The dual-pathway model of binge eating: Is there a need for modification?

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ABSTRACT

The dual-pathway model proposes that body dissatisfaction might lead to binge eating (BE) through restraint eating and negative affect. Both pathways have been confirmed longitudinally, but there is evidence that the affect-pathway might rather be found in the short-term, whereas other variables might be involved over longer periods. Research suggests that self-esteem represents a key-factor in the etiology of BE in adolescent girls and might serve as a mediator between body dissatisfaction and eating pathology. Based on these findings, the aim of this study was to investigate the original dual-pathway model across 20 months and to evaluate a modified version of the model with self-esteem instead of negative affect as a mediator in the affect-pathway.

We assessed eating pathology, negative affect and self-esteem by self-report in a sample of 523 adolescent girls at two time points separated by 20 months. Data were analyzed using a cross-lagged panel design.

Both, the original and the modified model provided good fit to the data, but results yielded limited support for the assumptions of the original model. Neither restraint eating nor negative affect mediated the link between body dissatisfaction and BE. The modified model fit the data slightly better and results indicated that low self-esteem mediated the relationship between body dissatisfaction and BE. Notably, our results indicated that restraint eating might even reduce the risk for BE through the enhancement of self-esteem.

Results suggest that the dual-pathway model could benefit from the inclusion of a more trait-like variable such as self-esteem when evaluated across the long-term. Furthermore, our findings indicate that healthy restraint eating might have positive effects on self-esteem, thereby reducing risk for BE in adolescent girls, who are dissatisfied with their bodies.

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Binge eating, defined as overeating accompanied by a feeling of loss of control (American Psychiatric Association, 2013), is a prevalent maladaptive eating behavior in youth. Schlüter, Schmidt, Kittel, Tetzlaff, and Hilbert (2015) found that one in five adolescents from the community reported the experience of binge eating within the last month. Given that binge eating is associated with a range of negative psychological outcomes (e.g., Bentley, Gratwick-Sarll, Harrison, & Mond, 2015), research on etiology is crucial, especially with regard to the development of prevention programs. Evidence suggests that multiple psychological, biological and social factors might contribute to the development of disordered eating (see Bakalar, Shank, Vannucci, Radin, & Tanofsky-Kraff, 2015). Prospective studies examining binge eating in adolescence highlighted the role of body dissatisfaction, restraint eating, negative affect and low self-esteem for the etiology of binge eating, especially in adolescent girls (e.g., Allen, Byrne, Oddy, Schmidt, & Crosby, 2014; Ferreiro, Seoane, & Senra, 2012; Rohde, Stice, & Marti, 2015; Stice, Marti, & Durant, 2011).

1. Stice's dual pathway model

Taking into account several well-documented psychological risk factors for binge eating in adolescence, Stice’s dual pathway model of bulimic symptoms (Stice, 1994, 2001) assumes that body dissatisfaction might lead to binge eating through two distinct pathways, the restraint pathway and the negative affect pathway. As illustrated in Fig. 1, body dissatisfaction might promote...
restraint eating because of the idea that restraint eating represents an effective weight control strategy. Restraint eating in turn, might subsequently lead to binge eating as a result of caloric deprivation and cognitive disinhibition. Longitudinal evidence for this pathway has been found in community samples (Allen, Byrne, & McLean, 2012; Dakanalis, 2014; Stice, 2001), but an investigation of obese women yielded controversial findings. Wardle, Waller, and Rapoport (2001) reported that higher restraint eating during a cognitive behavioral treatment even reduced risk for later binge eating.

The second pathway of Stice’s model connects body dissatisfaction and binge eating through negative affect. Binge eating is hypothesized to represent an attempt to deal with negative affective states that are elicited by body dissatisfaction. This pathway has been supported longitudinally in adolescent girls (Dakanalis et al., 2014; Stice, 2001) and obese women (Wardle et al., 2001). However, the results of Allen et al. (2012) failed to replicate the negative-affect-pathway in children. Additionally to these two main hypotheses of the dual-pathway model, Stice (1994, 2001) theorizes that restraint eating may cause negative affect because of the repeated failure to restrict eating. Hence, two further mediational chains are postulated. Body dissatisfaction might lead to negative affect through restraint eating and restraint eating might lead to binge eating through the induction of negative affect. Unfortunately, these additional hypotheses have only been investigated in two longitudinal studies yielding controversial findings. While Dakanalis et al. (2014) found evidence for both hypotheses, the assumptions could not be confirmed in the study by Stice (2001). Taken together, studies investigating the dual-pathway model longitudinally are sparse and results from these studies are mixed. The diverging findings might be a result of varying time frames, samples and different measures applied to operationalize the constructs under investigation. It is also important to notice that only Stice (2001) and Dakanalis et al. (2014) explicitly tested the mediational hypotheses of the model and provided results on indirect effects. Furthermore, none of the mentioned studies considered competing causal effects in the model and this seems especially important, as there are findings that challenge the models assumptions on the temporal sequence of the involved variables. For example, Stice (1998) and Bradford and Petrie (2008) investigated the directionality of the relationships between the variables that are involved in the dual-pathway model across 6 and 9 months, respectively. The findings suggest that restraint eating might rather be a consequence of binge eating than a risk factor. Furthermore, the authors report that negative affect displayed only simultaneous but no longitudinal links to body image and binge eating. Correspondingly, Stice (1998) and Bradford and Petrie (2008) conclude that shorter time spans might better capture the relationship between these variables and that the affect–pathway postulated by the dual-pathway model might rather be present in the short-term. Based on these findings, we hypothesize that the inclusion of a more trait-like variable instead of negative affect in the dual-pathway model might be beneficial across longer time spans. Self-esteem, the global evaluation of the self (Blascovich & Tomaka, 1991; Sedikides & Gregg, 2003), displays a fundamental association to negative affect (e.g., Watson, Suls, & Haig, 2002) and both, negative affect and self-esteem have been conceptualized as aspects of the same underlying construct (e.g., Judge, Erez, Bono, & Thoresen, 2002; Neiss, Stevenson, Legrand, Iacono, & Sedikides, 2009). Negative feelings about the self are a common feature of both, negative affect and low self-esteem, but compared to negative affect, self-esteem might be regarded as a stable, trait-like construct (Orth & Robins, 2014; Trzesniewski, Donnellan, & Robins, 2003). Apart from these aspects, low self-esteem has been shown to be of central importance in the etiology of binge eating, especially in adolescent girls (e.g., Goldschmidt, 2015; Micali, 2015; Sehm & Warschburger, 2016). In a study previously carried out in our sample, low self-esteem emerged as the only multivariate predictor of binge eating 20 months later, whereas negative affect did not predict eating pathology (Sehm & Warschburger, 2016). Furthermore, there is evidence suggesting that self-esteem might impact the relationships between body dissatisfaction, restraint eating and eating pathology (Brechan & Kvalem, 2015; Goldschmidt, Wall, Loth, Le Grange, & Neumark-Sztainer, 2012). Additionally, it can be hypothesized that body dissatisfaction might lead to a reduction in self-esteem because physical appearance is an aspect that might be highly relevant to self-esteem especially in girls (Crocker & Wolfe, 2001) and there is empirical evidence corroborating this.
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