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Article

Low Maternal Care, Low Protection and Body Image Dissatisfaction Predict the Risk of Binge Eating Disorder During the Transitional-Age Youth

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Abstract

Introduction: Binge eating disorder (BED) often begins in late adolescence or early adulthood i.e. the transitional age, a major life transition period between the ages of 18 and 25, when the emerging youth struggles with internal and interpersonal challenges, such as autonomy and dependence on parents. The aim of this study was to explore potential predictors of the risk of binge eating disorder that are relevant during the transition phase, such as dissatisfaction with body shape, alexithymia, depression, attachment style in close relationships, and parental bonding. **Materials and methods:** A total of 287 participants aged between 18 and 25 years completed a sociodemographic data sheet and self-report questionnaire: Binge Eating Scale (BES), Beck Depression Inventory II (BDI-II), Body Shape Questionnaire (BSQ), Toronto Alexithymia Scale (TAS-20), Attachment Style Questionnaire (ASQ), and Parental Bonding Instruments (PBI). **Results:** Compared to controls, participants with BED showed higher levels of Body Mass Index (BMI), alexithymia body dissatisfaction, insecure attachment style, and recall of lower paternal and maternal care. A hierarchical binary logistic regression was carried out to examine the effects of sociodemographic and psychological variables on increasing risk of binge eating disorder. The final model explained the 56.1% (Nagelkerke R²) of variance and correctly classified 92.1% of the cases. Body dissatisfaction (OR = 1.036, 95%CI = 1.019-1.054, $p < .001$), BMI (OR = 1.155, 95%CI = 1.013-1.317, $p = .031$), and two dimensions of maternal bonding (i.e., maternal care: OR = 0.911, 95%CI = 0.834-0.995, $p = .039$, and maternal overprotection: OR = 0.895, 95%CI = 0.806-0.994, $p = .039$) emerged as significant predictors of BED. **Discussion:** This is the first study to explore risk factors of BED during the transition phase. A higher BMI, dissatisfaction with body image, and a neglectful mother in terms of care and protection are risk factors specific to this critical stage. Treatment of binge eating disorders may benefit from a combination of preventive interventions targeting parenting style, psychoeducation for nutritional skills, and integrated therapeutic strategies for eating disorder symptoms and attachment functioning.

Keywords: binge eating disorder; attachment styles; parental bonding; alexithymia; depression; emotion dysregulation; transitional age youth

Introduction

Binge eating disorder (BED) is a severe and disabling disorder causing mental distress, loneliness, and medical problems. It was previously reported to develop around the age of 40 (1), but recently, an earlier onset and an alarming increase in its prevalence and severity have been reported (2). BED mostly begins in the transitional age from adolescence to adulthood, between the ages of 18 and 25, with a female to male ratio of 1:2, 1:6 (3) In the under 30s the lifetime prevalence of BED

ranges from 0.6 to 6.1% in females and from 0.3 to 0.7% in males (4). Studies conducted in Italy have reported that the lifetime prevalence of BED is 0.7% (5). This earlier onset is of note as evidences indicates that the onset of approximately 75% of mental disorders occurs before the age of 25 (6) and the emerging adulthood is a major life transition probably representing the most unstable period of their lifespan. On the one hand, the young adult begins to rely on himself, since he is not subject to parental authority like a child, on the other hand, he does not yet have the family and work stability of an adult, causing him to oscillate between worries and uncertainties. (7). Hence, at this age, BED may be complicated by psychiatric comorbidities, but early intervention can prevent a more chronic disease and the risk of serious physical and psychopathological consequences (8,9). The “interpersonal vulnerability model of binge eating” describes binge eating as a maladaptive behavior learned as a defensive measure to cope with negative effect caused by interpersonal dynamics such as, in adulthood, peer and romantic relationships and, in childhood, bonding with unsupportive and conflictual parents (10). Therefore, the feeling in between autonomy and dependence on parents is unique at this stage of life and the type of parental bond may play an important role in the young adult's psychopathological risk (11). Interpersonal relationships are also a priority and a challenge at this age; changes in romantic relationships are the rule and for vulnerable emerging adults, peer comparisons and social expectations contribute to low self-esteem, and dissatisfaction with body image, all central factors in feeding and eating disorders (12). Some of the research on binge eating disorder has focused on early life experiences and relationships with caregivers and how these patterns influence identity, self-esteem, shape concerns, emotion regulation, and ultimately eating psychopathology (13). Attachment theory was introduced by John Bowlby as a psychobiological system that describes how the quality of early parent-child interactions shape expectations, emotions, and behaviors in adult close relationships (14). Insecure adult attachment style confers vulnerability for mental disorders, including eating disorders, and several etiological models have been proposed (15). Furthermore, to our knowledge, no one has specifically examined this hypothesis in the transitional age and very few authors have investigated the role of parental bonding.

Parental bonding has been defined as the behavioral and emotional style towards the child and can be assessed using the Parental Bonding Instrument (PBI), which separately describes the person's recall of the maternal and paternal bond in the first 16 years of life outlining two dimensions: care and protection. Care refers to the perception of emotional warmth and empathy. Protection describes closeness and encouragement of appropriate independence and autonomy (16). To date, very few studies have assessed the association between parenting styles and eating disorder symptoms, focusing on anorexia and bulimia and not on binge eating disorder, recruiting samples of adolescents or adults separately (17).

The aim of this study was to investigate predictors of the risk of binge eating disorder risk in the transition phase, exploring relevant aspects in young adults such as dissatisfaction with body shape, difficulties in recognizing and communicating emotions, depression, attachment style in close relationships and parental bonding.

Materials and Methods

Participants

A total of 287 young adults (72 males and 215 females; $M_{age} = 23.21$, $SD = 1.6$), answering to ad hoc online survey were included in this cross-sectional study. Eligible participants were those aged from 18 to 25 years. Data were collected between September and December 2025, using an anonymous online survey using the free software Google Forms®. Online consent was obtained from the participants prior to data collection; they were allowed to terminate the survey at any time. The local Institutional Review Board approved all study procedures. The study was carried out in accordance with the 1964 Helsinki Declaration.

Measures

All participants completed a checklist assessing socio-demographic variables (i.e., gender, age, marital status, scholastic attainment, medication use), and a battery of psychometric questionnaires measuring psychological variables (i.e., binge eating disorder symptoms, alexithymia, depression, body dissatisfaction, attachment styles, and parental bonding). Self-reported height and weight were used to calculate the BMI.

The Binge Eating Scale is a widely used self-report questionnaire designed to assess the severity of binge eating behaviors and identify individuals at risk for Binge Eating Disorder (BED). It measures both behavioral and emotional symptoms associated with binge eating episodes. Each item presents four statements ranked in increasing severity (scores range from 0 to 3). A cut-off of 17 is used to identify moderate-to-severe binge eating risk. In this sample, the Cronbach alpha was 0.90 for the total score (18–20).

The Body Shape Questionnaire is a self-report measure that assesses concerns about body shape, weight, and body dissatisfaction, particularly in relation to eating disorders and body image disturbances. It includes 34 items scored at 6-point Likert scale (ranging from 1 = *Never* to 6 = *Always*), with higher scores indicating high levels of body dissatisfaction. In our sample, the Cronbach alpha was 0.98 for the total score (21,22).

The Toronto Alexithymia Scale is one of the most widely used self-report instruments for measuring alexithymia, a personality trait characterized by difficulties in identifying, describing, and processing emotions. It is particularly used in research on psychosomatic disorders, mental health, and emotional regulation. It encompasses 20 items to assess three main dimensions of alexithymia: (1) Difficulty in Identifying Feelings (DIF), that represents problems in recognizing emotions and distinguishing them from bodily sensations (an example item is "*I am often confused about what emotion I am feeling*"); (2) Difficulty in Describing Feelings (DDF), that represent challenges in verbally expressing emotions (an example item is: "*It is difficult for me to find the right words for my feelings*"); (3) Externally Oriented Thinking (EOT), that describes the tendency to focus on external, practical details rather than inner emotions (an example item is: "*I prefer to analyze problems rather than just describe how I feel about them*"). The questionnaire includes 20 items scored on 5-points Likert scale, with higher scores indicating high alexithymia. In our sample, the Cronbach alphas for DIF and DDF were good (0.81 and 0.83, respectively); however, EOT was excluded from the statistical analyses due to the poor reliability ($\alpha = 0.59$) (23,24).

The Beck Depression Inventory is one of the most widely used self-report instruments for assessing depressive symptoms in both clinical and nonclinical populations. Each item consists of four statements ranked by severity (0 to 3 points) describing different levels of symptom severity. Respondents choose the statement that best reflects their experience in the past two weeks. Higher scores indicating high depression. In the present study, Cronbach alpha was 0.90 for the total score (25,26).

The Attachment Style Questionnaire is a self-report measure designed to assess adult attachment styles based on individual differences in interpersonal relationships. It encompasses 26 items scored at 6-points Likert scale, and evaluates attachment patterns across different relational contexts, such as romantic relationships, friendships, and social interactions. The ASQ assesses five dimensions of attachment, which correspond to insecure attachment patterns: (1) Confidence in Self and Others (Secure Attachment), that reflects comfort in relationships and trust in others (an example item is: "*I find it relatively easy to get close to people*"); (2) Discomfort with Closeness (Avoidant Attachment), that Measures fear of intimacy and difficulty depending on others (an example item is: "*I prefer not to depend on others*"); (3) Relationships as Secondary (Avoidant Attachment), that assesses tendency to prioritize independence over relationships (an example item is: "*Achieving things is more important than building relationships*"); (4) Preoccupation with Relationships (Anxious Attachment), that captures excessive need for reassurance and fear of abandonment (an example item is: "*I worry a lot about my relationships*"); (5) Need for Approval (Anxious Attachment), that measures dependence on others' validation for self-worth (an example item is: "*I worry about being alone*"). In our sample, all ASQ dimensions have shown good reliability (Confidence, $\alpha = 0.71$; Discomfort with Closeness, $\alpha = 0.81$;

Relationships as Secondary, $\alpha = 0.71$; Preoccupation with Relationships, $\alpha = 0.68$; Need for Approval, $\alpha = 0.81$). In the present study, we adopted the bi-dimensional structure proposed by Fossati et al. (2003), who identified a higher-order, two-factor model representing Avoidant and Anxious attachment dimensions. Within this model, the Avoidant Attachment dimension was linked to subscales such as "Discomfort with Closeness" and "Relationships as Secondary," while the Anxious Attachment dimension included subscales like "Need for Approval" and "Preoccupation with Relationships." Additionally, the "Confidence" subscale negatively loaded onto the Avoidant dimension, suggesting that greater confidence is associated with lower avoidance. This hierarchical structure supports the ASQ's ability to capture both distinct attachment styles and broader attachment dimensions (27–29).

The Parental Bonding Instrument (PBI; Parker et al., 1979; Scinto et al., 1999) is a self-report questionnaire designed to assess perceived parental behaviors and bonding during childhood. It evaluates how individuals retrospectively remember their parents' caregiving styles and control levels, which are crucial for attachment and personality development. The questionnaire includes 25 items (separately for mother and father), ranged from 0 (*Very unlikely*) to 3 (*Very likely*), and assesses parental bonding in terms of care and overprotection/control. In the current sample internal consistency ranged between 0.88 for mother protection and father protection and 0.91 for father care (16,30).

Statistical Analysis

All analyses were performed with SPSS for Windows 26.0. All data were checked for normality; as none of the variables reported values of skewness and kurtosis higher than 1, we used parametric analysis to verify our hypotheses. Categorical variables were described as counts and percentages, and continuous variables as mean and standard deviation. Given the threshold of 17 on the BES, statistical analyses were conducted to compare the at-risk group for moderate-to-severe binge eating disorder and the non-risk group for binge eating (i.e., control group). A series of *t*-tests were performed for dimensional variables, while chi-square tests (χ^2) and one-way Fisher exact tests were used to examine differences in contingency tables. Effect size was determined by calculating Cohen's *d* values. Associations between variables were evaluated with Pearson's coefficient.

To explore potential factors associated with the risk of binge eating disorder, we carried out one binary logistic regression to examine the effects of sociodemographic variables (i.e., years of education; first predictor group entered into the regression model), BMI and body dissatisfaction (second predictor group), depression and alexithymia (third predictor group), attachment styles (fourth predictor group), and parental bonding (fifth predictor group) on increasing risk for binge eating disorder.

All statistics were considered significant if $p < 0.05$. Occasional missing values were imputed by calculating, for each participant, the mean score of the subscale and then replaced. Adjusted odds ratios and 95% confidence intervals were calculated for the predictors of the logistic regression model.

Results

Sociodemographic Differences

The sociodemographic differences between individuals at risk of binge eating disorder and controls are detailed in Table 1. Overall, no between-group differences emerged in key sociodemographic variables, i.e., sex, age, and marital status. However, participants in the control group reported a significantly higher level of education compared to those in the at-risk of binge eating group ($p = .045$). Regarding clinical variables, no differences were found in regular medication use (i.e. medical comorbidity), whereas participants at high risk for binge eating reported a significantly higher BMI when compared to the control group ($p = .001$).

Table 1					
Demographic differences between groups.					
Variable, M (DS)	Control group	Binge Eating group	Total sample	<i>t</i> o <i>X</i> ²	<i>p</i>
	(<i>N</i> = 249)	(<i>N</i> = 38)	(<i>N</i> = 287)		
Age	23.25 (1.6)	23.00 (1.7)	23.21 (1.6)	<i>t</i> (47.8) = 0.90	.392
Gender, <i>N</i> (%)				<i>X</i> ² (1, <i>N</i> = 287) = 1.03	.422
Male	65 (26.1)	7 (18.4)	72 (25.1)		
Female	184 (73.9)	31 (81.6)	215 (74.9)		
Years of education, <i>N</i> (%)				<i>X</i> ² (2, <i>N</i> = 287) = 6.21	.045
8	2 (0.8)	0 (0.0)	2 (0.7)		
13	86 (34.5)	21 (55.3)	107 (37.3)		
18	161 (64.7)	17 (44.7)	178 (62.0)		
Marital status, <i>N</i> (%)				<i>X</i> ² (1, <i>N</i> = 287) = 1.66	.257
Single	236 (94.8)	34 (89.5)	270 (94.1)		
Married	13 (5.2)	4 (10.5)	17 (5.9)		
Medication use, <i>N</i> (%)	67 (27.0)	12 (31.6)	79 (27.6)	<i>X</i> ² (1, <i>N</i> = 286) = 0.34	.563
Body Mass Index	21.78 (3.0)	25.71 (6.8)	22.30 (3.9)	<i>t</i> (39.2) = -3.52	.001

Psychopathological Differences

Psychopathological between-group differences are displayed in Table 2. Most examined variables were found to be significant, except for the two PBI dimensions related to maternal and paternal overprotection/control (*p* = .385, *p* = .266, respectively). Participants at high risk of binge eating reported greater difficulty in identifying (*p* <.001, *d* = 0.86) and describing emotions (*p* = .005, *d* = 0.46), higher levels of depression (*p* <.001, *d* = 1.26), more anxious (*p* <.001, *d* = 1.04) and avoidant (*p* <.001, *d* = 0.62) attachment styles, and greater body dissatisfaction (*p* <.001, *d* = 1.91) compared to the control group. Additionally, individuals at high risk of binge eating scored lower on the maternal (*p* = .012, *d* = 0.46) and paternal (*p* = .017, *d* = 0.24) care dimensions of the PBI than those in the control group.

Table 2
Psychological differences between groups.

Variable, <i>M</i> (<i>DS</i>)	Control group	Binge Eating group	Total sample	<i>t</i> o <i>X</i> ²	<i>p</i>	Cohen's <i>d</i>
	(<i>N</i> = 249)	(<i>N</i> = 38)	(<i>N</i> = 287)			
ASQ_Anxious Attachment	53.02 (10.6)	64.08 (10.6)	54.43 (11.24)	<i>t</i> (46.1) = -5.86	< .001	1.04
ASQ_Avoidant Attachment	29.29 (14.1)	38.47 (15.1)	30.46 (14.5)	<i>t</i> (44.4) = -4.38	< .001	0.62
TAS_DIF	16.52 (5.7)	19.11 (6.3)	17.15 (5.8)	<i>t</i> (43.6) = -4.77	< .001	0.86
TAS_DDF	14.14 (5.1)	16.44 (4.2)	14.43 (5.1)	<i>t</i> (51.6) = -2.96	.005	0.46
TAS_Total Score	48.96 (12.1)	57.11 (10.0)	50.00 (12.1)	<i>t</i> (51.3) = -4.42	< .001	0.69
BDI_Total Score	9.00 (7.7)	19.29 (10.8)	10.39 (8.9)	<i>t</i> (43.0) = -5.66	< .001	1.26

BSQ_Total Score	77.77 (33.3)	142.74 (38.3)	85.95 (40.2)	$t(41.7) = -9.52$	< .001	1.91
PBI_Mother_Care	38.13 (7.3)	34.22 (8.5)	37.64 (7.5)	$t(42.9) = 2.62$	.012	0.53
PBI_Mother_Protection	25.37 (7.5)	26.64 (8.2)	25.55 (7.6)	$t(44.4) = -0.88$	.385	0.17
PBI_Father_Care	34.93 (8.4)	31.03 (8.6)	34.44 (8.5)	$t(42.4) = 2.53$	.017	0.46
PBI_Father_Protection	22.89 (6.8)	24.53 (8.1)	23.07 (7.0)	$t(39.2) = -1.28$	.266	0.24

Note. ASQ = Attachment Style Questionnaire; TAS_DIF = Toronto Alexithymia Scale - Difficulty in Identifying Feelings; TAS_DDF = Toronto Alexithymia Scale - Difficulty in Describing Feelings; BDI = Beck Depression Inventory; BSQ = Body Shape Questionnaire; PBI = Parental Bonding Instrument.

Table 2

Correlations between variables.

	1	2	3	4	5	6	7	8	9	10	11	12
1 BMI	1											
2 ASQ_Anxious Attachment	.09	1										
3 ASQ_Avoidant Attachment	.15*	.54***	1									
4 TAS_DIF	.10	.47***	.45***	1								
5 TAS_DDF	.11	.27***	.53***	.54***	1							
6 TAS_Total Score	.13*	.37***	.55***	.80***	.84***	1						
7 BDI_Total Score	.20**	.57***	.54***	.56***	.34***	.46***	1					
8 BSQ_Total Score	.37***	.45***	.35***	.38***	.19**	.28***	.56***	1				
9 PBI_Mother_Care	-.05	-.26***	-.18**	-.20**	-.12*	-.15*	-.21***	-.13*	1			
10 PBI_Mother_Protection	.07	.20**	.16**	.22***	.09	.16**	.20**	.11	-.56***	1		
11 PBI_Father_Care	-.04	-.36***	-.26***	-.20**	-.22***	-.21***	-.25***	-.13*	.46***	.36***	1	
12 PBI_Father_Protection	-.02	.18**	.14*	.16**	.14*	.19**	.17**	.09	-.43***	.57***	-.49***	1

1	BES_Total												
3	Score	.34***	.41***	.27**	.33***	.18**	.27***	.48***	.61***	-.17**	.09	-.15*	.08

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. ASQ = Attachment Style Questionnaire; TAS_DIF = Toronto Alexithymia Scale - Difficulty in Identifying Feelings; TAS_DDF = Toronto Alexithymia Scale - Difficulty in Describing Feelings; BDI = Beck Depression Inventory; BSQ = Body Shape Questionnaire; PBI = Parental Bonding Instrument; BES = Binge Eating Scale.

Correlations Between Variables

Pearson’s correlations calculated for the whole sample are shown in Table 3. Significant positive associations emerged between the total BES score and BMI ($r = .34, p < .001$), alexithymia dimensions (DIF: $r = .33, p < .001$; DDF: $r = .18, p = .002$), anxious ($r = .41, p < .001$) and avoidant ($r = .27, p < .001$) attachment styles, depression ($r = .48, p < .001$), and body image dissatisfaction ($r = .61, p < .001$). Conversely, significant negative correlations were found between BES scores and the parental care dimensions of the PBI, both maternal ($r = -.17, p = .004$) and paternal ($r = -.15, p = .014$).

Table 3
Binary logistic regression analysis predicting likelihood of binge eating disorder vs. control based on demographic characteristics, body dissatisfaction, alexithymia, depression, attachment styles, and parental bonding.

		Model 1			Model 2			Model 3			Model 4			Model 5		
		O	95%CI	Wal	O	95%CI	Wal	O	95%CI	Wal	OR	95%CI	Wal	OR	95%CI	Wal
		R		ld	R		d	R		d			d			d
Years of education		0.8	0.747-	4.5	0.9	0.761-	1.114	0.9	0.775-	0.36	0.96	0.792-	0.138	0.92	0.750-	0.523
		59	0.988	65*	09	1.085		42	1.144	6	3	1.172		5	1.142	
BSQ_Total Score					1.0	1.027-	35.55	1.0	1.019-	0.00	1.03	1.018-	17.43	1.03	1.019-	17.92
					41	1.055	7***	35	1.052	8***	5	1.052	7***	6	1.054	3***
BMI					1.1	0.994-	3.461	1.1	1.000-	0.06	1.13	1.008-	4.343	1.15	1.013-	4.642
					15	1.249		27	1.271	1*	4	1.277	*	5	1.317	*
BDI_Total Score								1.0	0.962-	0.03	1.03	0.966-	0.913	1.03	0.970-	1.172
								23	1.088	1	4	1.107		9	1.113	
TAS_DIF								1.0	0.921-	0.05	0.99	0.888-	0.023	1.02	0.913-	0.145
								23	1.135	3	1	1.107		2	1.144	
TAS_DDF								1.0	0.918-	0.05	1.08	0.955-	1.537	1.05	0.929-	0.738
								23	1.141	6	2	1.225		9	1.208	
ASQ_Anxious Attachment											1.05	0.988-	2.536	1.03	0.965-	0.895
											2	1.119		4	1.107	
ASQ_Avoidant Attachment											0.95	0.912-	2.996	0.96	0.915-	2.232
											8	1.006		2	1.012	
PBI_Mother_Cure														0.91	0.834-	4.281
														1	0.995	*
PBI_Mother_Protection														0.89	0.806-	4.269
														5	0.994	*
PBI_Father_Cure														0.98	0.911-	0.156
														5	1.064	

PBI_Father_Fathe	1.00	0.906-	
r	0	1.103	0.000

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. ASQ = Attachment Style Questionnaire; TAS_DIF = Toronto Alexithymia Scale - Difficulty in Identifying Feelings; TAS_DDF = Toronto Alexithymia Scale - Difficulty in Describing Feelings; BDI = Beck Depression Inventory; BSQ = Body Shape Questionnaire; PBI = Parental Bonding Instrument.

Logistic Regression Model

A hierarchical binary logistic regression was carried out to examine the effects of sociodemographic and psychological variables on increasing risk for binge eating disorder (Table 4). In Model 1, years of education was entered as predictor. The model was statistically significant, $\chi^2(1) = 4.730, p = .030$, explained the 3,2% (Nagelkerke R^2) of variance and correctly classified 87.6% of the cases. Years of education was found to be a significant predictor (OR = 0.859, 95%CI = 0.747-0.988, $p = .033$).

In Model 2, BMI and the total score of BSQ entered as predictors. The model was significant, $\chi^2(2) = 75.378, p = <.001$, explained the 49,1% (Nagelkerke R^2) of the variance and correctly classified 91.4% of the cases. In this block, only BSQ total score (OR = 1.041, 95%CI = 1.027-1.055, $p <.001$) emerged as statistically significant predictor, indicating that high levels of body dissatisfaction increased the risk of binge disorder of 4.1%.

In Model 3, the total BDI score and the two dimensions of alexithymia, DIF and DDF, entered as predictors. The model was not statistically significant, $\chi^2(8) = 14.719, p = .500$, explained just an additional 0.9% (Nagelkerke R^2) of the variance and correctly classified 91.4% of the cases. In this block, neither alexithymia dimensions nor the total BDI score emerged as significant predictors (DIF: $p = .675$; DDF: $p = .676$; BDI: $p = .463$).

In Model 4, anxious and avoidant attachment styles entered as predictors. The model was significant, $\chi^2(8) = 17.608, p = .024$, explained an additional 2.2% (Nagelkerke R^2) and correctly classified 91.4% of the cases. In this block, attachment styles did not reveal any significant association with the risk for binge eating disorder (anxious attachment: $p = .111$; avoidant attachment: $p = .083$).

Finally, in Model 5, parental bonding dimensions entered as predictors. The model was not statistical significant, $\chi^2(8) = 15.192, p = .056$, meaning that the variables added in this last step do not significantly improve the model compared to the previous blocks. This final model explained the 56.1% (Nagelkerke R^2) of variance and correctly classified 92.1% of the cases. Body dissatisfaction (OR = 1.036, 95%CI = 1.019-1.054, $p <.001$), BMI (OR =1.155, 95%CI = 1.013-1.317, $p = .031$), and two dimensions of maternal bonding (i.e., maternal care: OR = 0.911, 95%CI = 0.834-0.995, $p = .039$, and maternal overprotection: OR = 0.895 , 95%CI = 0.806-0.994, $p = ,039$) emerged as significant predictors. Specifically, high BMI increased the risk of 15.5%, high body dissatisfaction increased the risk of 3.6%, low maternal care increased the risk of 8.9%, and low maternal protection increased the risk by 10.5% for binge eating disorder.

Discussion

The novelty of this study is that, to the best of our knowledge, for the first time we investigated in men and women at the transitional age critical psychopathological risk factor of BED: those related to eating disorder, as body image dissatisfaction and alexithymia; the psychiatric comorbidity, as depression; and the early life experiences, such as parental bonding and the attachment style. To date, BED was not associated with specific dysfunctional parental bond no studies explored this aspect of the transitional age.

In our sample of young adult, we found that the 13% of participants was at risk of BED which is a serious and worrying piece of evidence. Comparing to those without BED symptoms, the group with BED risk showed higher BMI, higher levels of body image dissatisfaction, depressive symptoms, difficulty in identifying and describing emotions, insecure attachment style, either avoidant or anxious, and lower maternal and paternal care in the first 16 years of life. When analyzing all the

variables together, only higher BMI, body image dissatisfaction, and lower perception of maternal care and protection affected the risk of suffering from binge eating disorder.

As we expected and it is well documented across adolescent and adult individuals, body mass index and body image dissatisfaction are related to a higher risk of BED (31,32), even though, we outline that body dissatisfaction is affecting in the transitional age, when social life is intense and peer comparison influences self-esteem, life choices and contribute to self-identity (33,34). For this reason, it would be interesting to deepen the comprehension of the characteristic of young adult body dissatisfaction and to deal with these issues in psychotherapy.

The original result of the study was the role of maternal bonding. We found that lower maternal care and protection, describing a neglectful maternal bond, increased the risk of BED during the transitional age. We discuss our findings based on the differences among eating disorders.

Previous studies showed that people with anorexia and bulimia nervosa reported lower levels of perceived maternal and paternal care, while parental control was perceived as heightened (35,36). Patients with feeding and eating disorders recall their parents as having an “affectionless control” bond which is characterized by low warmth and empathy coupled with higher controlling attitude, restricting autonomy and independence (37).

Individuals with obesity, either with BED or without BED, showed lower maternal and paternal care and higher overprotection compared to healthy participants. Although no specific parental bond was associated with BED, participants reported less maternal and parental care than those without BED (38).

Considering, the character displayed by eating disorders, anorexia and bulimia nervosa are strongly characterized by food restriction and the debilitating control of body size aimed at building self-identity and strengthening self-efficacy, a need that may derive from an overprotective and controlling maternal bond that has limited self-esteem and autonomy (39). Indeed, affectionless control was found to be related to self-criticism and perfectionism which in turn may lead to these eating disorders (40).

In contrast, the psychopathology of binge eating is more driven by emotional dysregulation. The binge is not aimed at achieving an ideal body shape, at controlling the body size, but represents an impulsive and dysfunctional way of dealing with negative effect, such as depression, anxiety, and frustration, in a search for immediate gratification (41).

According to the attachment theory, the quality of the parent child bond provides a sense of self-effectiveness that, later in life, will allow an individual to regulate his emotions in stressful situations. People with neglectful caregivers, who have not responded to their needs and emotional cues, will cope with distress in a framework of internalized negative experiences, thereby, developing disordered eating and excessive food intake behaviours. This mechanism is especially true for emerging adults trying to find their emotional stability and sense of security in society.

Negative affectivity may also be related to body image dissatisfaction, defined as a negative feeling about one's body that can trigger binge eating, as our finding confirmed. Furthermore, it is interesting to mention that a study found that in people with binge eating disorder, childhood physical neglect accompanied body dissatisfaction (42). Physical neglect means that the caregiver failed to meet the child's basic physical needs such as a sense of security and this is a concept close to the low protection dimension, we measured using the parental bonding instrument.

In this context, the association between the perception of a neglectful mother and the presence of BED symptoms in young adults is an original result but consistent with the nature of the disorder.

The figure of a neglectful mother, rather than the controlling type of anorexia and bulimia, is a confirmation of the unique psychopathology of BED whose central core is not the need for control, but the difficulty in recognizing, managing, and regulating emotions, especially in this phase of life when emerging adults struggle with emotions.

In addition the results of a large population study found that low maternal care directly contributed to body dissatisfaction (43). Body dissatisfaction is a critical and unstable aspect of the

transitional age, and it is strongly influenced by the family, media, and social environment, as already discussed.

Although Bowlby stressed the importance of attachment experiences with both the father and the mother, (14), we found that on a neglectful mother affected the risk of binge eating disorder. The effect of the maternal bond rather than that of the father has, already, been found in other studies, therefore, it is, certainly, an aspect that needs to be confirmed and clarified (10,44).

An additional observation is that, since childhood, a low caring and controlling mother may raise disorganized and uncontrolled eating in children who fall into unregulated eating and use food as a consolation from feeling invisible, without limits or parental guidance. This behaviour may persist into adulthood and be exacerbated by several stressors as body dissatisfaction arising from social comparisons.

In terms of clinical implications, 50%–60% of patients do not benefit from conventional therapies for eating disorders, mainly concentrated upon eating behavior, body weight and body image preoccupations (45,46). As a result, additional goals of the therapy for non-responsive individuals, may regard the attachment system.

The attachment system was involved in the complex pathogenesis of medical and psychiatric diseases (47,48) and treatments addressing attachment insecurity were associated with improvement in BED symptoms (49).

Although early interaction with parents influences adult sensitivity to social cues, sensitivity to criticism and rejection from others, emotion regulation in interpersonal situations and, ultimately eating behavior (50), literature paid scant attention to the meaning of the parental bonding dimensions of care and protection.

We suggest that interventions focused on parenting in childhood and targeted on improving neglectful style may be effective in preventing binge eating in the child, encouraging mother to an empathic and leading attitude toward the children and implementing nutritional knowledge with psychoeducational approaches.

In the young adult, an attachment-based approach stimulates specific therapeutic strategies. Working on early experiences, beliefs and expectations about relationships may suggest new ways of emotion regulation and behaviours. Individuals with avoidant attachment may experience discomfort when asked to express their emotions and feel under pressure to self-disclose them. Individuals with anxious attachment focus on their own negative affect and are hypervigilant about relational losses, attempting to control anxiety by minimizing emotional distance and soliciting constant displays of support and care from others. The therapist may highlight the association between emotional hyperarousal and eating disorder symptoms, encouraging the development of strategies other than binge eating to reduce negative affect (45).

Moreover, in the person with eating disorder, insecure attachment style and lower parental care were associated with lower therapeutic alliance and higher drop-out rate from individual and group therapy (15,51,52) and binge eating disorder and alexithymia were reported to decrease attitude to medication adherence (53). Finally, the attachment system influences at what point in the illness the person suffering mentally, decides to seek psychiatric help (54).

We must recognize some limitations of our study. Causality in the association between mother-child bonding and risk of binge eating cannot be established, although the time span, from infancy to the transition age, is intriguing. It must be remembered that the psychometric instruments, although widely adopted in clinical study and validated, were self-reported. Nonetheless, regarding the parental bonding instrument, which provided the most interesting result, we believe that the transitional age is the ideal time to use it. Consequently, the adolescent is still too involved with the parents to evaluate the relationship and in adulthood he may have reshaped the memory of it, either because many years have passed or because he has become a parent himself. A third limitation, which afflicts most of the research on eating disorders, is the greater participation of women compared to men, preventing us from exploring a possible gender difference, especially regarding the parental bond, which is interesting.

Despite the limitations, this study provides the first strong indicator of an association between the negligent maternal bond in childhood and the development of binge eating during the transition age, with consequent therapeutic implications.

Finally, it is worth emphasizing that appropriate interventions in the transition age, according to the stage-matched intervention model of eating disorders (55,56), are effective and stop the neuroprogression that leads to chronic, complicated, and treatment-resistant disease (57).

Conclusions

In conclusion, during the transitional period, a higher body mass index, dissatisfaction with body image, and a neglectful mother in terms of care and protection represent risk factors specific to this critical age. We argue that the treatment of binge eating disorders could benefit bringing together preventive intervention on parenting style, psychoeducation for nutrition skills, and coupling therapeutic efforts on eating disorder symptoms and attachment functioning.

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