiatric interviews. The inclusion of children who went to kindergarten but non-inclusion of children with or without obesity from the same age who do not go to kindergarten reduces the generalizability of the present study. Another important limitation is that the information was received only from the mothers. In addition, the fact that the sample was limited and the study was conducted only in the Central Anatolia region of Turkey reduces the generalizability of the results.

Despite all these limitations, it is thought that the study would contribute to the literature because it is one of the few studies investigating emotion regulation difficulties in preschool children, maternal mental health, and childhood obesity. Although psychosocial interventions are planned in the fight against obesity, it is important to involve mothers and families in the treatment. Appropriate methods (parental education and family therapy) would contribute to the treatment of obesity.

In addition, it is recommended to conduct multicenter and longitudinal studies with a large sample to determine the correlation between maternal mental health and childhood obesity and the emotion regulation difficulties of children.

Ethics Committee Approval: The study was approved by the ethics committee of Nevşehir Hacı Bektaş Veli University (date: 25.05.2017, number: 2017.05.06).

Informed Consent: Consent was obtained from the parents.

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REFERENCES

1. WHO. Taking Action on Childhood Obesity Report. WHO; Geneva, Switzerland: 2018.
2. İnal S, Canbulat N. General overview on childhood obesity. *J Curr Pediatr* 2013; 11(1): 27–30. [\[CrossRef\]](#)
3. Özer S, Bozkurt H, Sönmezgöz E, Bilge S, Yılmaz R, Demir O. Evaluation of Eating Behaviour in Obese Children. *J Child* 2014; 14(2): 66–71. [\[CrossRef\]](#)
4. Tüttüncü İ. Prevalence of overweight and obesity among students aged 5 to 15 years at 13 primary schools in Kastamonu city center. *ACU J Health Sciences* 2014; 5(2): 141–51.
5. De Craemer M, De Decker E, De Bourdeaudhuij I, Vereecken C, Deforche B, Manios Y, et al; ToyBox-study group. Correlates of energy balance-related behaviours in preschool children: a systematic review. *Obesity reviews* 2012; 13(suppl 1): 13–28. [\[CrossRef\]](#)
6. Loprinzi PD, Cardinal BJ, Loprinzi KL, Lee H. Parenting practices as mediators of child physical activity and weight status. *Obes Facts* 2012; 5(3): 420–30. [\[CrossRef\]](#)
7. Rodgers RF, Paxton SJ, Massey R, Campbell KJ, Wertheim EH, Skouteris H, et al. Maternal feeding practices predict weight gain and obesogenic eating behaviors in young children: a prospective study. *Int J Behav Nutr Phys Act* 2013; 10: 24. [\[CrossRef\]](#)
8. Weng SF, Redsell SA, Swift JA, Yang M, Glazebrook CP. Systematic review and meta-analyses of risk factors for childhood overweight identifiable during infancy. *Arch Dis Child* 2012; 97(12): 1019–26. [\[CrossRef\]](#)
9. Topham GL, Page MC, Hubbs-Tait L, Rutledge JM, Kennedy TS, Shriver L, et al. Maternal depression and socio-economic status moderate the parenting style/child obesity association. *Public Health Nutrition* 2010; 13(8): 1237–44. [\[CrossRef\]](#)
10. Sleddens EF, Gerards SM, Thijs C, de Vries NK, Kremers SP. General parenting, childhood overweight and obesity-inducing behaviors: a review. *Int J Pediatric Obesity* 2011; 6(suppl 3): e12–27. [\[CrossRef\]](#)
11. Lampard AM, Franckle RL, Davison KK. Maternal depression and childhood obesity: a systematic review. *Prev Med* 2014; 59: 60–7.
12. Braden A, Musher-Eizenman D, Watford T, Emley E. Eating when depressed, anxious, bored, or happy: Are emotional eating types associated with unique psychological and physical health correlates? *Appetite* 2018; 125: 410–7. [\[CrossRef\]](#)
13. Kapçı EG, Uslu Rİ, Akgün E, Acer D. Emotion regulation in primary school children: A scale adaptation study and determination of emotion regulation-related factors. *Turkish J Child Adolescent Mental Health* 2009; 16(1): 13–20.
14. Kılıç C. General health questionnaire: the validity and reliability study. *Turkish J Psychiatry* 1996; 7(1): 3–9.
15. Neyzi O, Günöz H, Furman A, Bundak R, Gökçay G, Darendeliler F, et al. The reference values of body weight, height, head circumference and body mass index in Turkish children. *Turkish Pediatric Journal* 2008; 51(1):1–14.
16. DeCosta P, Møller P, Frøst MB, Olsen A. Changing children's eating behaviour—A review of experimental research. *Appetite* 2017; 113: 327–57. [\[CrossRef\]](#)
17. Uijtdewilligen L, Brown HE, Müller-Riemenschneider F, Lim YW, Brage S, van Sluijs EM. A systematic review of methods to measure family co-participation in physical activity. *Obes Rev* 2017; 18(12): 1454–72. [\[CrossRef\]](#)
18. Danford CA, Schultz CM, Marvicsin D. Parental roles in the development of obesity in children: Challenges and opportunities. *Res Rep Biol* 2015; 6: 39–53. [\[CrossRef\]](#)
19. Gibson LY, Byrne SM, Davis EA, Blair E, Jacoby P, Zubrick SR. The role of family and maternal factors in childhood obesity. *Med J Aust* 2007; 186(11): 591–5. [\[CrossRef\]](#)
20. Ajslev TA, Andersen CS, Ingstrup KG, Nohr EA, Sørensen TI. Maternal postpartum distress and childhood overweight. *PLoS One* 2010; 5(6): e11136. [\[CrossRef\]](#)
21. Taveras EM, Gillman MW, Kleinman K, Rich-Edwards JW, Rifas-Shiman SL. Racial/ethnic differences in early-life risk factors for childhood obesity. *Pediatrics* 2010; 125(4): 686–95. [\[CrossRef\]](#)
22. Duarte CS, Shen S, Wu P, Must A. Maternal depression and child BMI: longitudinal findings from a US sample. *Pediatr Obes* 2012; 7(2): 124–33. [\[CrossRef\]](#)
23. Ertel KA, Koenen KC, Rich-Edwards JW, Gillman MW. Maternal depressive symptoms not associated with reduced height in young children in a US prospective cohort study. *PLoS One* 2010; 5(10): e13656. [\[CrossRef\]](#)
24. Ertel KA, Kleinman K, van Rossem L, Sagiv S, Tiemeier H, et al. Maternal perinatal depression is not independently associated with child body mass index in the Generation R Study: methods and missing data matter. *J Clin Epidemiol* 2012; 65(12): 1300–9. [\[CrossRef\]](#)
25. Akay AP, Ozturk Y, Avcil SN, Kavurma C, Tufan E. Relationships between pediatric obesity and maternal emotional states and attitudes. *Int J Psychiatry Med* 2015; 50(2): 178–90. [\[CrossRef\]](#)
26. Péneau S, Ménard E, Méjean C, Bellisle F, Hercberg S. Sex and dieting modify the association between emotional eating and weight status. *Am J Clin Nutr* 2013; 97(6): 1307–13. [\[CrossRef\]](#)
27. Kontinen H, Silventoinen K, Sarlio-Lähteenkorva S, Männistö S, Haukkala A. Emotional eating and physical activity self-efficacy as pathways in the association between depressive symptoms and adiposity indicators. *Am J Clin Nutr* 2010; 92(5): 1031–9. [\[CrossRef\]](#)
28. Sultson H, Kukk K, Akkermann K. Positive and negative emotional eating have different associations with overeating and binge eating: Construction and validation of the Positive-Negative Emotional Eating Scale. *Appetite* 2017; 116: 423–30. [\[CrossRef\]](#)
29. Steinberg EA, Drabick DA. A Developmental Psychopathology Perspective on ADHD and Comorbid Conditions: The Role of Emotion Regulation. *Child Psychiatry Hum Dev* 2015; 46(6): 951–66. [\[CrossRef\]](#)
30. Ginige P, Tennakoon SU, Wijesinghe WH, Liyanage L, Herath PS, Bandara K. Prevalence of behavioral and emotional problems among seven to eleven year old children in selected schools in Kandy District, Sri Lanka. *J Affect Disord* 2014; 167: 167–70. [\[CrossRef\]](#)