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Mediation Role of Parental Nutrition Style in Relation with Parental Coping Strategies and Pediatric Obesity in Shiraz, 2019

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Abstract

Objective: In obese children, there is a greater likelihood that they will become obese adults, and they will have negative physical and psychological outcomes. The aim of this study was to determine the mediating role of parental nutritional style in the relationship between parental coping styles and childhood obesity.

Materials and Methods: The present study was descriptive and correlational. The statistical population of the study consisted of all obese children and their parents in 2019 in Shiraz. 160 children and their parents were selected and studied by multi-stage cluster sampling from the statistical population. Coping inventory for a stressful situation – short form (CISS) and parental feeding styles questionnaire (PFSQ), and body mass index (BMI) were used to collect data. After collecting and extracting data, participants' scores were analyzed using Pearson correlation coefficient and structural equations (path analysis) by means of SPSS 20 and AMOS 20 statistical software.

Results: The results showed that the relationship between problem-oriented and emotion-oriented coping style with BMI was significant and negative (P= 0.01); furthermore, relationship between distraction style and social engagement style with BMI was significant and positive (P= 0.01). Moreover, there was a significant and positive the relationship between the subscale of emotional nutrition, instrumental nutrition, arousal, and encouragement to eat with BMI (P= 0.05).

Conclusion: According to the findings, parents who urge their children to follow a healthy eating pattern have an essential moderating role in the interplay between coping techniques and childhood obesity.

Keywords: Parental nutritional style, Coping styles, Children, Obesity

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Introduction

Childhood obesity (OB) and overweight (OW) is a global public health concern because it raises the risk of premature death, metabolic syndrome, cancer, heart disease, and a variety of other physical and emotional diseases and complications in adulthood (1). Obesity treatment of children has long been practiced in school-aged children 5,6 and, most recently, in preschool children (2,3). According to Styne (4) and Karp and Gesell (5), the relationship of the child with his or her early environment establishes a programming response (6). These results are backed up by a longitudinal comprehensive study of obesity prevention initiatives, which concluded that combining diet and physical activity approaches in education, family, and community-based environments resulted in important positive obesity prevention outcomes. Long-term changes in physiology and metabolism can occur during this vulnerable time of early life, leading to biochemical, metabolic, and neurological disorders later in life (7). Obesity in adolescence and adulthood is related to impaired growth and development during fetal life and infancy (8).

According to studies, obesity has been linked to nonalcoholic fatty liver disease (NAFLD), metabolic syndrome, and diabetes in adulthood (7). Children's eating and physical activity levels have been linked to maternal body mass index (BMI), family sociodemographic factors, and family diet and physical activity habits in recent studies (4). According to certain research, bad parent lifestyles such as physical inactivity and unhealthy eating habits are one of the causes of childhood obesity (9). Similarly, the researchers discovered that moms' lack of physical activity is a substantial predictor of childhood obesity. Gray et al. (10) discovered that family lifestyle persists, with 87.43% of families who were above the 95th percentile on the lifestyle distribution when their kid was 7 years old also remained above the 95th percentile in 7 years old. The results of the study are influenced by family lifestyle including nutrition, activity, and parental weight. Al Yazeedi et al. (11) discovered that children's dietary and physical activity patterns are impacted by their parents' lifestyles in another study (11).

Obesity in children can also be increased by an unhealthy lifestyle. According to a study conducted by Davis in Kansas City, the parents' balanced diet and physical exercise play a critical role in determining the child's optimal weight (12). Studying parental feeding habits and children's eating patterns throughout the preschool years is especially critical since children are already heavily reliant on their parents for food consumption structuring, but they are still gaining greater mobility by preschool and social contact with other children, under the care of other adults and without their parents' direct influence. The communication between children and their parents becomes more developed than at earlier ages. Children's and parents' contact is more mature than it was at earlier times (13).

Early lifestyle behaviors are influenced by family and home situations, and parents may influence their children's eating and physical activity habits by determining what meals are accessible in their homes and providing chances to keep active (or inactive) (14). The successful weight reduction programs for children should include programming on eating habits, physical activity, and screen time, as well as coping skills teaching. Coping strategies, on the other hand, have only been examined in a few studies, such as weight reduction therapy (15).

The impact of specific types of coping skills on adults has been well-documented, and a growing body of evidence for children is emerging. However, the findings suggest that coping techniques impact the eating behavior of obese children and adolescents (16).

Structural equation modeling revealed that the mothers' psychopathology predicted the

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children's BMI using articulated emotion and maladaptive coping evaluations (17). Obesity in children is linked to low academic skills and coping methods, which can lead to negative personal and public health effects (16). As a result, the preschool period is a critical period for parents to create food communication with their children; in fact, the obesity treatments are most successful in the preschool age range (18).

Mental health screening and counseling are advised because of the psychosocial effects of childhood obesity on individuals and families. Because it is difficult to accomplish long-term behavioral change after obesity has been established, a key focus should be on preventing childhood obesity by supporting a healthy diet, activity, and environment. The current study intends to assess parental food style has a substantial mediating role in the association between parental coping methods and childhood obesity.

Materials and Methods

This study had a field approach, and the study type was descriptive-correlational, with data collected by a questionnaire. All obese children and their parents in Shiraz, Iran in 2019 were included in the study's statistical population. A multi-stage cluster sampling procedure was used to choose the sample group. Inclusion criteria were volunteer involvement in the survey, complete satisfaction with the sample, and elementary literacy. The analysis was ruled out due to the presence of acute mental problems and the expression of discontent with the tests.

To begin, Shiraz Azad University provided the necessary research approvals (Sadra). The multi-stage cluster sampling approach was employed in this investigation. Two districts (1,3) were chosen randomly from Shiraz's four education districts, with four primary schools for females and four primary schools for males in each district. Finally, 160 children and their parents were chosen as the study's sample based on the number of model routes. The researcher supplied the required explanations about how to complete the questionnaire, and the sample group completed the coping and dietary styles questionnaires after interacting with the respondents and minimizing their exposure to the surveys and the rationale for their inclusion in the survey.

Subjects were advised that their comments would be kept secret during the study, but they were encouraged to be honest when filling out the questionnaire (due to the high incidence of coronary heart disease, a variety of questionnaires were sent to parents by electronic link). Subjects would be prompted to clarify their answers by calling the researcher if they were unsure about anything while filling out the questionnaire. According to Sang et al., 160 participants were selected as the sample size (19).

The subject in this project was voluntary and the necessary care was taken in the field of confidentiality of the information of the questionnaires completed by the individuals. They were asked to sign a medical contract to express their consent to participate in the study.

Coping inventory for stressful situation – short form (CISS)

Andler and Parker were the first to establish this scale (20). This scale has 48 items, but the Iranian standard has 45. The stress-coping examination covers problem-oriented, emotion-oriented, and avoidant coping strategies. Andler and Parker split evasion into two separate subscales of distraction and social interaction in 1994, according to which there were four problem-solving variables in this questionnaire (44, 43, 40, 39, 38, 36, 33, 25, 24). 22, 20, 14, 9, 5, 2, 1), exciting questions (42, 35, 31, 30, 28, 26, 23, 21, 18, 16, 15, 13, 12, 7, 6, 4,), attention questions (45, 41, 37, 19, 17, 11, 10, 8) and social engagement questions (3, 27, 29, 32, 34) are assessed. This test consists of 45 questions, the answer to each phrase is determined by the Likert method from never to too much. In this questionnaire, the option is never: grade 1, sometimes: grade 2, usually: grade 3, most of

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the time: grade 4, and always: grade 5. The highest and the lowest grade in the problem-oriented style: 16 and 80, the highest and the lowest score in the emotion-oriented style: 16 and 80, the highest and lowest score in the distraction style: 8 and 40, and the highest and lowest score in the social engagement style: 25 and 5. Andler and Parker (20) reported Cronbach's alpha coefficient for problem-oriented coping style as 0.92, emotion-focused coping style as 0.82, and avoidant coping style as 0.85 for male adolescents, indicating the validity of the scale. Internal consistency coefficients for task-oriented coping, emotion-oriented coping, and avoidance-oriented coping subscales were 78, 79, and 79, respectively, in research by Mohebi et al. (21). The Cronbach's alpha coefficient for this study's whole questionnaire was 0.85.

Parental feeding styles questionnaire (PFSQ): The Wardell Parents' Nutrition Style Questionnaire is a tool to measure how parents use to feed their baby, including how they interact during the meal (22). This survey has 37 questions for four different feeding styles: emotional feeding (5 items), instrumental feeding (4 items), relaxing and promoting eating (8 items), and regulating eating (8 items) (10 items). The reverse questions are regulated by five things. The Likert scale has five choices for ranking the questionnaire, ranging from never (one score) to always (five scores) (5 points). The highest average score on each scale indicates that parents are very interested in and supportive of the type. These four dietary, power, motivation, emotional, and instrumental types had Cronbach's alpha coefficients of 74 percent, 80 percent, 85 percent, and 78 percent, respectively. The result showed internal reliability coefficients (Cronbach's α) of 0.74-0.85 (23). In the present study, Cronbach's alpha coefficient for the whole parenting nutrition questionnaire was 0.87.

In this study to test the research hypotheses of descriptive statistics methods including mean, standard deviation, maximum and minimum and inferential statistics including correlation coefficient and path analysis and fit indices (goodness-fit index, GFI, goodness-fit index adjustment Findings, AGFI, Normalized Fit Index, NFI, Incremental Fit Index, CFI, Adaptive Fit Index, IFI, Tucker-Lewis Fit Index, TLI and Mean Squared Root Error Root (RMSEA) using SPSS software version 20 and AMOS Version 20 was used. To test the hypotheses, the confidence level was considered 0.05.

Ethical considerations

This article is the result of the student's dissertation in the general psychology of the Islamic Azad University of Shiraz and has the code of ethics IR.IAU.SHIRAZ.REC.1399. 034 from the Ethics Committee of the Islamic Azad University of Shiraz.

Results

Subjects in this study were 160 obese males (50%) and females (50%) students with a mean (±SD) age of 8.8 (±1.23) years. Table 1 and 2 show that the lowest mean is associated with the emotion-oriented coping style, which has a mean of 14.86 (±3.91)**,** and the highest mean is associated with the problem-oriented coping style, which has a mean of 25.64 (± 05.03)**.** The mean of the score of the measurements of diet style are recorded in Table 1, and the lowest mean is related to the dimension of arousal and encouragement to eat, with a mean of 8.64 (±1.84), and the highest mean is related to the dimension of arousal and encouragement to eat, with a mean of 8.64 (±1.84). The mean of the eating control are 11.60 (±1.71).

Table 3 shows a significant negative correlation between problem-oriented coping style score and BMI (*P*= 0.001) as well as a significant negative correlation between emotion-oriented style and BMI (*P*= 0.038) and a significant negative correlation between avoidant senses style and BMI (*P*= 0.001). In addition, there is a positive association between emotional eating, instrumental in feeding, and BMI, at the *P*= 0.001 level, as

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well as arousal and encouragement to eat at the *P*= 0.030 level.

The results of the path coefficient model showed that there was a significant direct relationship between problem-oriented coping style, emotion-oriented style, and avoidance style with BMI. Thus, the hypotheses about indirect (intermediate) pathways were confirmed (Table 4).

As findinds showed, the Good Fit Index (GFI) is 0.98, and the confirmatory factor index (CFI) is 0.98. The scale of the metrics

Table 1. Descriptive findings of stidied group

Variable	Subscales	Mean (± SD)
Coping strategies	Problem-oriented style	25.64 (±3.05)
	Excitement style	14.86 (±3.91)
	Avoid sensory style	17. 25 (±2.55)
Parental nutrition style	Emotional Nutrition	8.75 (±1.55)
	Instrumental feeding	9.45 (±1.84)
	arousal and encouragement to eat	8.64 (±1.84)
	Eating control	11.60 (±1.71)

Table2. Descriptive findings of body mass index

Variable	Mean (± SD)	Min	Max
Age (years)	8.8 (±1.23)	7	10
Height (cm)	118.13 (±10.5)	112	133
Weight (kg)	43.05 (±3.77)	38	50
Body mass index (kg / cm2)	18.26 (±3.14)	12.31	20.28

Table3. The Pearson correlation coefficient between obesity and coping and eating styles.

	Body Mass Index	
Variable	***P***	**The correlation coefficient**
Problem-oriented style	0.001	** -0.52
Emotion-oriented	0.038	* 0.13
Avoid sensory style	0.001	** 0.22
Emotional nutrition	0.001	** 0.35
Instrumental feeding	0.001	** 0.46
Arousal and encouragement to eat	0.030	* 0.17
Eating control	0.001	** -0.38

* *P*= 0.05 ** *P*= 0.01

Table 4. The path coefficients in the suggested path's initial model

Variables	Non-standard effects	Standard effects	Standard error	t	*P*
Problem-oriented coping style→ BMI	-0.17	-0.14	-0.09	2.10	0.030
Excitement-oriented coping style→ BMI	0.12	0.12	0.07	1.88	0.041
Avoidance coping style→ BMI	0.31	0.21	0.11	2.78	0.010
Emotional feeding style→ BMI	0.65	0.29	0.12	5.09	0.001
Instrumental feeding style→ BMI	0.93	0.46	0.12	7.92	0.001
Nutrition style to arouse and encourage→ BMI	0.06	0.13	0.12	2.55	0.030
Eating control eating style→ BMI	1.06	0.43	0.14	7.60	0.001
Problem-oriented coping style→ Emotional feeding style	-1.01	-0.43	-0.11	8.74	0.001
Excitement-oriented coping style→Emotional feeding style	0.24	0.10	0.18	1.34	0.038
Avoidance coping style→ Emotional feeding style	0.07	0.14	0.12	1.61	0.20
Problem-oriented coping style→ Instrumental feeding style	-0.16	-0.10	-0.10	1.55	0.032
Excitement-oriented coping style→ Instrumental feeding style	0.02	0.11	0.17	1.39	0.036
Avoidance coping style→ Instrumental feeding style	0.15	0.11	0.11	1.38	0.031
Problem-oriented coping style→ Nutrition style to arouse and encourage	-0.10	-0.16	-0.10	1.98	0.022
Excitement-oriented coping style→ Nutrition style to arouse and encourage	0.35	0.16	0.17	2.02	0.022
Avoidance coping style→ Nutrition style to arouse and encourage	0.15	0.10	0.11	1.33	0.035
Problem-oriented coping style→ Eating control eating style	-0.36	-0.18	-0.12	2.87	0.010
Excitement-oriented coping style→ Eating control eating style	0.09	0.13	0.19	1.49	0.019
Avoidance coping style→ Eating control eating style	0.16	0.10	0.13	1.28	0.044

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derived from the structural model fit suggests a good fit. The root mean square error (RMSEA) approximation is 0.063 and less than 0.08, indicating a reasonable model match.

Discussion

Our results showed that improving family lifestyle could have numerous beneficial outcomes, including reducing the prevalence of childhood obesity. The findings of Styne et al. (4), Nawab et al. (9), Gray et al. (10), Karmali et al. (14) are in line with our results.

This study indicated that parents' feeding rules and eating habits impact their children's healthy eating habits, which is in line with earlier studies. The latest research, which is based on social learning theory, adds to our knowledge of children's healthy eating practices by demonstrating that it is a combination of children's copying of their parents' healthy eating practices and their own healthy eating habits. The healthy feeding of the parents, on the other hand, is based on their own healthy eating history as well as a shared experience with other Chinese families. This conclusion illustrates the importance of parents being specific with their children about good eating habits, both vocally and nonverbally; in other words, setting an example is preferable to preaching (24).

Previous research has found considerable links between family members' BMIs (13,14). According to some research, these connections are mostly attributable to genetic effects (25,26).

These studies are usually based on adoption or twin studies (a small subset of the population) and depend specifically on descriptive statistics and correlations, rather than taking into account other confounding variables. Non-genetic variables, such as lifestyle or behavioral impacts, are at least equally important in studies that utilize more flexible and complicated statistical procedures to account for a larger variety of confounding factors (10-12,14).

According to Gill et al, there were important overt and indirect relationships between maternal BMI, psychopathology, expressed emotion, and coping, which clarified 26.5 percent of the difference in children's BMI scores. Given the connection between maternal factors and infant weight status, childhood obesity prevention services that address maternal BMI, psychopathology, expressed emotion, and coping skills can be beneficial (16). While several experiments have discovered a correlation between emotional eating and BMI, others have found no such link (27). The findings show that in low-income households, there are fewer intakes of fruits, vegetables, and dairy products and more consumption of high-calorie foods of low nutritional value (28).

As the findings suggest, promoting parents' dietary styles plays a key role in mediating the connection between coping styles and childhood obesity. In this respect, it is worth noting that as parental frustration with their position and the infant grows, so does the child's obesity. According to research, parents who are dissatisfied with their children and have no desire to parent seldom use a reward diet (28).

These mothers are unaware of and conflicted over their baby's eating habits. During the meal, they get no active physical or verbal assistance. The nutritional relationship between these mothers and their children is characterized by a lack of interaction between the infant and the mother, a negative nutritional atmosphere, and a lack of order or feeding schedule. Since children are affected by their parents' diet styles by social learning, and parents' feeding styles form children's eating patterns, parental feeding style has a significant impact on childhood obesity. Parents who use food as a treat or to make their children happier while they are depressed are preventing their children from learning to measure their feelings of fullness or hunger. Children can learn from their parents to eat food or dessert even though they are not hungry. Obesity is a concern for this habit.

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Furthermore, parents who are unable to accurately assess their children's weight overfeed them, putting them at risk of being overweight or obese. When parents hold a conservative approach toward their children when it comes to foods that are considered unhealthy, however, these foods become more appealing to children, enhancing their appetite to consume them (29).

As a result, parents should adopt an eating pattern that promotes their children's health above their appetites or feelings of fullness. Thus, their children are well equipped to make informed dietary choices and to reinforce healthy eating patterns. Children who pay attention to their internal signals learn to eat better depending on their hunger or fullness feelings and are said to have mastered nutrition (30). Studies suggested that socioeconomic, mental, and psychological causes are linked to a type of nutritional eating disorder that manifests as overweight in young adults (28,29), anxiety in mothers, and a more controlled eating pattern in children. There is a connection (30) between these parents' intense and overtly regulated eating styles and their children's obesity.

Conclusions

Parents' encouragement of healthy eating patterns is important in mediating the relationship between coping techniques and childhood obesity, according to research findings.

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Conflict of Interest

The authors declare that they have no conflicts of interests

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