

# Negative and positive affect and disordered eating: The adaptive role of intuitive eating and body image flexibility

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## Abstract

**Purpose:** Negative affect is associated with body image and eating-related problems. Nonetheless, research on mediating emotional processes in this relationship is scant. The present study explored a path model testing the effect of negative and positive affect (PA) on disordered eating symptoms, via its effect on intuitive eating and body image flexibility, while controlling for the effect of body mass index.

**Methods:** Participants included 273 women, aged between 18 and 45 years old, who completed an online survey with self-report measures.

**Results:** The tested model showed an excellent fit to the empirical data and explained a total of 64% of the variance of disordered eating attitudes and behaviours. This model revealed that the impact of negative and PA on disordered eating symptoms depends on the level of intuitive eating and body image flexibility, even when controlling for the effect of body mass index.

**Conclusions:** This study contributes to the understanding of the adaptative and mediational role that intuitive eating and body image flexibility play in the link between affectivity and eating-related difficulties. Indeed, these emotional regulation processes seem to play a protective role against disordered eating, by reducing reactivity and impulsive eating in response to negative and PA. The study findings suggest that prevention and intervention programs focused on body and eating-related difficulties should promote a more aware and adaptative pattern of eating and body image flexibility, which seems especially relevant to deal with Western societies' body and eating-related paradoxical messages.

## KEYWORDS

body image flexibility, disordered eating, intuitive eating, negative affect, positive affect

## 1 | INTRODUCTION

Western society has a deeply-rooted cultural background that values restrictive eating patterns and the pursuit for thinness, maintained by body image ideals that encourage weight stigma (Latner & Stunkard, 2003; Puhl & Latner, 2007). At the same time, it provides an

“obesogenic” environment, encouraging unhealthy diets in terms of increased consumption of energy-dense and nutrient-poor food and beverages (Swinburn & Egger, 2002). Moreover, this “obesogenic” environment facilitates the use of food as a powerful source of pleasure and a maladaptive affect regulation strategy, leading individuals to choose highly palatable reward foods and to

increase their caloric intake (Cohen & Babey, 2012; Macht, 2008; Stone & Brownell, 1994). Indeed, eating may serve the function of temporarily reducing aversive emotional states (Greeno & Wing, 1994).

Watson, Clark, and Tellegen (1988) described negative affect (NA) as a general dimension of subjective distress and unpleasurable engagement that includes several aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness. In turn, positive affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. High PA is a state of high energy, full concentration, and pleasurable engagement. Negative affective states play a greater role than positive states in the development of psychopathology (Bradley, 2003). Research has suggested that PA is widely related to better health outcomes (e.g., Pressman & Cohen, 2005). In particular, extant evidence based on theories of positive emotions (Fredrickson, 1998; Garland et al., 2010) and attentional scope models (e.g., Whitmer & Gotlib, 2013) postulate that, unlike negative emotions, positive emotions amplify individuals' attentional scope and thought-action repertoires, allowing individuals to engage in more flexible ways to respond to situations. In particular, the literature has shown a clear association between NA and eating psychopathology, suggesting that aversive affect may lead to disordered eating (e.g., bulimic symptoms; Berg et al., 2013; Sim & Zeman, 2006).

However, the link between negative and PA and disordered eating may also be influenced by emotion regulation; that is, the individual's abilities to effectively manage emotional states and appropriately respond to environmental demands, such as negative and positive emotions (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gratz & Roemer, 2004). In fact, eating disorder (ED) symptoms have been associated with poor regulation of NA (Sim & Zeman, 2006). In their study, Cooper, O'Shea, Atkinson, and Wade (2014) showed that those who present with greater difficulties to cope with negative emotions are likely to report higher levels of eating disordered symptoms. Some authors have suggested that difficulties in adaptively coping with intense mood states play a central role in the development and maintenance of disordered eating behaviours (e.g., Fairburn, Cooper, & Shafran, 2003). More specifically, some eating disordered symptoms (such as body weight and shape checking, pathological diet or bulimic symptoms) may be understood as a maladaptive way of coping with difficult emotional states (i.e., as an attempt to regulate or escape from NA through distraction from or short-term reduction of these aversive emotional states; Arnow, Kenardy, & Agras, 1995; Pinto-Gouveia, Ferreira, & Duarte, 2014).

Some theoretical models have proposed the understanding and treatment of ED emphasising the role of

### Key Points

1. Intuitive eating and body image flexibility play an adaptative and mediational role in the link between affectivity and eating-related difficulties.
2. These emotional regulation processes play a protective role against disordered eating, by reducing reactivity and impulsive eating in response to negative and PA.
3. Prevention and intervention programs focused on body and eating-related difficulties should promote a more aware and adaptative pattern of eating and body image flexibility, which seems especially relevant to deal with Western societies' body and eating-related paradoxical messages.

difficulties in emotion regulation as transdiagnostic processes and mechanisms that operate in the spectrum of ED (Duarte, Ferreira, & Pinto-Gouveia, 2016; Fairburn et al., 2003). Greater deficits in specific emotion regulation skills (e.g., emotional awareness, emotional acceptance, impulse control, negative urgency, and distress tolerance) are positively associated with ED symptomatology, in both clinical and non-clinical populations (Gianini, White, & Masheb, 2013; Haynos, Wang, & Fruzzetti, 2018; Pisetsky, Haynos, Lavender, Crow, & Peterson, 2017). However, research has been predominantly focused on the relationship between maladaptive emotional processes and body image and eating-related psychopathology. Nonetheless, the study of protective mechanisms against body and eating difficulties has been encouraged and considered essential for the development of more effective prevention programs (Cash & Smolak, 2011; Steck, Abrams, & Phelps, 2004).

Recent literature suggested a link between adaptive emotional regulation and intuitive eating (Schoenfeld & Webb, 2013; Shateri, Arani, Shamsipour, Mousavi, & Saleck, 2018) and less disordered eating (Bruce & Ricciardelli, 2016). Indeed, intuitive eating has been associated with greater awareness to emotional states (Mathieu, 2009) and appeals to adaptive emotional regulation processes since individual should be able to distinguish between biological and emotional hunger and regulate adaptatively positive and negative emotions that may trigger disordered eating behaviours (e.g., Schoenfeld & Webb, 2013).

Tribole and Resch (1996, 2003) defined intuitive eating as an adaptive form of eating, that entails the ability to guide eating behaviour according to physiological cues of hunger and satiety rather than external (e.g., predetermined inflexible dietary rules) or emotional (e.g., as a response to NA) cues. Intuitive eating is based on a mind–body connection and a self-awareness and non-judgemental eating-related attitude (Tribole & Resch, 1996). Intuitive eaters are able to be aware of and trust their signals of hunger and satiety, and their reliance on internal hunger and satiety cues would determine when, what, and how much to eat. Moreover, eating for physical rather than emotional reasons reflects eating food to satisfy physical hunger drives and enhancing their body's functioning, rather than to alleviate or avoid emotional distress. Lastly, unconditional permission to eat desired food when hungry reflects a willingness to eat the food that is desired in response to hunger cues. In other words, hunger signals are not ignored, foods are not labelled as “good” or “bad,” and there are no attempts to avoid eating foods often considered forbidden (Tribole & Resch, 2003; Tylka & Kroon van Diest, 2013).

Theoretical and empirical contributions suggest the importance of intuitive eating to explain eating behaviours. Intuitive eating has been found to be associated with less pressure for thinness, dieting and disordered eating, and more positive emotional functioning and body image, which seems to suggest intuitive eating as an indicator of flexible, adaptive and positive eating (e.g., Bruce & Ricciardelli, 2016; Dalen et al., 2010; Tylka, 2006). In fact, intuitive eating has been consistently linked with numerous positive health outcomes, including lower levels of disordered eating, NA, body image concerns, food preoccupation, and body mass index (BMI) and higher PA, body appreciation and interoceptive awareness (Bruce & Ricciardelli, 2016; Linardon & Mitchell, 2017; Tylka & Wood-Barcalow, 2015; van Dyke & Drinkwater, 2013). According to Avalos and Tylka (2006) individuals who are more aware of and eat according to their hunger and satiety cues are more likely to value, respect, and appreciate their body. Indeed, strong and consistent correlations between intuitive eating and body appreciation have been reported in numerous cross-sectional studies (e.g., Avalos & Tylka, 2006; Tylka, Calogero, & Danielsdóttir, 2015; Tylka & Kroon van Diest, 2013; Tylka & Wood-Barcalow, 2015).

Moreover, there is evidence that individuals who have more adaptive emotion regulation skills to deal with unwanted experiences tend to present higher body image flexibility (Kelly, Vimalakanthan, & Miller, 2014). Body image flexibility, defined as the ability to openly accept difficult body-related emotions, thoughts and memories while remaining committed to engaging in helpful

actions consistent with one's chosen values (Sandoz, Wilson, Merwin, & Kate Kellum, 2013), is another prominent eating-related adaptive process linked to more adaptive eating styles (e.g., Schoenefeld & Webb, 2013).

Body image flexibility has been negatively associated with negative psychological outcomes, namely, a range of disordered eating pathology, including body dissatisfaction, disordered eating cognitions, and general eating symptomatology (Ferreira, Pinto-Gouveia, & Duarte, 2011; Sandoz et al., 2013). Additionally, body image flexibility has been found to be inversely associated with control and avoidance efforts such as thought suppression, experiential avoidance, and psychological inflexibility (Moore, Masuda, Hill, & Goodnight, 2014), which reflects adaptive regulation efforts of psychological acceptance and openness to body dissatisfaction and ED cognitions (Masuda, Latner, Barlie, & Sargent, 2018).

Thus, the present study aims to investigate in what way negative and PA are associated with greater disordered eating. In addition, it aims to explore to what extent the greater capacity for intuitive eating and body image flexibility mediate this relation. It was expected that, for women, a higher level of NA would have a positive effect on disordered eating severity indirectly via lower levels of intuitive eating and body image flexibility. Similarly, the same relationship was expected with PA, although with opposite direction of the association.

## 2 | MATERIAL AND METHODS

### 2.1 | Participants

The present study sample comprised 273 female participants from the general population, aged between 18 and 45 years old, ( $M = 24.10$ ;  $SD = 6.42$ ) and with a mean of 14.68 ( $SD = 1.98$ ) years of education. Concerning the BMI, participants presented a mean of 22.61 ( $SD = 3.39$ ). The BMI varied between 16.42 and 40.09. From these, 15 presented as underweight ( $BMI < 18.5$ ), 198 had a normal weight ( $18.5 \geq BMI \leq 24.99$ ), 52 presented as overweight ( $25 \geq BMI \leq 29.99$ ), and 8 participants presented as obese ( $BMI \geq 30$ ), according to the standard classification. This BMI distribution reflects the general female Portuguese population (Póinhos et al., 2009).

### 2.2 | Measures

#### 2.2.1 | Body mass index

BMI was calculated by dividing the participants' self-reported current weight (in kg) and height (in  $m^2$ ).

### **2.2.2 | Positive and NA schedule (PANAS-VRP; Watson et al., 1988; Portuguese version by Galinha, Pereira, & Esteves, 2014)**

PANAS is a 10-item self-report measure used to assess positive (PA) and NA, defined as general dimensions that describe the emotional experience of individuals. Participants were asked how they experienced each emotion (e.g., “enthusiastic,” “guilty”) during the past week, using a 5-point scale, from 1 (“Very slightly or not at all”) to 5 (“Very much”). The original version showed good psychometric characteristics, with a Cronbach alpha of .88 for positive and .87 for the NA. The Portuguese version also revealed good internal consistency ( $\alpha = .86$  for PA and .89 for NA). Within the present study, the scale demonstrated an adequate internal consistency ( $\alpha$ 's = .85 for PA and .86 for NA).

### **2.2.3 | Intuitive Eating Scale-2 (IES-2; Tylka & Kroon van Diest, 2013; Portuguese version by Duarte, Pinto-Gouveia, & Mendes, 2016)**

The IES-2 is a measure used to assess intuitive eating in four dimensions: eating for physical reasons rather than emotional reasons; unconditional permission to eat; reliance on hunger and satiety cues; and body-food choice congruence. The IES-2 comprises 23 items that are rated in a 5-point scale, from 1 (“Strongly disagree”) to 5 (“Strongly agree”), according to what option they think describes their attitudes and behaviours. For women, Cronbach's coefficient alphas for the global score were .87 in the original study, (Tylka & Kroon van Diest, 2013) and .97 in the Portuguese version (Duarte, Pinto-Gouveia, & Mendes, 2016). In this study, the IES-2 had an internal consistency of .89.

### **2.2.4 | Body-image Acceptance and Action Questionnaire (BI-AAQ; Sandoz et al., 2013; Portuguese version by Ferreira et al., 2011)**

The BI-AAQ is a 12-item scale designed to evaluate body image-related acceptance and flexibility. Particularly, this measure was designed to assess the ability to experience fully and intentionally internal events, such as sensations, feelings, thoughts, and beliefs related to one's own body image, even when these are perceived as unwanted (Sandoz et al., 2013). Participants were asked to rate each item (e.g., “If I start to feel fat, I try to think about something

else”) on a 7-point scale, from 1 (“Never true”) to 7 (“Always true”). For the purpose of the present study, the items were inverted, with higher summed scores revealing greater body image flexibility. This questionnaire presented good psychometric characteristics in the original study, the Portuguese version and the present study, with Cronbach's Alphas of .92 (Sandoz et al., 2013), .93 (Ferreira et al., 2011) and .94, respectively.

### **2.2.5 | Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994; Portuguese version by Machado et al., 2014)**

The EDE-Q is a self-report measure that provides a comprehensive evaluation of disordered eating symptomatology, over the previous 28 days. It has a total of 36 items and comprises four subscales: eating restraint, weight concern, body shape concern and eating concern, as well as a global score of eating psychopathology (which is the average of the four subscales). The items are rated for frequency, on a scale from 0 (“No days”) to 6 (“Every day”), or severity, on a scale from 0 (“Not at all”) to 6 (“Markedly”). Research supports that the Portuguese version of EDE-Q holds good psychometric properties, with Cronbach's alpha estimates of .97 in community samples (Machado et al., 2014) and .95 in the current study.

## **2.3 | Procedures**

The present study was conducted in conformity with all the ethical and deontological requirements inherent to scientific research and it was approved by the Ethical Board of the Faculty of Psychology and Education Sciences of the University of Coimbra.

This study was advertised on social network sites. Specifically, an invitation to participate in this study was electronically sent through popular social networks (e.g., Facebook) to potential participants. Also, these participants were asked to share the invitation of this study with other possible participants and so on consecutively (snowball sampling method). The online advertisement included an informative text that clarified the aims and procedures of the investigation, the voluntary and confidential character of participation and the inclusion criteria for participants' selection. The online advertisement also included an Internet link to the online platform with the informed consent and completed the assessment protocol. Thus, participants who accepted to participate in the study gave their informed consent and completed the online survey. Their participation in this



study was fully voluntary, and incentives were not offered to participants. The initial sample was composed of 341 individuals (299 women and 42 men), from 18 to 65 years of age. However, considering the aims of this research, and in order to match the population at higher risk of developing body image and eating-related psychopathology, data cleaning procedures excluded: male participants and female participants older than 45 years of age. Indeed, consistent research shows that the single best predictor of risk for developing disordered eating is being female (Striegel-Moore & Bulik, 2007). Moreover, prevalence studies in adult community sample show that the ages below 45 years represent the peak period of disordered eating symptoms (Stice, Marti, & Rohde, 2013). There were no missing data because the platform only allows the submission of the questionnaires when all data is complete.

### 2.3.1 | Data analyses

Data analyses were performed using IBM SPSS Statistics 22.0 software and path analyses with AMOS software.

Descriptive statistics (means and standard deviations) and Pearson's correlation analyses were performed in order to examine the characteristics of the final sample and to explore the associations between BMI, negative and positive affect (PANAS-VR), intuitive eating (IES-2), body image flexibility (BI-AAQ) and disordered eating attitudes and behaviours (EDE-Q). The magnitudes of these relationships were analysed considering Cohen's guidelines, in which correlations ranging between .1 and .3 are considered weak, above .3 moderate, and strong when equal to or superior than .5, while considering a significance level of .05 (Cohen, Cohen, West, & Aiken, 2003).

Finally, path analyses were conducted to estimate the presumed relations within the proposed model (Figure 1), specifically the mediating effects of intuitive eating (IES-2) and body image flexibility (BI-AAQ), in

the association between negative and positive affect (PANAS) with the engagement in disordered eating attitudes and behaviours (EDE-Q). To test regression coefficients and to compute fit statistics the Maximum Likelihood method was used. Additionally, a series of goodness-of-fit indices were used to assess the adequacy of the overall model: Normed chi-square ( $CMIN/df$ ) with values  $<5$  indicating a good global adjustment of the model; the Tucker–Lewis index (TLI) and the comparative fit index (CFI), which values ranging from .90 to .95 are assumed as evidence for a good fit; and the root mean square error of approximation index (RMSEA), which values below .08 indicating an adequate fit (Arbuckle, 2008; Hu & Bentler, 1999; Kline, 2005). The significance of the paths was also examined, by resorting to the Bootstrap resampling method, with 5,000 Bootstrap samples, and 95% bias-corrected confidence intervals around the standardised estimated of total, direct and indirect effects.

## 3 | RESULTS

### 3.1 | Preliminary analyses

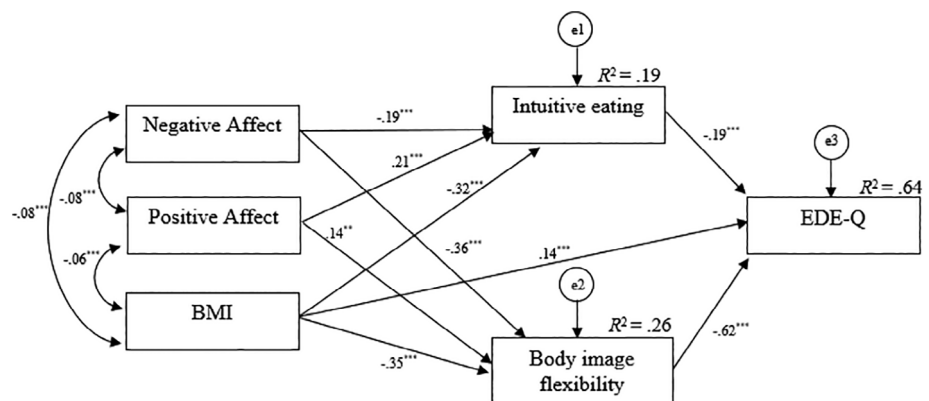
Preliminary data analyses were conducted to test for the multivariate normality assumption. The obtained Skewness and Kurtosis values did not represent a significant bias from the normal distribution ( $Sk < |3|$  and  $Ku < |10|$ ; Kline, 2005).

### 3.2 | Descriptive and correlation analyses

The descriptive statistics referring to the study's variables are presented, for the total sample ( $N = 273$ ), in Table 1.

Results demonstrated that BMI presented weak, negative, non-significant associations with negative

**FIGURE 1** Path model showing the association between negative and positive affect and EDE-Q, mediated by intuitive eating and body image flexibility, with standardised estimates and square multiple correlations ( $R^2 = .64$ ;  $N = 273$ ). \*\*\* $p < .001$ ; \*\* $p < .01$ ; BMI, body mass index; EDE-Q, Eating Disorder Examination Questionnaire



**TABLE 1** Means (*M*), *SD*, and correlations between the study measures (*N* = 273)

Measures	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.
1. Body mass index	22.61	3.39	—	—	—	—	—
2. Negative affect	11.06	4.46	-.08	—	—	—	—
3. Positive affect	16.76	3.71	-.06	-.08	—	—	—
4. Intuitive eating	3.43	.6	-.32***	-.18**	.25***	—	—
5. Body image flexibility	67.53	14.29	-.33***	-.34***	.19**	.48***	—
6. Eating psychopathology	1.05	1.02	.41***	.26***	-.15*	-.54***	-.76***

Note: Negative affect and positive affect are assessed by positive and negative affect schedule; intuitive eating is assessed by Intuitive Eating Scale-2; body image flexibility is assessed by Body-Image Acceptance and Action Questionnaire (reverse score); Eating psychopathology is assessed by Eating Disorder Examination Questionnaire; \* $p < 0.050$ ; \*\* $p < 0.010$ ; \*\*\* $p < 0.001$ .

(PANASNA) and positive (PANASPA) affect. Also, they showed that BMI was inversely associated with intuitive eating (IES-2) and body image flexibility (BI-AAQ), with moderate magnitudes, and positively linked to eating psychopathology, with a moderate magnitude. NA revealed a negative association with intuitive eating and body image flexibility, and a positive association with eating psychopathology. In contrast, PA was positively associated with intuitive eating and body image flexibility, and inversely associated with eating psychopathology and all these associations were of weak magnitude. Additionally, results showed that intuitive eating presented positive associations with body image flexibility and negative associations with eating psychopathology, with moderate and strong magnitude, respectively. Finally, a negative and strong relationship was found between body image flexibility and eating psychopathology (Table 1).

### 3.3 | Path analysis

Path Analysis was conducted to explore whether the intuitive eating (IES-2) and body image flexibility (BI-AAQ) mediated the impact of the negative and PA on disordered eating attitudes and behaviours (EDE-Q), while controlling for the effect of BMI.

Primarily, the path model was tested with zero degrees of freedom, through a saturated model, comprising 27 parameters, which explained 64% of eating psychopathology's variance. Results show that two paths were not significant: the direct effect of PA on EDE-Q ( $b_{\text{positiveaffect}} = 0.01$ ;  $SE_b = 0.01$ ;  $Z = 0.53$ ;  $p = .596$ ) and the direct effect of NA on EDE-Q ( $b_{\text{negativeaffect}} = 0.01$ ;  $SE_b = 0.01$ ;  $Z = 0.53$ ;  $p = .597$ ). These paths were progressively eliminated and the model was readjusted.

The final model (Figure 1) presented a good fit, adjusted to the empirical data, as indicated by the chi-square ( $\chi^2(2) = 0.56$ ,  $p = .76$ ,  $CMIN/df = 0.28$ ,  $CFI = 1.00$ ,  $TLI = 1.02$ ,  $RMSEA = .00$ ;  $p = .87$ , 95% CI = 0.00 to 0.08;

Kline, 2005). This model explained 64% of EDE-Q's variance. Furthermore, the model represented, respectively, 19% and 26% of intuitive eating and body image flexibility's variances. NA presented a significant direct effect on intuitive eating of  $-0.19$  ( $b_{\text{NA}} = -0.03$ ;  $SE_b = 0.01$ ;  $Z = -3.47$ ;  $p < .001$ ) and of  $-0.36$  on body image flexibility ( $b_{\text{NA}} = -1.15$ ;  $SE_b = 0.17$ ;  $Z = -6.82$ ;  $p < .001$ ). PA had a direct effect of 0.21 on intuitive eating ( $b_{\text{PA}} = 0.03$ ;  $SE_b = 0.01$ ;  $Z = 3.87$ ;  $p < .001$ ) and of 0.14 on body image flexibility ( $b_{\text{PA}} = 0.53$ ;  $SE_b = 0.20$ ;  $Z = 2.65$ ;  $p = .008$ ). BMI showed a direct effect of  $-0.32$  on intuitive eating ( $b_{\text{BMI}} = -0.06$ ;  $SE_b = 0.01$ ;  $Z = -5.89$ ;  $p < .001$ ), of  $-0.35$  on body image flexibility ( $b_{\text{BMI}} = -1.48$ ;  $SE_b = 0.22$ ;  $Z = -6.70$ ;  $p < .001$ ) and of 0.14 on disordered eating attitudes and behaviours ( $b_{\text{BMI}} = 0.04$ ;  $SE_b = 0.01$ ;  $Z = 3.59$ ;  $p < .001$ ). It was also found that intuitive eating and body image flexibility presented a direct effect of  $-0.19$  ( $b_{\text{intuitiveeating}} = -0.32$ ;  $SE_b = 0.07$ ;  $Z = -4.47$ ;  $p < .001$ ) and  $-0.62$  ( $b_{\text{BI-AAQ}} = -0.04$ ;  $SE_b = 0.00$ ;  $Z = -14.65$ ;  $p < .001$ ) on EDE-Q, respectively.

The analysis of indirect effects showed NA, PA and BMI had indirect effects on EDE-Q through intuitive eating and body image flexibility of 0.26 [95% CI 0.17, 0.35],  $-0.13$  [95% CI  $-0.21$ ,  $-0.04$ ] and of 0.28 [95% CI 0.20, 0.37], respectively. Overall, the analysis of this model explained 64% of eating psychopathology symptom variance and revealed that intuitive eating and body image flexibility fully mediate the impact of negative and PA on EDE-Q.

## 4 | DISCUSSION

The present study was aimed at understanding the role of two body and eating-related adaptive processes (body image flexibility and intuitive eating) in the relationship between negative and PA and disordered eating.

Correlation results suggested that in women, NA was significantly associated with higher levels of disordered eating, and PA was linked to lower eating psychopathology severity. These results are in line with the proposed hypotheses and prior research (Cooper et al., 2014; Sim & Zeman, 2006). Moreover, correlation analyses showed that intuitive eating (i.e., eating based on physiological needs or desires rather than on emotional state or predetermined dietary restrictions) was associated with higher body image flexibility, less eating disordered behaviours, and lower BMI. These results are in accordance with data reported in previous studies, which suggested that intuitive eating abilities are associated with adaptive body and eating attitudes and behaviours (Augustus-Horvath & Tylka, 2011; Dockendorff, Petrie, Greenleaf, & Martin, 2012; Herbert, Blechert, Hautzinger, Matthias, & Herbert, 2013; Shouse & Nilsson, 2011; Tylka, 2006; Tylka & Kroon van Diest, 2013). Particularly, our results also revealed that body image flexibility (i.e., the individual's ability to willingly embrace internal experiences, such as thoughts, emotions, or physical sensations related to their body with awareness and in a non-judgmental mindset), was associated with higher levels of intuitive eating, and lower levels of disordered eating and BMI. These findings corroborated prior research regarding the association between body image flexibility and increased intuitive eating (Duarte, Ferreira, & Pinto-Gouveia, 2016).

To explore in detail the pathways between the variables in this study, a mediational model revealed an excellent fit to the empirical data explaining a total of 64% of the variance of disordered eating attitudes and behaviours. This model proposed that the relationship between negative and PA and disordered eating symptomatology depends on the level of intuitive eating and body image flexibility, even when controlling for the effect of BMI. In fact, these results seem to extend prior evidence on the link between negative and PA and the engagement in disordered eating behaviours (Berg et al., 2013). The current model suggested that intuitive eating and body image flexibility are significant mediators in this relationship and seem to support the need to develop prevention and intervention approaches for the promotion of body image flexibility and intuitive eating as adaptive competencies to manage negative affectivity and healthy eating, especially among women. The present findings, which emphasise the importance of the promotion of intuitive eating within the prevention and intervention of eating psychopathology, are in line with Linardon and Mitchell (2017) and with Schaefer and Magnuson (2014) who also show the important role of intuitive eating.

Nevertheless, this study has some limitations. Firstly, the cross-sectional nature of the study's design does not allow causal conclusions. Although the current results

were supported by robust statistical analysis, future experimental or longitudinal design studies are necessary to corroborate these causal inferences. Another important limitation of the current study is related to the recruitment process of the sample. Data was collected through an online survey, which on one hand may facilitate the access to a large number of participants and empower a sense of privacy and the disclosure of sensitive data (e.g., shameful eating behaviours), but on the other hand, this methodology may compromise the representativeness of the sample, and thus limit the generalisations of the study's findings. Furthermore, the nature of the research sample, particularly in sex and age range, may compromise the generalisation of the data. However, the age and sex characteristics of our sample were purposefully selected to match the adult population at higher risk of developing body image and eating-related psychopathology. Finally, the current study focused solely on women. Even though disordered eating is more prevalent in females, future research should test this model in male samples and examine possible gender differences. Also, even though disordered eating behaviours and attitudes are present in the general population, these associations should also be tested in clinical samples to further support the adequacy of the proposed model.

Although based on cross-sectional data, this study seems to offer important suggestions as to the important role that body image flexibility and intuitive eating may play in eating psychopathology, by reducing reactivity and impulsive eating in response to positive and NA. In sum, results support that prevention and intervention programs focused on body and eating-related difficulties should target the development of body image flexibility and a more adaptive pattern of eating. These programs focused on the promotion of an attitude of acceptance and respect towards one's own body seems to be especially relevant in a modern Western context. Indeed, modern societies promote conflicting messages, which on the one hand promotes the consumption of foods with a high caloric density but on the other hand values restrictive eating patterns and an extreme body image control, criticising overconsumption and stigmatising excessive weight (Puhl & Heuer, 2009, 2010).

## CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

## DATA AVAILABILITY STATEMENT

Research data are not shared.

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