

The Effectiveness of a Stress Management Intervention Program in the Management of Overweight and Obesity in Childhood and Adolescence



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Background: Obesity in childhood and adolescence represents a major health problem of our century, and accounts for a significant increase in morbidity and mortality in adulthood. In addition to the increased consumption of calories and lack of exercise, accumulating evidence suggests that childhood obesity is strongly associated with prolonged and excessive activation of the stress system.

Objective and Hypotheses: To assess the effectiveness of a stress management intervention program, which included progressive muscle relaxation, diaphragmatic breathing, guided imagery and cognitive restructuring, in overweight and obese children and adolescents.

Patients and Methods: Forty-nine children and adolescents (mean age \pm SD: 11.15 \pm 1.48 years) were prospectively recruited to participate in this randomized controlled study. Of those, 23 participants were assigned in the intervention group, while 26 participants represented the control group. Anthropometric measurements were recorded at the beginning and at the end of the study, and participants were asked to complete the Screen for Child Anxiety Related Disorders (S.C.A.R.E.D.), the Child Depression Inventory (C.D.I.), the Child Behavior Checklist (C.B.C.L.) and the Youth Self Report (Y.S.R.).

Results: The applied stress management methods resulted in a significant reduction in the body mass index (BMI) in the intervention group compared with the control group [Δ BMI=1.18 vs 0.10 kg/m² (p<0.001)]. In addition to BMI, these methods ameliorated depression and anxiety, and reduced the internalizing and externalizing problems in the intervention group.

Conclusions: Our study demonstrated that the application of an 8-week stress management intervention program could facilitate weight loss in Greek overweight and obese children and adolescents. Further studies with a larger sample size are required to evaluate the effectiveness of stress management methods in overweight and obese subjects.

	Total (n=49)	Intervention group (n=23)	Control group (n=26)	p-value
Δ BMI (kg/m ²)	0.61 (0.80, -1 to 3)	1.18 (0.62, 0 to 3)	0.10 (0.56, -1 to 2)	<0.001
Δ C.D.I. score	1.98 (4.23, -5 to 15)	3.83 (5.47, -5 to 15)	0.35 (1.41, -2 to 5)	0.004*
Δ Routine	0.10 (2.60, -9 to 7)	0.91 (3.58, -9 to 7)	-0.62 (0.75, -2 to 0)	0.031*
Δ Daily habits	-1.51 (5.07, -16 to 14)	-1.87 (7.40, -16 to 14)	-1.19 (0.94, -3 to 0)	0.382*
Δ Life satisfaction	-0.65 (2.41, -7 to 7)	-1.13 (3.46, -7 to 7)	-0.23 (0.51, -1 to 1)	0.347*
Δ S.C.A.R.E.D. score, child	0.39 (0.79, -1 to 2)	0.61 (0.94, -1 to 2)	0.19 (0.57, -1 to 1)	0.040*
Δ S.C.A.R.E.D. score, parent	0.51 (1.46, -2 to 6)	1 (2.02, -2 to 6)	0.08 (0.27, 0 to 1)	0.036*
ΔSyndrome Scale Scores, child				
Anxious/Depressed	-1.37 (5.04, -15 to 10)	1 (5.36, -15 to 10)	-3.54 (3.62, -10 to 3)	0.001
Withdrawn/Depressed	-1.87 (6.70, -26 to 10)	0.41 (4.62, -12 to 10)	-3.96 (7.68, -26 to 6)	0.016*
Somatic Complaints	1.02 (2.61, -4 to 7)	2.27 (2.80, -1 to 7)	-0.13 (1.83, -4 to 6)	0.002*
Social Problems	-0.57 (4.85, -14 to 13)	1.64 (4.86, -12 to 13)	-2.58 (3.96, -14 to 1)	<0.001*
Thought Problems	0.01 (4.47, -13 to 15)	1.68 (5.66, -13 to 15)	-1.54 (2.15, -6 to 2)	0.018
Attention Problems	-0.54 (5.72, -14 to 13)	2.32 (5.64, -6 to 13)	-3.17 (4.47, -14 to 0)	0.001*
Rule-Breaking Behavior	0.04 (2, -5 to 8)	0.77 (2.31, -5 to 8)	-0.63 (1.41, -5 to 2)	0.003*
Aggressive Behavior	-1.09 (4.52, -12 to 9)	1.09 (4.11, -9 to 9)	-3.08 (3.98, -12 to 1)	0.002*
ΔSyndrome Scale Scores, parent				
Anxious/Depressed	-1.02 (5.71, -11 to 16)	2.64 (5.27, -8 to 16)	-4.38 (3.72, -11 to 7)	<0.001
Withdrawn/Depressed	-0.89 (5.81, -12 to 14)	1.68 (6, -12 to 14)	-3.25 (4.58, -12 to 8)	0.003
Somatic Complaints	1.35 (5.91, -8 to 22)	3.91 (7.35, -7 to 22)	-1 (2.65, -8 to 4)	0.019*
Social Problems	0.91 (4.36, -5 to 13)	3.45 (4.77, -5 to 13)	-1.42 (2.13, -5 to 3)	<0.001*
Thought Problems	-0.59 (3.89, -12 to 11)	1.50 (3.71, -4 to 11)	-2.50 (3, -12 to 0)	<0.001*
Attention Problems	-0.65 (4.48, -14 to 11)	1.64 (4.17, -11 to 11)	-2.75 (3.72, -14 to 0)	<0.001
Rule-Breaking Behavior	0.70 (3.89, -9 to 17)	2.36 (4.46, -4 to 17)	-0.83 (2.51, -9 to 4)	0.008*
Aggressive Behavior	-1.43 (4.34, -9 to 9)	0.82 (3.71, -7 to 9)	-3.50 (3.88, -9 to 6)	<0.001
Δ Internalizing Problems, child	-0.78 (8.04, -11 to 16)	4.41 (7.49, -11 to 16)	-5.74 (4.79, -11 to 7)	<0.001
Δ Internalizing Problems, parent	-0.17 (8.78, -13 to 28)	5.45 (8.85, -13 to 28)	-5.33 (4.59, -11 to 9)	<0.001
Δ Externalizing Problems, child	-0.38 (6.03, -11 to 13)	3.32 (5.27, -5 to 13)	-3.91 (4.41, -11 to 7)	<0.001
Δ Externalizing Problems, parent	-1.50 (6.05, -12 to 17)	1.86 (6.51, -9 to 17)	-4.58 (3.49, -12 to 2)	<0.001



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