ORIGINAL ARTICLE

Attachment Insecurity and Depression: The Mediating Role of Interpersonal Emotion Regulation

Irene Messina[1,2] · Roberto Maniglio[1] · Pietro Spataro[1]

Abstract

Background Insecure attachment is predictive of depression and emotion regulation is largely recognized as a mediator of such association. Despite the ability to refer to the social context to regulate emotions can be considered as a key aspect of depressive dynamics, most studies focused on intrapersonal forms of emotion regulation neglecting its interpersonal forms. In the present study, we investigated the role of interpersonal emotion regulation (IER) as mediator of the association between attachment insecurity and depression.

Methods Data were collected from 630 adults using scales assessing individual differences in the use of IER strategies, IER difficulties, attachment orientations, and depression symptoms. We tested the correlations between the considered variables and, additionally, a latent structural equation model was tested to determine the mediating role of IER in the relationship between attachment (anxiety and avoidance) and depression.

Results Positive associations between the use of IER and anxious attachment, and negative associations with avoidant attachment were found. Depression symptoms were significantly predicted by difficulties in IER (Venting and Reassurance-Seek), but not by IER strategies. The mediation analyses showed that attachment insecurity statistically predicted depression, mediated by IER difficulties.

Conclusions These results account for increasing risk of depression due to a vicious cycle in which anxious attached individuals use venting and reassurance-seek with the aim of decreasing their negative emotions, but reach the opposite result of exacerbating negative moods.

Keywords Depression · Attachment anxiety · Attachment avoidance · Interpersonal emotion regulation · Venting · Reassurance-seek

Introduction

"*Depression is expressed in the way individuals behave and interact, and, in turn, their interpersonal characteristics shape their risk for, and experiences of, the disorder*" (Joiner & Timmons, 2009). Among the interpersonal characteristics of depression, the ability to refer to the social context to regulate emotions can be considered as a key aspect of depressive dynamics. In this respect, attachment theory can be a useful theoretical framework for understanding the aetiology and development of depressive symptoms, in association with the individual tendency to turn to others to alleviate distress (Bowlby, 1980). Indeed, in depression-prone individuals, insecure attachment may interfere with the emotion-regulatory function of the attachment system (Shaver & Mikulincer, 2007; Mikulincer & Shaver, 2008), resulting in disturbed or impoverished interpersonal functioning, which in turn may sustain or exacerbate depressive symptomatology.

The association between insecure attachment and depressive disorders is well-established in the literature (for meta-analyses see: Dagan et al., 2018; Spruit et al., 2020), accounting for the hypothesis that early experiences in non-secure attachment relationships place an individual at high risk for developing a cognitive framework that increases their vulnerability to depression following stressful life

✉ Irene Messina
  irene.messina@unimercatorum.it

[1] Universitas Mercatorum, Piazza Mattei 10, Roma 00186, Italy

[2] Department of Psychology and Cognitive Science, University of Trento, Trento, Italy

events (Morley & Moran, 2011). In adult attachment research, insecure attachment is described using the two dimensions of *attachment anxiety*, characterized by fear of abandonment and preoccupation with one's attachment figure, and *attachment avoidance*, characterized by fear of intimacy and reluctance to rely on others for the satisfaction of interpersonal needs (Brennan et al., 1998). Different effects of attachment anxiety and attachment avoidance on depressive symptoms have been reported in the literature. Overall, while there is strong support for the association between attachment anxiety and depressive symptoms (Dagan et al., 2018; Zheng et al., 2020; Dagnino et al., 2017), the evidence concerning the association between attachment avoidance and depressive symptomatology is mixed, with some studies reporting non-significant associations (Jinyao et al., 2012; Dagan et al., 2018) and others reporting weaker but significant associations (Zheng et al., 2020).

Given the difficulty in changing attachment patterns (because of the continuity of attachment-related behaviours from childhood to adulthood: Bowlby 1988), recent research trends have been mostly focused on the examination of the mediating effects of other variables, which may be better modified through clinical interventions. Among these variables, the use of maladaptive emotion regulation strategies has emerged as a key element for the reduction of psychological difficulties associated with attachment (Grecucci et al., 2018). According to the model proposed by Mikulincer and Shaver (2007), secure individuals may activate their attachment system and turn to internalized representations of attachment figures or to actual supportive others in order to alleviate their distress, ensuring the flexibility and effectiveness of emotional experiences and emotion regulation processes. In contrast, anxious individuals tend to hyper-activate their attachment system, resulting in the habitual use of maladaptive emotion regulation strategies which intensify emotional experiences, such as rumination and catastrophizing (Burnette et al., 2009; Henschel et al., 2020; Mikulincer & Shaver, 2019). Avoidant individuals, on the other hand, tend to inhibit or block the activation of the attachment system through the habitual use of emotion regulation strategies based on emotional suppression (Winterheld, 2016; Mikulincer & Shaver, 2019), especially sadness suppression (Brenning & Braet, 2013). Early evidence on the mediating effects of such emotion regulation strategies on the relation between attachment and depression has shown that hyper-activating strategies mediate the association between anxious attachment and depressive symptomatology, whereas mixed results have been obtained in support of the role of deactivating strategies as mediators between avoidant attachment and depressive symptoms (Malik et al., 2015).

Crucially, most of the studies described above have been focused on intra-personal emotion regulation processes, in line with the majority of research in this field. However, if we consider the relational nature of the attachment system, the influence of interpersonal strategies of emotion regulation should be taken into consideration with more attention. Interpersonal Emotion Regulation (IER) refers to efforts within social interactions in the pursuit of a regulatory goal, including all that ways by which individuals rely on others to regulate their emotion (Zaki & Williams, 2013; Dixon-Gordon et al., 2015; Messina et al., 2021; Grecucci et al., 2021). The interpersonal components of emotion regulation are the core of a model of depression proposed by Marroquín (2011), who started from the large evidence on the buffering role of social support in preventing depression in times of adversity, and then proposed IER strategies as possible mediators of such influence. According to the author, depression is negatively influenced by the lack of opportunities to interpersonally regulate emotions in socially supporting contexts, and in turn the use of effective interpersonal regulation processes can be a protective factor for depression, to the extent to which they weaken the effects of emotional distress. Other authors (Hoffmann, 2014; Barthel et al., 2018; Evraire & Dozois, 2011), however, have argued that the interpersonal context can also be a source of emotion dysregulation, such as in the case of one's exaggerated dependency on others to regulate emotions. Evidence in support of such views are mixed. Self-disclosure (Kahn & Garrison, 2009) and social perspective taking (Altan-Atalay & Saritas-Atalar, 2019) are examples of adaptive interpersonal emotion regulation strategies that seem to be negatively associated with self-reported depression. But, more frequently, early research reported that individuals with higher scores of depression tend to rely on soothing (Hofmann et al., 2016; Koç et al., 2019; Gökdağ, 2021, but see also: Ray-Yol et al., 2020), vent and excessive reassurance-seeking strategies (Dixon-Gordon et al., 2018; (Messina et al., 2021a; Joiner et al., 1999) to regulate their emotions. In a recent study (Gökdağ, 2021), the use of soothing to regulate emotions resulted as a significant mediator in the association between attachment anxiety and depression, but such effect was not significant when controlling for social support. Thus, the author concluded that the need to be soothed while regulating negative emotions may push people to seek social support, which can protect them from psychological distress. It is possible, however, that other forms of IER strategies may have different effects in the interplay between depression and attachment. For example, interpersonal venting or excessive reassurance-seeking may keep back potentially supporting others.

In sum, we know that (a) attachment insecurity, especially high attachment anxiety, may be a risk factor for depression,

(b) emotion regulation is an important element which mediates the association between attachment and depression, and (c) the mediating role of interpersonal forms of emotion regulation is still under-investigated, despite the interpersonal nature of attachment. Considering this background, the aim of the present study was to provide initial evidence in support of the hypothesis that interpersonal emotion regulation strategies can mediate the association between attachment insecurity and depression. We predicted that the specific form of attachment insecurity orientation (anxiety or avoidance) may correspond to different tendencies in interpersonal emotion regulation, which in turn may differently influence the presence of depression symptoms. In the case of attachment anxiety, we expected that high levels of dysregulation (i.e., an excessive use of vent and reassurance-seeking) should exacerbate depressive symptoms. In the case of attachment avoidance, the mixed evidence coming from the literature does not allow us to formulate clear hypotheses, but our expectation is that, in these individuals, the difficulty in turning to others to receive help in case of distress should be a risk factor for depression.

Method

Participants and Data Collection

630 volunteers (496 females), with an age range between 18 and 80 years ($M = 41.01$, $SD = 13.86$), were involved in the

Table 1 Demographic characteristics of participants ($N = 630$)

Variable	Frequency	Percentage
Gender		
Female	496	78.73%
Male	133	21.11%
Other	1	0.16%
Age		
< 20	35	5.56%
21–30	142	22.54%
31–40	142	22.54%
41–50	134	21.27%
51–60	127	20.16%
61–70	41	6.51%
>70	9	1.43%
Education		
Graduate degree	96	15.24%
University Graduate	219	34.76%
High School Graduate	281	44.60%
Secondary School Graduate	34	5.40%
Relationship status		
Single	159	25.24%
Relationship without cohabitation	117	18.57%
Relationship and cohabitation	354	56.19%

study. The demographic characteristics of our sample are summarized in Table 1.

The questionnaires were prepared using Google Forms and disseminated through different social media. We used a snowball sampling strategy for data collection: the Google Form link was initially shared on social media and participants were encouraged to pass it on to others, with a focus on recruiting the general public. This study received approval from the Ethical Committee for Psychological Research at University of xxx. Informed consent was obtained from all participants included in the study.

Measures

Attachment Orientations. Attachment orientations were assessed using the questionnaire Experiences in Close Relationships - Revised (ECR-R; Fraley et al., 2000; Italian version: Calvo, 2008). It consists of 36 items, comprising two scales (18 items for each scale) that assess attachment anxiety (item example: "*I'm afraid that I will lose my partner's love*") and attachment avoidance (item example: "*I prefer not to show a partner how I feel deep down*"). Participants indicate their agreement with each item on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating greater degrees of attachment anxiety and/or avoidance. In a previous study examining the psychometric properties of the Italian version of the ECR-R (Busonera et al., 2014), good internal consistencies have been reported for both the anxiety ($\alpha = 0.90$) and avoidance ($\alpha = 0.89$) scales.

Interpersonal Emotion Regulation Strategies. The use of interpersonal emotion regulation strategies was assessed with the *Interpersonal Emotion Regulation Questionnaire* (IERQ; Hofmann et al., 2016; Italian version: Messina et al., 2022a). The items of the IERQ have been selected from an empirically-derived item pool obtained from participants' responses to open-ended questions investigating the way they use others to regulate emotions (Hofmann et al., 2016). Thus, the 20 items emerging from this data-driven procedure should cover the interpersonal strategies most frequently used to regulate emotions. Exploratory and confirmatory factor analyses resulted in a four-factor structure, including: (a) *Enhancing Positive Affect*, which describes the tendency to share emotions with others to increase feelings of happiness and joy (e.g. "*I like being around others when I'm excited to share my joy*"); (b) *Perspective Taking*, which regards the use of others to be reminded not to worry and that others may have it worse (e.g. "*Having people remind me that others are worse off helps me when I'm upset*"); (c) *Soothing*, which consists of seeking out comfort and sympathy from others (e.g. "*I look for other people to offer me compassion when I'm upset*"); and (d) *Social*

Modeling, which involves looking to others to see how they might cope with a given situation (e.g. "*It makes me feel better to learn how others dealt with their emotions*"). For each item, participants are asked to rate how much the item is true for them on a Likert scale ranging from 1 ("*not true for me at all*") to 5 ("*extremely true for* me"). The Italian version of the questionnaire showed good psychometric properties, with high Cronbach alpha coefficients for all subscales (α's between .78 and .85) ((Messina et al., 2022a).

Interpersonal Emotion Dysregulation. The assessment of clinically-relevant difficulties in interpersonal emotion regulation were assessed with the questionnaire *Difficulties in Interpersonal Emotion Regulation* (DIRE; Dixon-Gordon et al., 2018; Italian version: Messina et al., 2022b). The DIRE is a scenario-based measure, in which participants are invited to indicate, for each scenario, the likelihood that they would respond in the ways described by each of 21 items. First, three scenarios are presented (feeling upset about a time-sensitive project that needs to be completed for school or work; fighting with a significant other; and thinking that friends have been avoiding you); for each scenario, individuals are asked to rate how distressed they would feel in that scenario on a continuous scale ranging from 0 ("*not at all distressed*") to 100 ("*extremely distressed*"). Then, participants are asked to indicate the likelihood that they would respond in the way described in each item, using a Likert scale ranging from 1 ("*very unlikely*") to 5 ("*very likely*"). The DIRE allows the assessment of two forms of difficulties in interpersonal emotion regulation: *Vent* (e.g. "*Raise your voice or criticize your friends to express how you feel*") and *Reassurance-seek* (e.g. "*Keep asking for reassurance*").

In the validation study of the Italian version of the DIRE ((Messina et al., 2022b), good internal consistencies have been reported for both the Vent (α = 76) and Reassurance-Seek (α = 0.87) subscales. It should be noted that the DIRE includes two other subscales tapping difficulties in intrapersonal regulation strategies, known as *Accept* (e.g., "*Simply notice your feelings*") and *Avoid* (e.g., "*Distract yourself from how you are feeling*"). Given that the present study was specifically focused on interpersonal emotion regulation strategies, these subscales were not included in the following statistical analyses.

Depression symptoms. Symptoms of depression were measured with the Depression subscale of the Symptom CheckList 90 – Revised (SCL-90; Derogatis, 1977, 1994; Italian adaptation: Prunas et al., 2012). The depression subscale consists of 16 items (e.g., "*Feeling no interest in things*"). Participants are asked to indicate whether and to what extent they experienced each symptom during the past two weeks, using a Likert scale from 1 (*not at all*) to 5 (*very much*). Scores were averaged across the full scale, with higher values indicating more depressive symptoms.

Data analysis. JASP (JASP Team, 2023) was used to perform statistical analyses, since the structural equation module of this software is based on Rosseel's R package, *lavaan* (Rosseel, 2012). We tested two partially latent structural regression models, as depression symptoms, attachment anxiety and avoidance had single indicators, whereas IER strategies and IER difficulties had multiple indicators (see Figs. 1 and 2). The Maximum Likelihood Estimation was used as the estimation method. To evaluate the fit, several indices were employed, including the Chi square
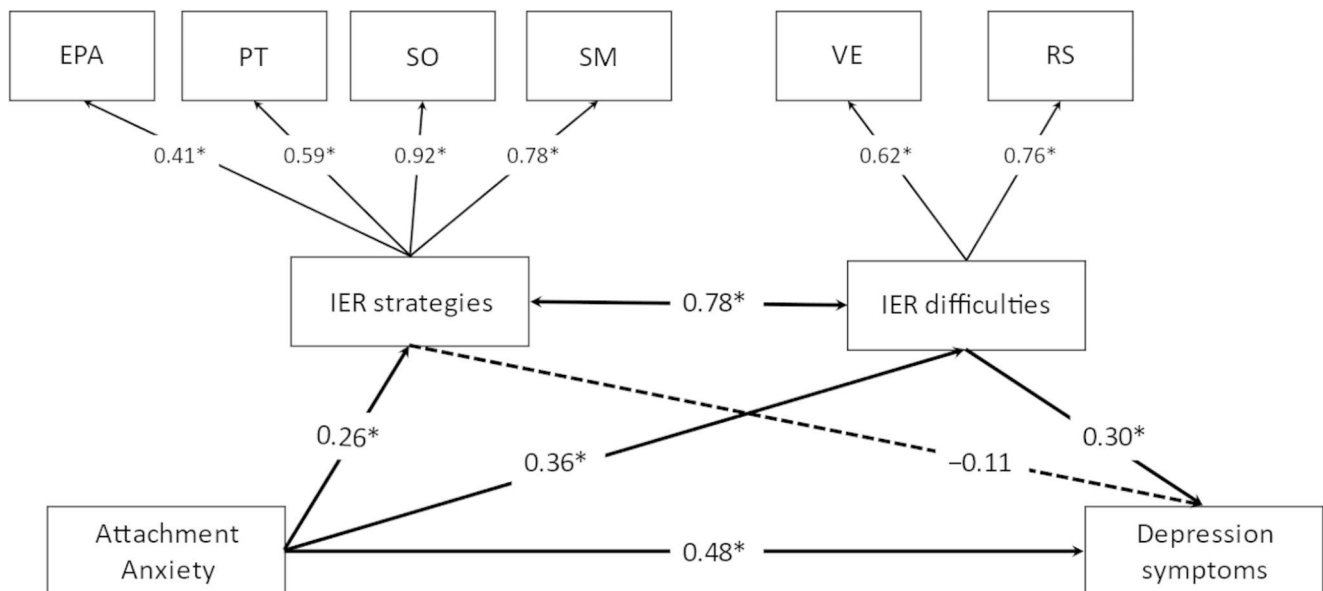

Fig. 1 Partially latent structural regression model predicting psychological distress from attachment anxiety, IER strategies and IER difficulties. Dashed lines refer to non-significant associations

Note. EPA = Enhancing Positive Affect; PT = Perspective Taking; SO = Soothing; SM = Social Modeling; VE = Venting; RS = Reassurance-Seek
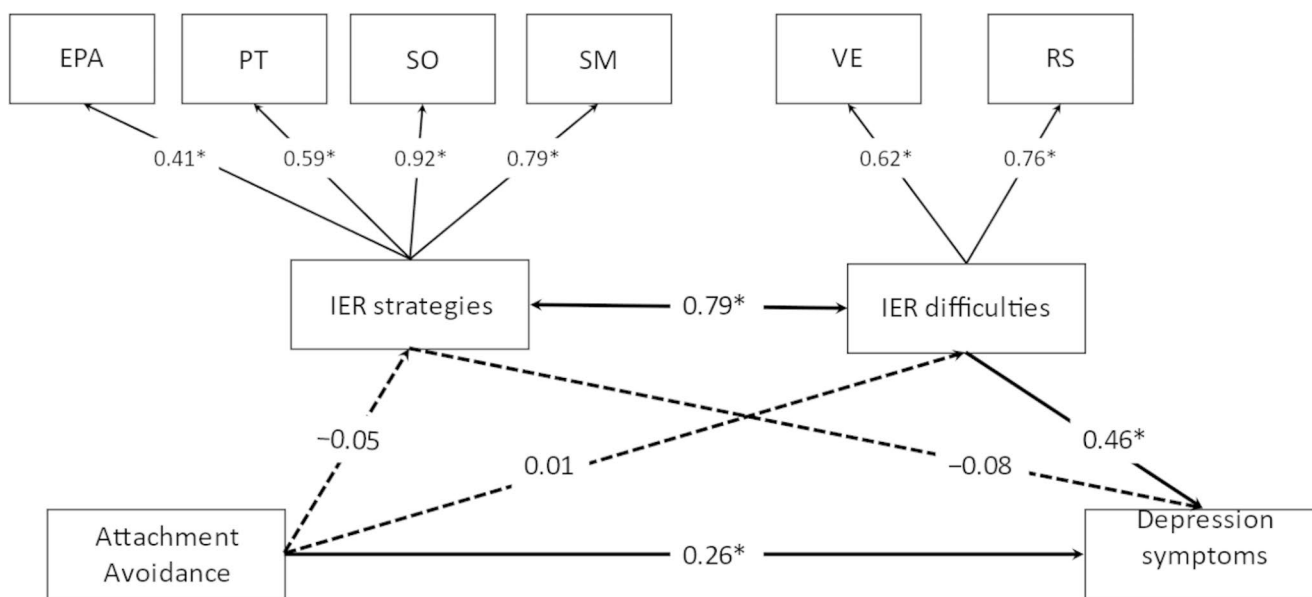
Fig. 2 Partially latent structural regression model predicting psychological distress from attachment avoidance, IER strategies and IER difficulties. Dashed lines refer to non-significant associations

Note. EPA = Enhancing Positive Affect; PT = Perspective Taking; SO = Soothing; SM = Social Modeling; VE = Venting; RS = Reassurance-Seek

Table 2 Descriptive statistics for the variables examined in the present study

Variables	Mean (SD)	Range	Skewness	Kurtosis
Depression (SCL-90)	2.25 (0.93)	1–5	0.69	−0.33
Attachment anxiety (ECR-R)	53.88 (22.03)	18–122	0.39	−0.71
Attachment avoidance (ECR-R)	49.43 (20.34)	18–121	0.58	−0.16
Enhancing positive affect (IERQ)	19.93 (4.03)	5–25	−0.82	0.47
Perspective taking (IERQ)	12.90 (4.42)	5–25	0.32	−0.35
Soothing (IERQ)	14.13 (4.91)	5–25	0.09	−0.71
Social modeling (IERQ)	15.88 (4.44)	5–25	−0.20	−0.32
Vent (DIRE)	2.32 (0.84)	1–5	0.50	−0.22
Reassurance-seek (DIRE)	2.87 (1.03)	1–5	−0.02	−0.78

statistic and degrees of freedom (ratio < 2.5 and below good, < 5 acceptable), the comparative fit index (CFI > 0.95 good, > 0.90 acceptable), the goodness of fit index (GFI > 0.95 good, > 0.90 acceptable), the root mean square error of approximation (RMSEA < 0.06 and below good, < 0.10 acceptable) and the standardized root mean square residual (SRMR < 0.08 acceptable) (Hu & Bentler, 1999; Kline, 2016).

Results

Descriptive statistics and preliminary analyses Table 2 illustrates descriptive statistics for the variables measured in the present study. As can be noted, skewness and kurtosis values were in all cases between −1 and +1, suggesting that the distributions of our variables were fairly normal and that parametric statistics could be applied. Potential gender differences were investigated with a series of t-tests for independent samples (with the Welch correction for unequal variances, where necessary). Significant results were obtained only in two cases: specifically, females obtained higher scores than males in the Depression subscale of the SCL-90 [$M = 2.32$ vs. $M = 2.01$, $t(226.13) = -3.49$, $p = .001$] and the Enhancing Positive Affect subscale of the IERQ [$M = 20.23$ vs. $M = 18.90$, $t(626) = -3.41$, $p = .001$]. All other differences fell below the standard significance level [$t(626) < 1.73$, $p > .083$]. Regarding age and education, Table 3 shows that age was negatively associated with the Depression subscale of the SCL-90, the Attachment Anxiety subscales of the ECR-R, the Soothing and Social Modeling subscales of the IERQ, and the Vent and Reassurance-Seek subscales of the DIRE, but positively associated with the Attachment avoidance subscale of the ECR-R. Similarly, education was negatively associated with the Depression subscale of the SCL-90, the Attachment Anxiety and Avoidance subscales of the ECR-R, and the Vent subscale of the

Table 3 Pearson's correlations

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Age	1.00										
2. Education	0.05	1.00									
3. Depression (SCL-90)	**−0.22**	**−0.12**	1.00								
4. Attachment anxiety (ECR-R)	**−0.18**	**−0.10**	**0.56**	1.00							
5. Attachment avoidance (ECR-R)	**0.14**	−0.09	**0.26**	**0.35**	1.00						
6. Enhancing positive affect (IERQ)	−0.07	−0.04	**0.16**	**0.13**	**−0.10**	1.00					
7. Perspective taking (IERQ)	0.02	0.00	0.07	**0.09**	0.01	**0.27**	1.00				
8. Soothing (IERQ)	**−0.14**	**0.11**	**0.24**	**0.24**	−0.03	**0.38**	**0.54**	1.00			
9. Social modeling (IERQ)	**−0.14**	0.02	**0.21**	**0.18**	**−0.08**	**0.34**	**0.63**	**0.68**	1.00		
10. Vent (DIRE)	**−0.14**	−0.07	**0.32**	**0.28**	0.09	0.17	**0.27**	**0.45**	**0.34**	1.00	
11. Reassurance-seek (DIRE)	**−0.24**	0.05	**0.27**	**0.26**	−0.03	**0.30**	**0.30**	**0.63**	**0.50**	**0.48**	1.00

DIRE, but positively associated with the Soothing subscale of the IERQ.

Pearson's correlations Table 3 reports Pearson's correlation between all variables. As can be noted, the Depression subscale of the SCL90 was positively correlated with the Attachment anxiety and avoidance subscales of the ECR-R, suggesting that participants who were more depressed were also more likely to show high levels of attachment anxiety and avoidance. Regarding interpersonal emotion regulation strategies, we found that Depression was positively correlated with the Enhancing positive affect, Soothing and Social Modeling subscales of the IERQ, as well as with the Vent and Reassurance-Seek subscales of the DIRE. Thus, depressed participants were more likely to share positive emotions with others, to seek comfort from others and to look at others' ways to deal with emotional situations; in addition, they were also more likely to react to emotional situations by using negative outward expressions and by asking others for reassurance.

In line with our hypotheses, we also found that attachment anxiety was positively related to the use of all interpersonal emotion regulation strategies. Attachment avoidance, on the other hand, was negatively associated with the Enhancing positive affect and Soothing subscales of the IERQ, but positively associated with the Vent subscale of the DIRE: hence, participants having high levels of attachment avoidance were less likely to share emotions with others to increase feelings of happiness and to seek comfort from others but were more likely to use venting strategies.

Regression analyses Regression analyses were performed according to the method outlined by Kenny, Kashy, and Bolger (1998; see also Frazier, Tix, & Barron, 2004). First, depression scores were regressed on attachment orientations, to establish that there was an effect to mediate. Demographic variables (gender, age and education) were included in the first step, to remove their effects. Table 4 shows that

depression scores were positively and significantly predicted by gender, attachment anxiety and attachment avoidance, and negatively predicted by age. Second, interpersonal emotion regulation scores were regressed on attachment orientations, while controlling for demographic variables, to determine whether the paths linking the mediators with the predictor variables were also significant. As reported in Table 5, the use of all interpersonal emotion regulation strategies was positively predicted by Attachment Anxiety, but negatively predicted by Attachment Avoidance (with the exception of the Perspective taking subscale of the IERQ and the Vent subscale of the DIRE). Lastly, depression scores were regressed on both attachment orientations and interpersonal emotion regulation strategies. This allowed us to have an estimate of the relations between depression and attachment orientations controlling for interpersonal emotion regulation strategies. As illustrated in Table 4, depression scores were positively predicted by gender, Attachment Anxiety, Attachment Avoidance, Social Modeling and Venting, and negatively predicted by age.

Latent structural regression models Figs. 1 and 2 depict the tested models. As can be noted, the latent factor IER strategies had four indicators (corresponding to the four subscales of the IERQ), whereas the latent factor IER difficulties had two indicators (corresponding to the two subscales of the DIRE). We started by evaluating the measurement models for these two latent factors. The model presented an almost perfect fit to data: $\chi^2(2) = 1.96$, $p = .37$; $\chi^2/df = 0.98$; CFI = 1.00; GFI = 0.99; RMSEA < 0.001 (90% CI = 0.000–0.078); SRMR = 0.007, suggesting that the latent variables were adequately described by their observed indicators.

Next, we tested the fit of the two models illustrated in Figs. 1 and 2. Beginning from the attachment anxiety model, the fit to the data was good: $\chi^2(10) = 28.28$, $p = .002$; $\chi^2/df = 2.82$; CFI = 0.99; GFI = 0.99; RMSEA = 0.053 (90% CI = 0.031–0.077); SRMR = 0.025. From Fig. 1, it can be seen that Attachment Anxiety was positively

Table 4 Hierarchical regressions predicting depression scores

Predicted Measure		Predictors	β	t	ΔR^2	F Change
Depression	Step 1	Age	−0.15	−4.70**	0.08	$F=19.17$**
		Gender	0.15	4.81**		
		Education	−0.04	−1.24		
	Step 2	Attachment anxiety	0.49	14.22**	0.29	$F=144.91$**
		Attachment avoidance	0.11	3.18**		
Depression	Step 1	Age	−0.12	−3.74**	0.08	$F=19.17$**
		Gender	0.13	4.07**		
		Education	−0.04	−1.32		
	Step 2	Attachment anxiety	0.43	12.02**	0.32	$F=41.58$**
		Attachment avoidance	0.13	3.74**		
		Enhancing positive affect	0.04	1.19		
		Perspective taking	−0.07	−1.87		
		Soothing	0.01	0.19		
		Social Modeling	0.09	1.97*		
		Vent	0.11	3.12**		
		Reassurance-seek	0.03	0.71		

Table 5 Hierarchical regressions predicting depression scores

Predicted Measure		Predictors	β	t	ΔR^2	F Change
Enhancing positive affect (IERQ)	Step 1	Age	−0.02	−0.65	0.02	$F=5.66$**
		Gender	0.14	3.61**		
		Education	−0.01	−0.47		
	Step 2	Attachment anxiety	0.19	4.49**	0.03	$F=12.83$**
		Attachment avoidance	−0.16	−3.87**		
Perspective taking (IERQ)	Step 1	Age	0.04	1.14	0.00	$F=0.37$
		Gender	−0.03	−0.87		
		Education	0.00	0.18		
	Step 2	Attachment anxiety	0.11	2.64**	0.01	$F=3.52$*
		Attachment avoidance	−0.03	−0.81		
Soothing (IERQ)	Step 1	Age	−0.08	−2.03*	0.03	$F=7.79$**
		Gender	0.05	1.42		
		Education	0.14	3.69**		
	Step 2	Attachment anxiety	0.28	6.78**	0.06	$F=23.04$**
		Attachment avoidance	−0.11	−2.61**		
Social Modeling (IERQ)	Step 1	Age	−0.07	−1.95*	0.02	$F=4.63$**
		Gender	0.04	1.06		
		Education	0.04	1.10		
	Step 2	Attachment anxiety	0.22	5.30**	0.04	$F=15.31$**
		Attachment avoidance	−0.15	−3.49**		
Vent (DIRE)	Step 1	Age	−0.10	−2.48**	0.02	$F=6.22$**
		Gender	0.06	1.74		
		Education	−0.03	0.95		
	Step 2	Attachment anxiety	0.25	6.08**	0.06	$F=23.06$**
		Attachment avoidance	0.01	0.45		
Reassurance-seek (DIRE)	Step 1	Age	−0.19	−4.93**	0.07	$F=16.48$**
		Gender	0.09	2.49**		
		Education	0.09	2.45**		
	Step 2	Attachment anxiety	0.27	6.56**	0.06	$F=21.56$**
		Attachment avoidance	−0.09	−2.22*		

associated with IER strategies ($\beta = 0.26$, $z = 5.26$, $p < .001$), IER difficulties ($\beta = 0.36$, $z = 7.25$, $p < .001$), and depression ($\beta = 0.48$, $z = 12.89$, $p < .001$). Importantly, IER difficulties ($\beta = 0.30$, $z = 3.07$, $p = .002$), but not IER strategies ($\beta = -0.10$, $z = -1.17$, $p = .23$), were positively associated with depression symptoms. In agreement, the analysis of the indirect effects revealed that IER difficulties (B = 0.005, 95%CI [0.002, 0.008], $p = .004$), but not IER strategies (B = −0.001, 95%CI [−0.003, 0.001], $p = .24$), mediated the association between Attachment Anxiety and depression. The overall model explained about 37% of the variance of depression and the mediation by IER strategies accounted for about 19.5% of the total effect of Attachment Anxiety on depression.

– insert Fig. 1 about here –.

Regarding Attachment Avoidance, the fit of the model was acceptable: $\chi^2(10) = 51.80$, $p < .001$; $\chi^2/df = 5.18$; CFI = 0.97; GFI = 0.99; RMSEA = 0.081 (90% CI = 0.060–0.104); SRMR = 0.030. From Fig. 2, it can be seen that (a) Attachment Avoidance was positively associated with depression symptoms ($\beta = 0.26$, $z = 6.77$, $p < .001$), but not with IER strategies ($\beta = -0.05$, $z = -1.24$, $p = .21$) or IER difficulties ($\beta = 0.02$, $z = 0.37$, $p = .70$), and (b) IER difficulties ($\beta = 0.46$, $z = 4.23$, $p < .001$), but not IER strategies ($\beta = -0.08$, $z = -0.87$, $p = .38$), were positively associated with depression symptoms. In this model, the analysis of the indirect effects revealed that neither IER difficulties (B = 0.0002, 95%CI [−0.000, 0.001], $z = 0.71$, $p = .47$) nor IER strategies (B = 0.0003, 95%CI [−0.001, 0.002], $z = 0.37$, $p = .70$) mediated the association between Attachment Avoidance and depression. The overall model explained about 23% of the variance of depression.

Discussion

Attachment orientations are crucial for understanding emotion dysregulation in depression. When regulating emotions, avoidant individuals attempt to block or inhibit any emotional state in order to keep attachment needs and tendencies deactivated, whereas anxious people tend to hyper-activate their attachment needs, and they may focus on and even exaggerate them. Beyond intra-personal emotion regulation, such different emotion regulation styles may be reflected in individual differences in the ability to refer to others to regulate their emotions. Despite the rising importance of interpersonal emotion regulation (IER), a limited number of studies have been conducted until now to evaluate its adaptive value in association to psychopathology. The current study focused on IER strategies as mediators of the relationships between attachment anxiety/avoidance and depressive symptomatology.

In line with extensive meta-analyses on the association between attachment styles and depression (Dagan et al., 2018; Spruit et al., 2020), we confirmed that insecure attachment may be a risk factor for depression. In our sample, both anxious and avoidant attachment orientations were predictive of higher levels of depressive symptomatology, with a stronger association in the case of attachment anxiety. Starting from Bowlby (1973), childhood experiences of separation and loss, and the consequent attachment insecurity, have been theorized to be relevant risk factors for the onset of depressive symptoms in adulthood. More recent contributions have identified negative self-representations, difficulties in interpersonal relationships and, as in the present study, deficits in the use of emotion regulation strategies as key factors that seems to mediate this association (Mikulincer & Shaver, 2012).

Extending previous evidence on emotion regulation as a mediator of the link between attachment and depression, we focused on interpersonal forms of regulation. First, we found that different attachment orientations were associated with different IER styles, with the use of most IER strategies being positively correlated with attachment anxiety and negatively correlated with attachment avoidance. Although there are few empirical studies focusing on the relationship between attachment orientations and IER, the results of the present study align with the available literature. Namely, we replicated the conclusions reported by Gökdağ (2021), who also found IER strategies to be positively related to attachment anxiety, but negatively related to attachment avoidance. Our data are also in line with the Hoffmann et al. (2016) study, in which anxious attachment style was associated with a more frequent use of IER strategies. Moreover, xxxx (in press) reported that the differences in IER styles associated with attachment orientations were more relevant than the corresponding differences in intra-personal regulation styles. Considering that avoidant individuals are more prone to the use of autonomous forms of emotion regulation (e.g. suppression) (Malik et al., 2015), it is possible that IER strategies may play a less relevant role in determining the onset of depression in this group. In our view, the difficulty in turning to others to regulate distress (in avoidant individuals) and the exaggerate dependency on others for emotion regulation (in anxious individuals) are, respectively, clear manifestations of the attachment system deactivations and hyper-activations described in the emotion regulation theory of attachment (Mikulincer & Shaver, 2008; Shaver & Mikulincer, 2007). Thus, our results provide strong support for the usefulness of conceptualizing attachment in terms of emotion regulation styles.

The latent structural regression models showed that IER strategies and IER difficulties were highly correlated with each other. But, when considered within the same model,

only IER difficulties were significantly predictive of depression scores. This result may explain the variety of results coming from previous studies which reported the associations of psychopathology with difficulties in IER (assessed with the DIRE: Dixon-Gordon et al., 2018; Messina et al., 2022a; Baer et al., 2022), as well as with individual differences in the use of IER strategies (assessed with the IERQ: Hofmann et al., 2016; Koç et al., 2019; Abasi et al., 2021; Messina et al., 2022b), and it extends these findings tracking a limit between individual differences within 'physiological' use of IER strategies, and maladaptive form of IER that may give rise to depression. This difference may also explain the results that the association to psychological distress was not significant when controlling for social support provided by Gökdağ (2021). In fact, soothing could be effective when it is effective in providing others' support, whereas excessive reassurance seeking may negatively affect social support. Thus, on the basis of the present data, we can hypothesize a continuum in the use of IER, in which only extreme manifestations (IER difficulties) are associated with depression.

Among the IER strategies considered in the present study, venting emerged as the most important predictor of depression, since it mediated the association between anxious attachment orientations and depression. The maladaptive nature of venting can be explained on the basis of the cognitive neo-association theory (Berkowitz, 2012), which affirms that negative affect automatically stimulates associated thoughts, memories, expressive motor reactions, and physiological responses. In line with this theory, venting may have the effect of keeping angry feelings active in memory, reinforcing negative moods (Bushman et al. 2001; Bushman, 2002). In other words, venting can be viewed as a typical hyper-activating strategy. Consistent with this explanation, exaggerate venting has been associated with several forms of psychopathology, including depression (Dixon-Gordon et al., 2018; Malooly et al., 2017; Messina et al., 2022), and a higher risk of suicidality (Chou et al., 2017). This result accounts for the existence of a vicious cycle in which anxious-oriented individuals use venting with the aim of decreasing their negative emotions, but reach the opposite result of exacerbating negative emotions and increasing the risk of depression.

Reassurance-seek also mediated the association between attachment anxiety and depression. This finding can is consistent with previous mediation studies on reassurance seeking concerning attachment-related concerns (i.e., fear of rejection or abandonment) (Shaver et al., 2005; Joiner et al., 1999), as well as with the general use of threat-related reassurance seeking (i.e., any form of perceived threat) (Clark et al., 2020). It is also in line with the notion that reassurance seeking may reflect a hyper-activating attachment behaviour (Shaver et al., 2005). The maladaptive nature of excessive reassurance seeking has been explained with the cognitive–affective crossfire model (Joiner et al., 1993, 1999; Evraire & Dozois, 2011). According to this model, as depressive symptoms emerge, they may interact with continued excessive reassurance-seeking inducing negative interpersonal consequences (e.g., rejection, interpersonal conflicts, abandonment), which in turn, further exacerbate depressive symptoms expression, in a self-perpetuating vicious cycle.

Overall, these results suggest that excessive IER may be indicative of difficulties in emotional self-regulation. Different hypotheses can be formulated on the direction of the associations between IER difficulties and depression. A first hypothesis is that IER may reflect a personal deficit in regulating emotions autonomously, and this deficit may also explain vulnerability to depression. Attachment research offers a strong rationale in support of a causal link between attachment, IER difficulties and depression. Indeed, longitudinal studies have shown that anxious attachment in infancy is an initiator of pathways probabilistically associated with later psychopathology (Sroufe et al., 1999; Sroufe, 2005). And, emotion regulation is viewed as a long-term mechanism involved in the association between earlier attachment and future adaptation (Taylor et al., 1999; Mikulincer & Shaver, 2012). An alternative hypothesis is that individuals who experience more negative emotions due to depression, tend to turn to others more frequently to regulate such negative emotions. Both hypotheses are compatible with the cognitive–affective crossfire model, which views IER both activated by distress and, especially when paired with depressive affect, a producer of distress (Evraire & Dozois, 2011).

There are several noteworthy limitations in the present study. First, although our community sample was reasonably large, it was composed of non-clinical participants. In future studies, working on samples composed by individuals affected by depressive disorders may help to better establish the relationship between depression, attachment orientations and IER strategies. Second, this study relied entirely on self-report measures. With regard to attachment, the use of self-report may produce a bias because, due to the different styles of emotional suffering expression, depressive symptoms may be over-diagnosed in anxious individuals and under-diagnosed in avoidant individuals (Dozier & Lee, 1995). Future studies will likely benefit from the use of more sophisticated diagnostic procedures (e.g., clinician-administered diagnostic measures). Moreover, it would be interesting to investigate the role of IER in social interactions (e.g. romantic couples, friends, child-parent). Finally, although the mediation models involving venting were statistically significant, the cross-sectional design of our study makes it impossible to draw causal inferences and, overall,

IER strategies explained a small portion of variance in the association between attachment orientations and depression.

Future research with clinical samples are needed to confirm the hypothesis of the interplay between attachment and IER in the genesis, maintenance, duration, and recurrence of depressive disorders. Nevertheless, early evidence from the present study account for the hypothesis that different forms of IER may stem from attachment styles, and influence depressive symptoms. If confirmed, these associations would have relevant clinical implications. In particularly, effective therapeutic intervention should consider the importance of breaking the vicious circles produced by venting and excessive reassurance seeking and, in parallel, promoting the development of autonomous and more effective emotion regulation strategies.

References

Abasi, I., Hofmann, S. G., Kamjou, S., Moradveisi, L., Motlagh, A. V., Wolf, A. S., & Saed, O. (2021). Psychometric properties of interpersonal emotion regulation questionnaire in nonclinical and clinical population in Iran. Current Psychology, 1–11.

Altan-Atalay, A., & Saritas-Atalar, D. (2019). Interpersonal emotion regulation strategies: How do they interact with negative mood regulation expectancies in explaining anxiety and depression?. Current Psychology, 1–7.

Baer, M. M., Spitzen, T. L., Richmond, J. R., Tull, M. T., & Gratz, K. L. (2022). Associations of interpersonal and intrapersonal emotion regulation strategies to suicidal ideation and suicide attempts. *Journal of Contextual Behavioral Science*, *24*, 1–9.

Barthel, A. L., Hay, A., Doan, S. N., & Hofmann, S. G. (2018). Interpersonal emotion regulation: A review of social and developmental components. *Behaviour Change*, *35*(4), 203–216.

Berkowitz, L. (2012). A cognitive-neoassociation theory of aggression. *Theories of Social Psychology*, *2*, 99–117.

Bowlby, J. (1973). Attachment and loss. Volume II. Separation, anxiety and anger. In Attachment and loss. volume II. Separation, anxiety and anger (pp. 429-p).

Bowlby, J. (1980). *Attachment and loss. Vol. 3: Loss, separation and depression*. New York: Basic Books.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. Basic Books.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson, & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). The Guilford Press.

Brenning, K. M., & Braet, C. (2013). The emotion regulation model of attachment: An emotion-specific approach. *Personal relationships*, *20*(1), 107–123.

Burnette, J. L., Davis, D. E., Green, J. D., Worthington Jr, E. L., & Bradfield, E. (2009). Insecure attachment and depressive symptoms: The mediating role of rumination, empathy, and forgiveness. *Personality and Individual Differences*, *46*(3), 276–280.

Bushman, B. J. (2002). Does venting anger feed or extinguish the flame? Catharsis, rumination, distraction, anger, and aggressive

responding. *Personality and social psychology bulletin*, *28*(6), 724–731.

Bushman, B. J., Baumeister, R. F., & Phillips, C. M. (2001). Do people aggress to improve their mood? Catharsis beliefs, affect regulation opportunity, and aggressive responding. *Journal of personality and social psychology*, *81*(1), 17.

Busonera, A., Martini, P. S., Zavattini, G. C., & Santona, A. (2014). Psychometric properties of an italian version of the Experiences in Close Relationships-Revised (ECR-R) scale. *Psychological reports*, *114*(3), 785–801.

Calvo, V. (2008, September). Il questionario ECR-R: aspetti di validazione della versione italiana dello strumento. In Atti del X Congresso Nazionale AIP–sezione Clinica-Dinamica, Padova (pp. 275–279).

Chou, W. J., Ko, C. H., Hsiao, R. C., Cheng, C. P., & Yen, C. F. (2017). Association of stress coping strategies with suicidality in young adults: The mediation effects of depression, anxiety and hostility. *Neuropsychiatry*, *7*(6), 974–998.

Clark, G. I., Rock, A. J., Clark, L. H., & Murray-Lyon, K. (2020). Adult attachment, worry and reassurance seeking: Investigating the role of intolerance of uncertainty. *Clinical Psychologist*, *24*(3), 294–305.

Dagan, O., Facompré, C. R., & Bernard, K. (2018). Adult attachment representations and depressive symptoms: A meta-analysis. *Journal of affective disorders*, *236*, 274–290.

Dagnino, P., Pérez, C., Gómez, A., Gloger, S., & Krause, M. (2017). Depression and attachment: How do personality styles and social support influence this relation?. Research in Psychotherapy: Psychopathology, Process, and Outcome, 20(1).

Dixon-Gordon, K. L., Bernecker, S. L., & Christensen, K. (2015). Recent innovations in the field of interpersonal emotion regulation. *Current Opinion in Psychology*, *3*, 36–42.

Dixon-Gordon, K. L., Haliczer, L. A., Conkey, L. C., & Whalen, D. J. (2018). Difficulties in interpersonal emotion regulation: Initial development and validation of a self-report measure. *Journal of Psychopathology and Behavioral Assessment*, *40*(3), 528–549.

Dozier, M., & Lee, S. W. (1995). Discrepancies between self-and other-report of psychiatric symptomatology: Effects of dismissing attachment strategies. *Development and Psychopathology*, *7*(1), 217–226.

Evraire, L. E., & Dozois, D. J. (2011). An integrative model of excessive reassurance seeking and negative feedback seeking in the development and maintenance of depression. *Clinical Psychology Review*, *31*(8), 1291–1303.

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*, 350–365.

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of counseling psychology*, *51*(1), 115.

Gökdağ, C. (2021). How does interpersonal emotion regulation explain psychological distress? The roles of attachment style and social support. *Personality and Individual Differences*, *176*, 110763.

Grecucci, A., Messina, I., & Dadomo, H. (2018). Decoupling internalized dysfunctional attachments: A combined ACT and schema therapy approach. *Frontiers in Psychology*, *9*, 2332.

Grecucci, A., Messina, I., & Monachesi, B. (2021). Espansioni del campo sulla ricerca dei meccanismi della regolazione delle emozioni. *Risposte Giornale italiano di psicologia*, *48*(3), 801–808.

Henschel, S., Nandrino, J. L., & Doba, K. (2020). Emotion regulation and empathic abilities in young adults: The role of attachment styles. *Personality and Individual Differences*, *156*, 109763.

Hoffmann, S. G., Carpenter, J. K., & Curtiss, J. (2016). Interpersonal emotion regulation questionnaire (IERQ): Scale development and psychometric characteristics. *Cognitive therapy and research*, *40*, 341–356.

Hofmann, S. G. (2014). Interpersonal emotion regulation model of mood and anxiety disorders. *Cognitive therapy and research*, *38*(5), 483–492.

Hofmann, S. G., Carpenter, J. K., & Curtiss, J. (2016). Interpersonal emotion regulation questionnaire (IERQ): Scale development and psychometric characteristics. *Cognitive therapy and research*, *40*(3), 341–356.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteriaversus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1–55.

JASP Team (2023). JASP (Version 0.17.2)[Computer software].

Jinyao, Y., Xiongzhao, Z., Auerbach, R. P., Gardiner, C. K., Lin, C., Yuping, W., & Shuqiao, Y. (2012). Insecure attachment as a predictor of depressive and anxious symptomology. *Depression and anxiety*, *29*(9), 789–796.

Joiner, T. E. Jr., Alfano, M. S., & Metalsky, G. I. (1993). Caught in the crossfire: Depression, self-consistency, self-enhancement, and the response of others. *Journal of Social and Clinical Psychology*, *12*(2), 113–134.

Joiner, T. E. Jr., & Timmons, K. A. (2009). Depression in its interpersonal context. In I. H. Gotlib, & C. L. Hammen (Eds.), *Handbook of depression* (pp. 322–339). The Guilford Press.

Joiner, T. E., Metalsky, G. I., Katz, J., & Beach, S. R. (1999). Depression and excessive reassurance-seeking. *Psychological Inquiry*, *10*(3), 269–278.

Kahn, J. H., & Garrison, A. M. (2009). Emotional self-disclosure and emotional avoidance: Relations with symptoms of depression and anxiety. *Journal of counseling psychology*, *56*(4), 573.

Kline, R. B. (2016). Principles and practice of structural equation modeling. New York, NY, US.

Koç, M. S., Aka, B. T., Doğruyol, B., Curtiss, J., Carpenter, J. K., & Hofmann, S. G. (2019). Psychometric properties of the turkish version of the interpersonal emotion regulation questionnaire (IERQ). *Journal of Psychopathology and Behavioral Assessment*, *41*(2), 294–303.

Malik, S., Wells, A., & Wittkowski, A. (2015). Emotion regulation as a mediator in the relationship between attachment and depressive symptomatology: A systematic review. *Journal of affective disorders*, *172*, 428–444.

Malooly, A. M., Flannery, K. M., & Ohannessian, C. M. (2017). Coping mediates the association between gender and depressive symptomatology in adolescence. *International Journal of Behavioral Development*, *41*(2), 185–197.

Marroquín, B. (2011). Interpersonal emotion regulation as a mechanism of social support in depression. *Clinical Psychology Review*, *31*(8), 1276–1290.

Messina, I., Calvo, V., Masaro, C., Ghedin, S., & Marogna, C. (2021a). Interpersonal emotion regulation: From research to Group Therapy. *Frontiers in Psychology*, *12*, 636919.

Messina, I., Spataro, P., Grecucci, A., Marogna, C., & Dixon-Gordon, K. (2022b). Difficulties in interpersonal regulation of emotions (DIRE) questionnaire: Psychometric Properties of the Italian Version and Associations with psychopathological symptoms. Journal of Psychopathology and Behavioral Assessment, 1–9.

Messina, I., Spataro, P., Grecucci, A., Moskow, D. M., Marogna, C., & Hofmann, S. G. (2022a). Interpersonal emotion regulation questionnaire: Psychometric properties of the italian version and associations with psychopathology. *Research in Psychotherapy: Psychopathology Process and Outcome*, *25*, 239–246.

Mikulincer, M., & Shaver, P. R. (2008). Adult attachment and affect regulation. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 503–531). New York, NY: Guilford Press.

Mikulincer, M., & Shaver, P. R. (2012). An attachment perspective on psychopathology. *World Psychiatry*, *11*(1), 11–15.

Mikulincer, M., & Shaver, P. R. (2019). Attachment orientations and emotion regulation. *Current opinion in psychology*, *25*, 6–10.

Morley, T. E., & Moran, G. (2011). The origins of cognitive vulnerability in early childhood: Mechanisms linking early attachment to later depression. *Clinical psychology review*, *31*(7), 1071–1082.

Prunas, A., Sarno, I., Preti, E., Madeddu, F., & Perugini, M. (2012). Psychometric properties of the italian version of the SCL-90-R: A study on a large community sample. *European Psychiatry*, *27*(8), 591–597.

Ray-Yol, E., Ülbe, S., Temel, M., & Altan-Atalay, A. (2020). Interpersonal emotion regulation strategies: can they function differently under certain conditions?. *Current Psychology, 1–8*.

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of statistical software*, *48*, 1–36.

Shaver, P. R., & Mikulincer, M. (2007). Adult attachment strategies and the regulation of emotion. *Handbook of emotion regulation*, *446*, 465.

Shaver, P. R., Schachner, D. A., & Mikulincer, M. (2005). Attachment style, excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin*, *31*(3), 343–359.

Spruit, A., Goos, L., Weenink, N., Rodenburg, R., Niemeyer, H., Stams, G. J., & Colonnesi, C. (2020). The relation between attachment and depression in children and adolescents: A multilevel meta-analysis. *Clinical child and family psychology review*, *23*(1), 54–69.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & human development*, *7*(4), 349–367.

Sroufe, L. A., Carlson, E. A., Levy, A. K., & Egeland, B. (1999). Implications of attachment theory for developmental psychopathology. *Development and psychopathology*, *11*(1), 1–13.

Taylor, G. J., Bagby, R. M., & Parker, J. D. (1999). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge University Press.

Winterheld, H. A. (2016). Calibrating use of emotion regulation strategies to the relationship context: An attachment perspective. *Journal of Personality*, *84*(3), 369–380.

Zaki, J., & Williams, W. C. (2013). Interpersonal emotion regulation. *Emotion*, *13*(5), 803.

Zheng, L., Luo, Y., & Chen, X. (2020). Different effects of attachment anxiety and attachment avoidance on depressive symptoms: A meta-analysis. *Journal of Social and Personal Relationships*, *37*(12), 3028–3050.