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**Research Article**

# The association between insecure adult attachment and psychosomatic symptoms as mediated by emotion regulation

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## Abstract

Adult insecure attachment encompasses both anxious and avoidant attachment. Previous research links anxious attachment to maladaptive emotion up-regulation, and avoidant attachment to maladaptive emotion down-regulation. Research suggests that both insecure attachment and maladaptive emotion regulation contribute to psychosomatic symptoms. Therefore, this study aims to investigate whether the increased susceptibility to psychosomatic symptoms in insecure individuals is mediated by maladaptive emotion regulation. A general population sample (*n* = 157) completed an online survey comprising measures of attachment, emotion regulation, psychosomatic symptoms and perceived stress. Perceived stress levels were controlled for due to their recognised impact on psychosomatic symptoms. Four simple mediations were conducted using the PROCESS macro for SPSS. The results revealed that emotion down-regulation negatively mediated the relation between attachment avoidance and psychosomatic symptoms while emotion up-regulation did not mediate the relation between attachment anxiety and psychosomatic symptoms. These findings suggest that emotion regulation emerges as a predictor for psychosomatic symptoms in avoidant but not anxious attachment. Future studies should explore the emotional influences of emotion regulation in insecure attachment across diverse contexts.

**Keywords:** Insecure attachment, emotion up-regulation, emotion down-regulation, psychosomatic symptoms, perceived stress.

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## Introduction

Psychosomatic symptoms are physical symptoms that lack clear medical explanations and are often associated with psychological factors like stress, anxiety and depression (Escobar *et al*., 2010; McBride *et al*., 2022). Examples of psychosomatic symptoms include headaches, back pain, shortness of breath, and digestive problems (Allen *et al*., 2017). Although the aetiology of psychosomatic symptoms is little understood, they can be distressing and persistent (Rask *et al*., 2015). Noticing psychosomatic symptoms as outcomes of mental health difficulties is crucial for addressing both the symptoms and their underlying psychological roots (Fink *et al*., 2007).

Emotion regulation includes the ability to acknowledge, understand, and modulate one's emotions in a given situation (Gross, 2015). Difficulties in regulating emotions in response to stresses may contribute to psychosomatic symptoms (Lewczuk *et al*., 2021). Some emotion regulation strategies such as rumination, catastrophising, and expressive suppression are considered less adaptive than others and have been associated with psychological and physiological problems (Appleton *et al*., 2013; Martin & Dahlen, 2005). Rumination is defined as the repetitive thinking about one's negative moods and experiences with no direction towards their resolution (Nolen-Hoeksema *et al*., 2008) while catastrophising is characterised by an exaggerated perception of negative experiences and their consequences (Gellatly & Beck, 2016). Rumination and catastrophising are up-regulatory emotion regulation strategies and can result in increased and prolonged experiences of negative affect (Martin & Dahlen, 2005). In contrast, expressive suppression is a down-regulatory strategy that involves inhibiting the outward expression of an emotional state (Appleton *et al*., 2013). Nevertheless, expressive suppression may not be successful in decreasing internal arousal (Gross, 2001), so individuals who use emotion suppression tend to experience more negative and less positive affect (Raymond *et al*., 2019). Thus, expressive suppression might reduce the experience of positive but not negative emotions (Gross & John, 2003). In relation to physical symptoms, research shows that rumination and catastrophising of pain- and non-pain-related distress predict physical symptoms, severe pain, and poorer medical outcomes (Sansone & Sansone, 2012). Similarly, emotion suppression has been associated with psychosomatic symptoms, inflammation and cardiovascular disease (Appleton *et al*., 2013; Appleton *et al*., 2014; Schnabel *et al*., 2022). Since maladaptive strategies of emotion regulation induce negative emotional states, they might influence disease progression by affecting the body's physiological stress response (De Gucht, 2002).

Parallel trends in physiological arousal and physical symptoms have been observed in individuals exhibiting attachment insecurity (LaBelle *et al*., 2020). Attachment is an affectionate bond that is first formed between a child and their primary caregiver based on the responsivity of the parent to the child's needs (Ainsworth & Bowlby, 1991). Attachment relationships construct internal working models about self-worth and the availability of close others in times of distress (Bowlby, 1988; Gillath *et al*., 2016). In

adulthood, attachment patterns affect the quality of people's close relationships such as those with partners, friends, or parents (Fraley, 2007). Ideally, attachment figures must serve as a safe haven and a secure base that provides a sense of trust and comfort (Sable, 2008). Failing to approach an attachment figure to relieve distress and communicate discomfort indicates attachment insecurity (Maunder *et al*., 2006). Although internal working models in adults can be influenced by later experiences, affect regulation in adulthood is significantly shaped by emotion regulation strategies developed through childhood attachment relationships (Fraley & Roisman, 2019).

Importantly, individuals with an insecure attachment style are more likely to use maladaptive emotion regulation to serve their attachment needs (Brenning & Braet, 2013). Insecure attachment is characterised by high levels of attachment anxiety, attachment avoidance, or both (Bartholomew & Horowitz, 1991). Securely attached individuals are low on both traits. Individuals who receive responsive care throughout childhood become securely attached and learn to regulate their emotions adaptively (Cassidy, 1994). Therefore, they are comfortable with emotional closeness and support-seeking in times of distress (Hazan & Shaver, 1987). In contrast, anxiously attached individuals often feel unworthy of love because their attachment needs would have been inconsistently met (Hazan & Shaver, 1987). Thus, they learn to up-regulate their emotions in times of need to draw attention and keep their attachment figures available (Brenning & Braet, 2013). For instance, it is shown that anxious individuals are more likely to use catastrophising and rumination in response to negative situations as they are constantly worried about being abandoned (LaBelle *et al*., 2020). Similarly, avoidantly attached individuals exhibit interpersonal mistrust because their attachment needs would have been constantly faced with rejection (Hazan & Shaver, 1987). Therefore, they tend to down-regulate their emotions and suppress their feelings in stressful situations to avoid unwanted closeness (LaBelle *et al*., 2020).

As such, because insecure individuals are more likely to use maladaptive emotion regulation, they might experience more psychosomatic symptoms (LaBelle et al., 2020). For instance, attachment insecurity has been linked to chronic pain and poor adjustment to pain (Meredith *et al*., 2008) and to greater physiological reactivity to stress (Schulz *et al*., 2023). Additionally, anxious attachment was related to symptom reporting in psychosomatic patients regardless of their reported levels of distress (Badaye *et al*., 2021). In parallel, avoidant attachment was related to psychosomatic symptoms but only when moderated by low distress levels. Thus, it is possible that avoidant individuals who reported lower distress levels are more likely to suppress emotions of distress resulting in greater psychosomatic symptoms (Diamond *et al*., 2006). Also, a study showed that sensory sensitivity mediated the relationship between anxious attachment and the severity of physical symptoms (Le *et al*., 2020). This suggests that rumination and pain exaggeration might initiate symptom magnification in anxious individuals (Ghorbani *et al*., 2017; Sansone & Sansone, 2012).

Although the association between insecure adult attachment and psychosomatic symptoms is evident (Payne & Brooks, 2019), the mediatory role of maladaptive emotion regulation in these relationships is under-researched. Also, most studies focused on the role of emotion regulation in linking adult attachment to mental rather than physical illness (e.g. Mortazavizadeh & Forstmeier, 2018). Some studies revealed that negative affect and difficulties in emotion regulation related to greater symptom reporting in anxious but not avoidant attachment (Feeney & Ryan, 1994; Lewczuk *et al*., 2021; Wearden *et al*., 2005). Additionally, avoidant attachment has been associated with reduced physical and mental well-being through increased control of negative emotions (Kotler *et al*., 1994). Finally, research demonstrated that subjective levels of stress reported by insecure individuals might not reflect their actual levels of physiological arousal (Maunder *et al*., 2006). Individuals with different attachment styles may perceive stress differently because of their different emotion regulation strategies (Diamond & Fagundes, 2010). Anxious individuals might perceive higher stress levels and over-report stress while avoidant individuals might perceive less stress and under-report it (Kidd *et al*., 2011).

The aforementioned studies confirm the impact of emotion regulation on the physical health of insecurely attached individuals. However, they do not emphasise the role of employing specific up-regulatory and down-regulatory strategies (e.g. rumination, catastrophising, and suppression) that appear to relate distinctively to anxious and avoidant attachment, respectively (Girme *et al*., 2021). Therefore, this study aims to understand if emotion up-regulation increases psychosomatic symptoms in anxious attachment and if emotion down-regulation increases psychosomatic symptoms in avoidant attachment. Since perceived stress levels are shown to affect physical symptom reporting (Schulz *et al*., 2023), self-reported stress will be controlled for in the present paper as this was not considered in previous studies.

It is hypothesised that when controlling for perceived stress:

1. Emotion up-regulation (via catastrophising and rumination) will positively mediate the relationship between attachment anxiety and psychosomatic symptoms.
2. Emotion down-regulation (via expressive suppression) will positively mediate the relationship between attachment avoidance and psychosomatic symptoms.

## Method

### *Participants*

The sample consisted of 162 participants. To determine the sample size, an *a priori* power analysis was conducted using G*Power 3.1 (Faul *et al.,* 2007), on the basis of a linear multiple regression with medium effect sizes ($f^2 > .15$) at a .05 significance level and 95% power. This recommended a sample size of 107 participants.

Participants were aged 18+ years and self-categorised as healthy. Participants were recruited online using social media and using the Northumbria University Department of Psychology research participation pool management software (Sona Systems; www.sona-systems.com). There were no exclusion criteria for this research study. The study was approved by the Faculty of Health and Life Sciences Ethics Committee at Northumbria University (ref: 0010). All participants provided electronic informed consent.

## *Measures*

The Attachment Style Questionnaire-Short Form (ASQ-SF; Karantzas *et al.,* 2010) was used to measure two dimensions of attachment insecurity (attachment anxiety and attachment avoidance). Attachment anxiety was assessed using 14 items (e.g. "*it's important to me that others like me*") and attachment avoidance was assessed using 15 items (e.g. "*I worry about people getting too close*") using a six-point Likert scale (ranked from 1 ("*totally disagree*") to 6 ("*totally agree*")). The score for each subscale was calculated separately. Higher scores were indicative of higher levels of attachment anxiety and attachment avoidance. Cronbach's alpha for the present study was $\alpha$ = .90.

To assess emotion up-regulation, participants completed two subscales (rumination and catastrophising) from the Cognitive Emotion Regulation Questionnaire-Short Form (CERQ-Short; Garnefski & Kraaij, 2007). Rumination was measured using two items (e.g. "*I dwell upon the feelings the situation has evoked in me*") and catastrophising was measured using two items (e.g. "I continually think how horrible the situation has been") using a five-point Likert scale (ranked from 1 ("*almost never*") to 5 ("*almost always*")). The total possible score of both subscales ranged from 4 to 20. Higher scores were indicative of a higher tendency for emotion up-regulation. Cronbach's alpha for the present study was $\alpha$ = .88.

To assess emotion down-regulation, participants completed the Expressive Suppression subscale of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). This consists of four items that indicate someone's tendency to suppress emotions (e.g. "*I keep my emotions to myself*") using a seven-point Likert scale (ranked from 1 ("*strongly disagree*") to 7 ("*strongly agree*")). Total possible scores ranged from 4 to 28. Higher scores were indicative of a higher capacity to down-regulate/suppress emotions. Cronbach's alpha for the present study was $\alpha$ = .82.

Psychosomatic symptoms were assessed using the Cohen-Hoberman Inventory of Physical Symptoms (CHIPS; Cohen & Hoberman, 1983) which lists 33 common physical complaints including sleep problems, back pain, and nausea. Participants indicated the extent to which they were bothered by each of the symptoms in the past two weeks using a five-point Likert scale (ranked from 0 ("*not bothered*") to 4 ("*extremely bothered*")). Total possible scores ranged from 0 - 32, with higher scores

indicative of more burden from psychosomatic symptoms. Cronbach's alpha for the present study was $\alpha$ = .91.

Perceived stress was measured using the Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988), which asks respondents to rate the frequency of certain feelings and thoughts experienced during the last month (e.g. "*how often have you felt nervous and stressed?"*) using a five-point Likert scale (ranked from 0 ("*never*") to 4 ("*very often*")). Higher total scores were indicative of higher perceived stress. Cronbach's alpha for the present study was $\alpha$ = .87.

### *Procedure*

Participants completed an online study using Qualtrics XM (Qualtrics, Provo, UT). Participants completed demographic details (self-reported age and gender), the ASQ-SF, CERQ-Short, ERQ, CHIPS and PSS-10. Participation took approximately 15 minutes.

### *Data analysis*

Parametric assumptions were met for all scores and no normality issues were present. One incomplete response, one repeated response, and three outliers were excluded ($n$ = 5). Data analysis was performed using IBM SPSS, and PROCESS v4.2 (Hayes, 2017) for mediation analysis.

Employing a regression design, four simple mediation analyses were conducted with perceived stress (PSS-10) included as a covariate. In Models 1 and 2, attachment anxiety served as the predictor and psychosomatic symptoms served as the outcome variable. Emotion up-regulation served as the mediator in Model 1, and emotion down-regulation served as the mediator in Model 2. In Models 3 and 4, attachment avoidance served as the predictor and psychosomatic symptoms served as the outcome variable. Emotion up-regulation served as the mediator in Model 3 and emotion down-regulation served as the mediator in Model 4.

## Results

Data were obtained from 157 participants (range 18-53 years, $M_{age}$ = 26.85 years, $SD_{age}$ = 8.54 years). The sample included 74.50% females ($M_{age}$ = 26.25 years, $SD_{age}$ = 8.28) and 24.80% males ($M_{age}$ = 28.59 years, $SD_{age}$ = 9.24 years). Descriptive statistics for all variables are presented in Table 1.

*Table 1: participant summary data (n = 157)*

| | Mean | SD |
|---|---|---|
| **ASQ-SF Anxiety** | 3.55 | .82 |
| **ASQ-SF Avoidance** | 3.73 | .75 |
| **CERQ-Short** | 11.16 | 3.93 |
| **ERQ** | 15.56 | 5.21 |
| **CHIPS** | 29.10 | 18.47 |
| **PSS-10** | 20.92 | 6.80 |

*Abbreviations:* ASQ-SF: Attachment Style Questionnaire-Short Form; CERQ-Short: Cognitive Emotion Regulation Questionnaire-Short Form; CHIPS: Cohen-Hoberman Inventory of Physical Symptoms; ERQ: Emotion Regulation Questionnaire; and PSS-10: Perceived Stress Scale; SD: Standard Deviation

### *Mediation Analyses*

#### *Model 1: attachment anxiety, emotion up-regulation and psychosomatic symptoms*

ASQ-AF anxiety significantly predicted up-regulation, but psychosomatic symptoms were not predicted significantly by neither up-regulation nor ASQ-AF anxiety. The indirect effect was non-significant, indicating the absence of mediation (*Figure 1*). The model explained 28% of the variance in up-regulation ($R^2$ = .28, $F$(2, 154) = 30.66, $p$ <.001) and 29% of the variance in psychosomatic symptoms ($R^2$ = .29, $F$(3, 153) = 21.17, $p$ <.001).

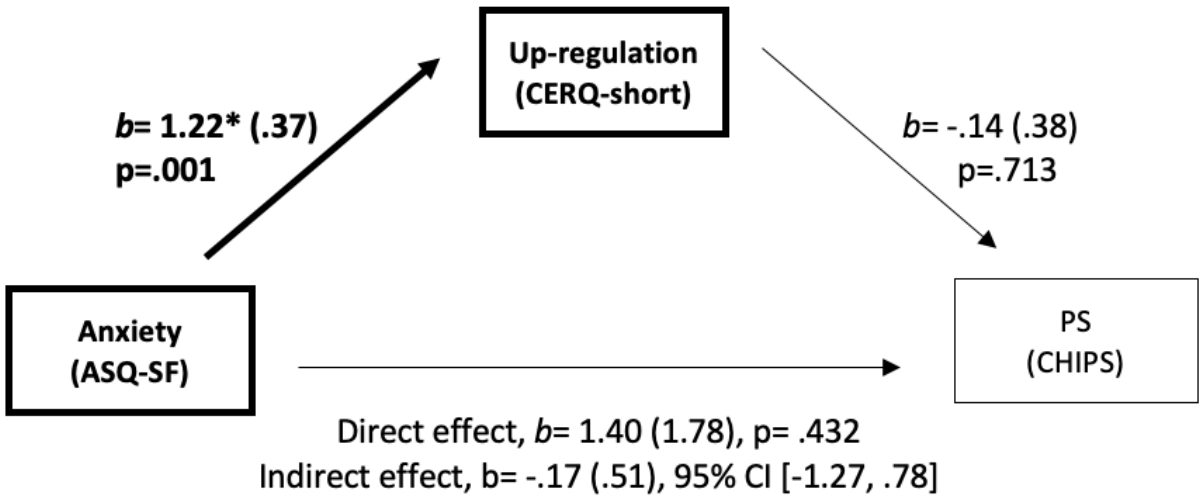


*Figure 1:* Model 1 mediation results (*b* = *unstandardised beta coefficients*; **$p$ < .01)

***Model 2: attachment anxiety, emotion down-regulation and psychosomatic symptoms***

No mediation was present in Model 2 as all paths were non-significant (*Figure 2*). The model explained 10% of the variance in down-regulation ($R^2$ = .10, $F$(2, 154) = 8.56, $p$ <.001), and 30% of the variance in psychosomatic symptoms ($R^2$ = .30, $F$(3, 153) = 21.34, $p$ <.001).

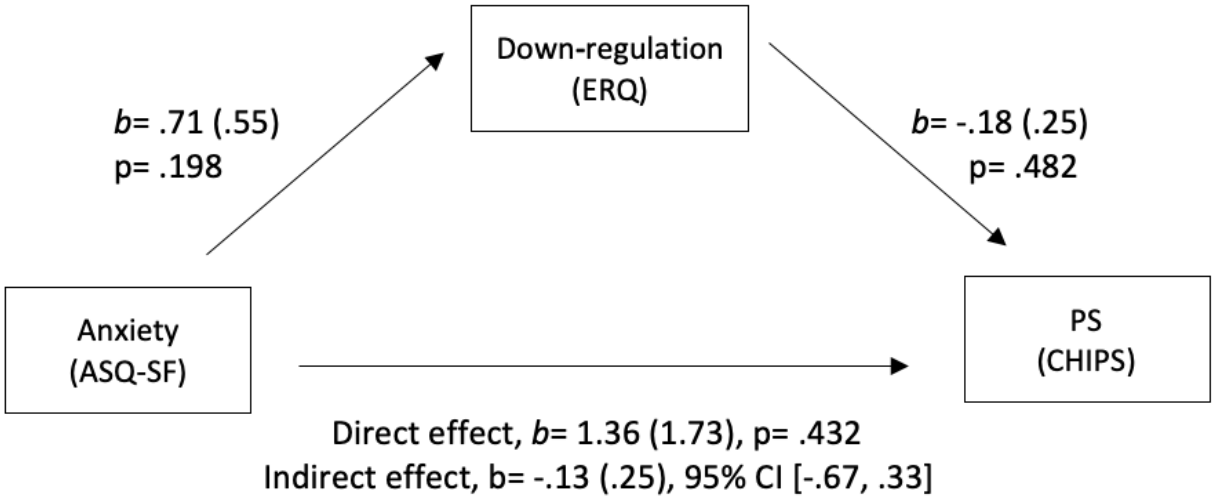


*Figure 2:* Model 2 mediation results (*b = unstandardised beta coefficients*)

***Model 3: attachment avoidance, emotion up-regulation and psychosomatic symptoms***

ASQ-AF avoidance did not predict up-regulation, and up-regulation did not predict psychosomatic symptoms. ASQ-AF avoidance positively predicted psychosomatic symptoms, but the indirect effect was non-significant, indicating no mediation (*Figure 3*). The model explained 24% of the variance in up-regulation ($R^2$= .24, $F$(2, 154) = 24.40, $p$ <.001), and 32% of the variance in psychosomatic symptoms ($R^2$ = .32, $F$(3, 153) = 24.42, $p$ <.001).

***Model 4: attachment avoidance, emotion down-regulation and psychosomatic symptoms***

All paths in Model 4 were significant (*Figure 4*). Avoidance positively predicted down-regulation, and down-regulation negatively predicted psychosomatic symptoms. Avoidance positively predicted psychosomatic symptoms, and the indirect effect was negatively significant, indicating the presence of mediation. The model explained 30% of the variance in down-regulation ($R^2$ = .30, $F$(2, 154) = 32.35, $p$ <.001), and 34% of the variance in psychosomatic symptoms ($R^2$ = .34, $F$(3, 153) = 26.76, $p$ <.001).

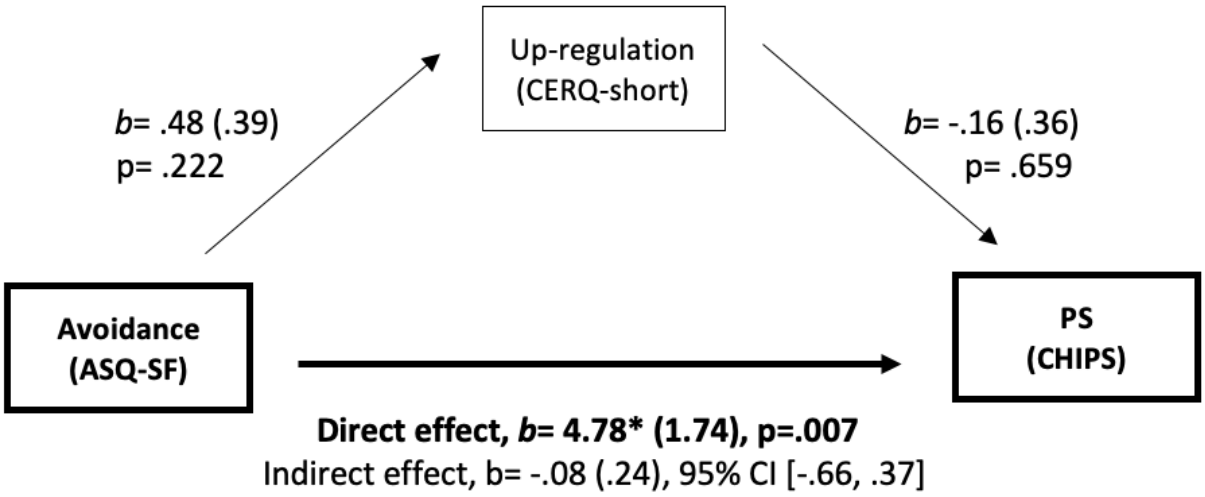


*Figure 3:* Model 3 mediation results (*b = unstandardised beta coefficients; **p* < .01)

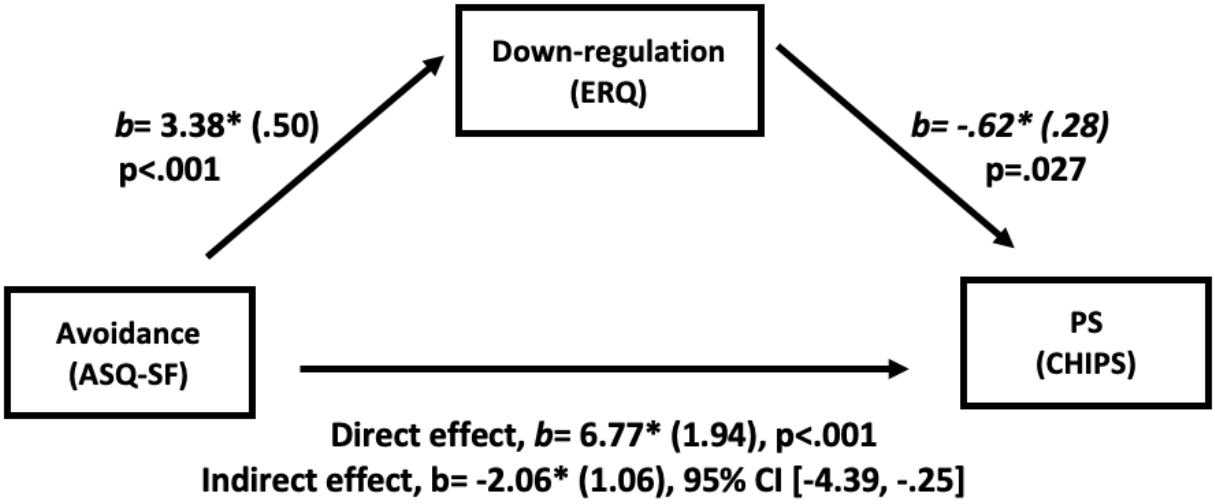


*Figure 4:* Model 4 mediation results (*b = unstandardised beta coefficients; *p* < .05)

Overall, these results showed that: 1) emotion up-regulation does not significantly mediate the relationship of neither attachment anxiety nor attachment avoidance with psychosomatic symptoms, and 2) emotion down-regulation partially mediates the relationship between attachment avoidance and psychosomatic symptoms.

## Discussion

This study aimed to investigate the mediatory role of maladaptive emotion regulation in the relationship between insecure attachment and psychosomatic symptoms, while controlling for perceived stress. It was hypothesised that emotion up-regulation would positively mediate the relationship between attachment anxiety and psychosomatic symptoms, and emotion down-regulation would positively mediate the relationship between attachment avoidance and psychosomatic symptoms. Attachment anxiety did not predict psychosomatic symptoms, neither directly nor through emotion regulation. Emotion down-regulation partially mediated the relationship between avoidant attachment and psychosomatic symptoms, but in a negative direction.

Attachment anxiety predicted greater emotion up-regulation, confirming previous assumptions (Girme *et al*., 2021), but emotion up-regulation did not directly impact psychosomatic symptoms. Nevertheless, previous studies suggested that emotion up-regulation may amplify psychosomatic symptoms in anxious attachment (Martin & Dahlen, 2005; Wearden *et al*., 2003). In explaining the present finding, perhaps buffering factors can reduce the negative impacts of emotion up-regulation in attachment anxiety (Simpson & Overall, 2014). Although anxious individuals perceive social support differently (Stanton & Campbell, 2014b), a study showed that responding appropriately to their attachment concerns helps in resolving their attachment insecurities (Simpson & Overall, 2014). Support perception perhaps reinforces the safety of anxious individuals and alleviates feelings of rejection and abandonment (Campbell & Marshall, 2011). Thus, attachment relationships should be viewed as mutual, where emotional outcomes are influenced by both individuals in an attachment relationship (Feeney & Collins, 2001). Moreover, a greater perception of psychosomatic symptoms in anxious attachment may be particularly linked to pain-related distress which was not specifically measured in this study (e.g. Sansone & Sansone, 2012). This suggests that psychosomatic symptoms in anxious individuals may stem from increased pain perception through rumination and catastrophising, rather than from the strategies themselves (Fasakhoudi *et al*., 2022). As such, the detrimental effects of emotion up-regulation on psychosomatic symptoms may be highly context-dependent (Pietromonaco & Powers, 2015).

The absence of a relation between attachment anxiety and psychosomatic symptoms was unexpected as this has been more strongly associated with symptom reporting in previous literature (Rapoza *et al*., 2016). Controlling for perceived stress may have resulted in the absence of this relation. Research demonstrated that perceived stress might exacerbate psychosomatic symptoms in anxious attachment and suggested that reducing stress would help alleviate these symptoms (Johnson *et al*., 2021). The findings of the present study confirm these assumptions with several potential explanations. Only when under greater levels of stress, anxious individuals: may experience an amplified activation of the stress response leading to increased blood cortisol, inflammation, and physical symptoms (e.g. Stanton & Campbell, 2014a),

increase symptom reporting as an attention-seeking behaviour (Campbell & Marshall, 2011), and lastly, experience somatosensory amplification and become hypersensitive to pain cues as the nervous system becomes more attentive to danger (Benham, 2006; Köteles & Witthöft, 2017; Le *et al*., 2020). This suggests an important role for perceived stress in anxious attachment when it comes to psychosomatic symptoms.

Attachment avoidance was associated with emotion down-regulation confirming the tendency of avoidant individuals to suppress emotions (Yang *et al*., 2018). However, a negative mediation was observed through emotion down-regulation. This suggests that emotion suppression in avoidant individuals may serve to relieve rather than worsen psychosomatic symptoms. Expressive suppression has been associated with internal arousal in avoidant attachment (Maunder & Hunter, 2001), so it might be that arousal emerges because of apprehending possibilities of help-seeking and emotional vulnerability (Rifkin-Graboi, 2008). Therefore, it is likely that negative impacts of emotion suppression persist only in individuals who suppress their emotions whilst experiencing the need to express them (Appleton *et al*., 2014). Whereas for avoidant individuals, suppression might enhance self-reliance and protect against anticipated social rejection leading to stress-response recovery after the cessation of the threat (Rifkin-Graboi, 2008). These explanations suggest that the adaptability of emotion regulation not only depends on situational contexts (Gross, 1998) but also on individual differences in how people perceive the functional role of an emotion regulation strategy (Soto *et al*., 2011). Another explanation might be that in some contexts, the adverse effects of emotion down-regulation in avoidant individuals are reciprocated by employing adaptive emotion regulation strategies like positive reappraisal (Karreman & Vingerhoets, 2012). For example, a study showed that when accompanied by positive reappraisal, expressive suppression is not associated with atypical physiologic reactivity (Raymond *et al*., 2019). However, another study showed that in relationship and intimacy contexts, avoidant individuals show greater use of suppression but not positive reappraisal (Winterheld, 2016). This suggests that avoidantly attached individuals may employ reappraisal effectively in general situations, but struggle to do so in interpersonal contexts (Pietromonaco & Powers, 2015). Lastly, it is possible that with the increased tendency to suppress emotions, avoidant individuals also become more likely to suppress discomfort from psychosomatic symptoms (Rapoza *et al*., 2016). This suggests that in both anxious and avoidant attachment, modulating symptom reporting may be an attachment behaviour which serves an activating role in the first and a deactivating role in the second (Stanton & Campbell, 2014a).

The results also revealed a direct positive relationship between avoidant attachment and psychosomatic symptoms. This is in line with previous studies which suggest that attachment avoidance predicts psychosomatic symptoms (e.g. Armitage & Harris, 2006). Therefore, these symptoms might not be caused by emotion suppression but rather by other factors. For example, even though avoidant individuals are more likely to suppress emotions of sadness, they have difficulty regulating their anger which

might also lead to negative affect contributing to psychosomatic symptoms (Brenning & Braet, 2013; Teixeira *et al*., 2022). Also, because avoidant individuals are more reluctant to seek support when encountering psychosomatic symptoms, their symptoms might worsen due to ongoing neglect (LaBelle *et al*., 2020). Similarly, the avoidantly attached are less likely to experience rewarding connections in intimate relationships which leaves them with poorer mental and physical health (Stanton & Campbell, 2014a). Since stress levels were controlled for, the results indicate that avoidant individuals may still exhibit psychosomatic symptoms regardless of their reported stress levels. This finding confirms the assumption that subjective stress levels may not match physiological stress levels in avoidant individuals (Maunder *et al*., 2006).

Whilst the study demonstrates the possible consequences of maladaptive emotion regulation in different attachment orientations, it is not without limitations. For example, these results do not infer causal relationships due to the cross-sectional nature of the study. Also, although the study showed a high power for medium-sized effects, the sample size was not enough to detect small ones, so future studies could replicate the study with a larger sample size. In addition, the results are exclusive to the specific strategies of expressive suppression, rumination, and catastrophising (Garnefski & Kraaij, 2007; Preece *et al*., 2019) as currently no comprehensive scale that measures the up-regulation and down-regulation of emotions which characterises attachment styles is available (Girme *et al*., 2021). Additionally, the general tendency of individuals to use certain strategies was measured; meaning that the observed effects of emotion regulation cannot be generalised to more specific contexts like interpersonal/social and pain-related stimuli and require future investigation (Pietromonaco & Powers, 2015). Similarly, the effects of factors like reappraisal, perceived social support, cultural differences, and attachment figure responsiveness should be considered (Butler *et al*., 2007; Karreman & Vingerhoets, 2012; Pietromonaco & Beck, 2019). Since this study inferred the importance of perceived stress, the effects of emotion regulation strategies on psychosomatic symptoms under different levels of stress should be measured (Jeffries *et al*., 2016). Lastly, it may be important to explore the possible role of perceived stress in the development of somatosensory amplification particularly in anxious attachment (Le *et al*., 2020).

In conclusion, the results revealed that emotion down-regulation negatively mediated the relation between attachment avoidance and psychosomatic symptoms while emotion up-regulation did not mediate the relation between attachment anxiety and psychosomatic symptoms. The findings suggest that emotion regulation emerges as a predictor for psychosomatic symptoms in avoidant but not anxious attachment. Specifically, it seems that emotion down-regulation can serve in reducing psychosomatic symptoms in avoidant individuals when controlling for stress. Future studies should explore the emotional influences of emotion regulation in insecure attachment across diverse contexts.

## Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article and/or its supplementary materials.

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