

Stoking Depression in Insecurely Attached Individuals: The Role of Rumination and Perceived Social Support

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Abstract

Despite a substantial amount of research on depression, depressive symptoms are increasing globally. To gain insights into individuals' vulnerability to develop depression, this study investigated attachment and smaller factors of variation, such as rumination and perceived social support. This might allow for more effective prevention and intervention efforts. A sample of 120 participants ($M_{age} = 23.24$, $SD = 3.43$, range = 19-42, 63.3% female) was obtained by means of a cross-sectional online survey. In line with the hypotheses, each rumination and perceived social support mediated the relationship between attachment domains and depressive symptoms. The mediation including rumination was stronger for individuals high in attachment anxiety, while the mediation including perceived social support was stronger for individuals high in attachment avoidance. Contrary to expectations, results indicated no sequential mediation for individuals high in attachment anxiety, but a weak sequential mediation for individuals high in attachment avoidance. Therefore, findings demonstrated distinct differences between attachment domains, presenting implications for future research and possibly informing more targeted intervention efforts.

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According to the World Health Organization (WHO, 2021), an estimated 3.8% of the population is affected by depression. Irrespective of the numerous investigations and improved treatment for depression, impairment has barely decreased (van Borkulo et al., 2015). Nevertheless, multiple factors that might explain the vulnerability of individuals to develop depression have been identified (Murray et al., 2021). Further, it has been suggested to conceptualize depression as a dimensional construct instead of a discrete diagnostic entity (Wichers, 2014; Widiger, 2005). Therefore, the focus should be on smaller factors of variation than on the mere presence or absence of the disorder (Wichers, 2014). *Attachment theory* has proven to be a useful framework for understanding individual vulnerability to depression (Ainsworth, 1978; Bowlby, 1979; Murray et al., 2021). Incorporating the implications of attachment theory with smaller factors of variation that contribute to development of depression might shed light on its mechanisms. Therefore, the current study will investigate mediating factors between attachment domains and depressive symptoms. Consequently, a better understanding of the development of depression might inform clinical assessment, prevention efforts, and treatment (Dagan et al., 2018).

Attachment

According to *attachment theory* there are secure and insecure attachment patterns (Ainsworth, 1978; Bottonari et al., 2007; Bowlby, 1979). These patterns are constructed by varying levels of the attachment domains: attachment anxiety and attachment avoidance (Bottonari et al., 2007). The secure attachment pattern comprises secure attachment style (low avoidance, low anxiety), which is fostered by available caregivers and entails positive working models of the self and others (Bottonari et al., 2007; Mikulincer & Shaver, 2012; Dagan et al., 2018; Wei et al., 2005). These individuals are comfortable with closeness and possess constructive resources for coping with stress (Mikulincer et al., 2003). Insecure attachment comprises three attachment styles: Ambivalent (low avoidance, high anxiety), avoidant (high avoidance, low anxiety), and disorganised (high avoidance, high anxiety) (Bottonari et al., 2007). These are fostered by less available caregivers and entail dysfunctional beliefs, including high levels of self-criticism and self-doubts (Dagan et al., 2018; Mikulincer et al., 2003; Mikulincer & Shaver, 2012). Individuals high in attachment avoidance distrust other people to provide support and display compulsive self-reliance (Murray et al., 2021). These individuals tend to use deactivating strategies, which results in a fear of intimacy and discomfort with closeness (Murray et al., 2021). On the other hand,

individuals high in attachment anxiety have a strong need for closeness and fear of being rejected (Mikulincer et al., 2003). As a result, hyperactivating strategies, such as obtaining support despite lack of confidence in receiving it, are used (Mikulincer & Shaver, 2012). Thus, insecurely attached individuals are prone to feelings of worthlessness and hopelessness, predisposing them to a higher risk to develop psychopathology (Mikulincer & Shaver, 2012).

The Role of Rumination

Previous research showed that attachment anxiety predicts depressive symptoms (Kuscu et al., 2009; Pielage et al., 2005; Simonelli et al., 2004). However, attachment avoidance is also positively related to depressive symptoms (Carnelley et al., 1994). Therefore, it was shown that both attachment domains are related to depressive symptoms. Still, attachment anxiety has been found to be more strongly related to depressive symptoms than attachment avoidance (Jinyao et al., 2012; Zheng et al., 2020). In line with the suggestion to conceptualize depression as a dimensional construct, it has been hypothesised that distinct patterns of insecure attachment relate to differing levels of depressive symptoms (Brumariu & Kerns, 2010; Jinyao et al., 2012; Wichers, 2014; Widiger, 2005). To obtain a better understanding of the relationship between insecure attachment and depressive symptoms, the incorporation of several explanatory factors, with regards to the distinct differences between attachment domains, have been proposed (Bifulco et al., 2002; Dagan et al., 2018; Jinyao et al., 2012; Zheng et al., 2020).

Attachment theory proposes that insecurely attached individuals engage in maladaptive coping strategies to manage distress (Ainsworth, 1978; Bowlby, 1979; Zheng et al., 2020). A frequently identified maladaptive coping strategy is rumination, defined as repetitive and recurrent negative thoughts about one's cognitions, emotions, and experiences (Luca, 2019; Nolen-Hoeksema et al., 2008). Further, rumination is a form of hyperactivation, functioning to maintain proximity to caregivers and avoid abandonment (Cortes-Garcia et al., 2020; Garrison et al., 2014; Zheng et al., 2020). According to the *response styles theory*, rumination exacerbates and prolongs the negative consequences of distress, resulting in more severe symptoms of depression (Nolen-Hoeksema et al., 2008). This is in line with the proposition that insecure attachment fosters depression through rumination (Cortes-Garcia et al., 2020; Zheng et al., 2020). However, there might be differences in the relationship between each attachment domain and rumination (Garrison et al., 2014; Cortes-Garcia et al., 2020). Individuals high in attachment avoidance tend to engage in deactivating strategies, resulting in less usage of hyperactivating strategies, such as rumination (Cortes-Garcia et al., 2020; Murray et al., 2021). Contrastingly, individuals high in attachment anxiety are prone to

use hyperactivating strategies (Mikulincer & Shaver, 2012). Therefore, more research into the mediating effect of rumination, in relation to distinct differences between attachment domains, might shed light onto the development of depressive symptoms.

Notwithstanding these findings, research has identified multiple factors that explain the relationship between insecure attachment and depressive symptoms (Cortes-Garcia et al., 2020; Murray et al., 2021). Hammen (2006) proposed that there are two domains: the individuals' characteristics, such as attachment and coping, and the individuals' life context, such as social support (Hammen, 2006).

The Role of Perceived Social Support

Social support is intricately linked to attachment (Bifulco et al., 2002; Cloitre et al., 2008; Cortes-Garcia et al., 2020). Insecure attachment patterns entail the presence of negative representations of self and others, leading to distanced or demanding interactions with others (Dagan et al., 2018). *Attachment theory* proposes that insecurely attached individuals are at higher risk to develop psychopathology due to negative social interactions and impaired relationships (Ainsworth, 1978; Bowlby, 1979; Struck et al., 2020). Further, the perception of support, defined by the perceived availability and quality of social support, depends on the support recipients' attachment (Eagle et al., 2019; McLeod et al., 2020; Struck et al., 2020). Hereby, not only objective social support, but also its' subjective perception, has been identified as a mediator for the relationship between insecure attachment and depressive symptoms (Cloitre et al., 2008; Collins & Feeney, 2004; Cortes-Garcia et al., 2020; Zhu et al., 2016). Indeed, it has been shown that insecurely attached individuals' negative beliefs and difficulties in social domains foster the development of depressive symptoms (Cloitre et al., 2008; Cortes-Garcia et al., 2020; Dagan et al., 2018). *Attachment theory* posits that individuals high in attachment avoidance perceive an over-provision of support, due to their tendency to maximize distance to others (Ainsworth, 1978; Bowlby, 1979; McLeod et al., 2020; Wei et al., 2006). Counter to expectations, these individuals perceive an under-provision of support (McLeod et al., 2020). This might be due to the "support gap", a mismatch between the desire for support and the amount of support received (McLeod et al., 2020). Although, individuals high in attachment avoidance display compulsive self-reliance and maximize distance to others, they seem to long for more support (Murray et al., 2021). Consequently, increased levels of depressive symptoms might be experienced. Individuals high in anxious attachment also experience an under-provision of support (McLeod et al., 2020). However, this is in line with expectations, since their need for support might be so high, that it is impossible to meet (McLeod et al., 2020). Therefore, less cognitive dissonance

and negative outcomes on mental health might be experienced. This is in line with the proposition that there are differential links between each attachment domain and perceived social support (Kafetsios & Sideridis, 2006). Thus, more research onto the distinct differences of the mediating effect of perceived social support between each attachment domain and depressive symptoms is needed.

The relationship between rumination and perceived social support

Insecurely attached individuals use maladaptive coping strategies that impede the formation of social relationships (Struck et al., 2020). Accordingly, it has been proposed that the perception of social support is negatively biased by hyperactivating strategies, such as rumination (Bowlby, 1979; Struck et al., 2020). Therefore, the interaction of rumination and perceived social support might foster the development of depressive symptoms in insecurely attached individuals (Cloitre et al., 2008; Struck et al., 2020). In line with that, it has been shown that ruminators report needing and seeking more but perceiving less social support (Flynn et al., 2010). These individuals tend to share their distress with others by engaging in emotional disclosure (Garrison et al., 2014). This creates interpersonal conflict, since other people might be irritated by the hopeless and pessimistic behaviour (Flynn et al., 2010). Since rumination is a hyperactivating strategy, which is more frequently used by individuals high in anxious rather than avoidant attachment, these individuals are predicted to experience lower levels of perceived social support, which results in higher levels of depressive symptoms.

Although the relationship between insecure attachment and depressive symptoms has been thoroughly investigated, there seem to be distinct differences between the attachment domains and smaller factors of variation (Cortes-Garcia et al., 2020; Kafetsios & Sideridis, 2006). Therefore, it is proposed to investigate the role of rumination and perceived social support, in light of the variations between attachment domains, to explain that relationship. Thus, the current study presents a sequential mediation model, which could inform prevention and intervention efforts. The present study aims to 1) Investigate the mediating role of rumination, 2) perceived social support, and 3) the sequential mediation including rumination and social support between each attachment domain and depressive symptoms. Regarding the first hypothesis, it is predicted that the mediating effect of rumination is stronger for individuals high in attachment anxiety. As for the second hypothesis, it is predicted that the mediating effect of perceived social support is stronger for individuals high in attachment avoidance. Lastly, it is predicted that the sequential mediation is stronger for individuals high in attachment anxiety.

Method

Participants

By utilizing a convenience sampling approach via the Social and Behavioural Sciences research participation system (SONA-S) by the Utrecht University (UU), participants 18 years or older were recruited. Non-students were also included to increase the generalizability of results. UU social and behavioural science students were compensated with 0.5 research credits when participating. Participants outside the UU were not compensated. Additionally, the study was advertised on social media to increase the number of participants. A previous study on attachment styles performed a power analysis, establishing that a sample size of $N = 107$ is sufficient to detect moderate effects (Murray et al., 2021). An a priori power analysis ($\alpha = 0.05$, 95% power) was recommended to detect medium to large effects (Faul et al., 2009). Since there is no option for mediation in G*Power, the current study selected the F test family using linear multiple regression. Hence, a sample size of at least $N = 119$ was aimed for to detect medium to large effects. Inclusion criteria comprised a) being at least 18 years old, b) agreeing to the informed consent, and c) sufficient competence in English. Exclusion from the final analyses yielded a) incomplete responses, b) invalid demographic criteria, c) declined informed consent, and d) no variance in answering tendencies. Due to incomplete responses and exceeding the age of 42, data from 56 participants were excluded. Hereby, the length of the questionnaire might have caused premature drop-out (Rolstad et al., 2011). Consequently, the statistical analyses were conducted with a total of 120 participants ($M_{age} = 23.24$, $SD = 3.43$, range = 19-42, 63.3% female).

Design and Procedure

The present study was undertaken after ethics approval from the Utrecht University's Faculty Ethics Review Committee (FERB). Hereby, data collection was carried out according to the conditions of the FERB. The study utilized a cross-sectional design. Data was obtained by means of a 20-minute online survey via the platform Qualtrics. Accessibility of the survey was provided via UU's SONA-S. Once participants clicked on the link, they were asked to anonymously fill in the survey on their computers or mobile phones. First, participants were presented with a downloadable information letter, comprising the study goal and description. After, informed consent needed to be provided digitally. Only if it was provided, the survey proceeded further. Given fulfilled inclusion criteria, participants were redirected to 5 questionnaires about attachment, depression, rumination, perceived social support, and narcissism. However, the current paper did not use the results of the narcissism questionnaire

as it formed part of the umbrella research project. Upon completing the survey, students of the UU were redirected to SONA-S and compensated with 0.5 research credits. Participants outside the UU were neither redirected nor compensated.

Measures and Materials

Adult attachment style. The Attachment Style Questionnaire (ASQ; Feeney & Noller, 2001) was used to measure attachment. The questionnaire consists of 40 self-reported items and comprises five dimensions of adult attachment: 1) Confidence in self and others, 2) Discomfort with closeness, 3) Relationships as secondary, 4) Need for approval, and 5) Preoccupation with relationships. Attachment anxiety is measured by dimension four and five, and attachment avoidance by dimension two and three. The items include statements such as “I find it easy to trust others”. Each item is rated on a 6-point-Likert scale ranging from totally disagree to totally agree. By summing the item’s individual scores on the different dimensions, the total score per dimension can be calculated. A higher score on the corresponding dimensions indicates higher levels of anxious or avoidant attachment. The questionnaire has good internal consistency with Cronbach’s alpha ranging from .76 to .84 and good test-retest reliability ranging from .74 to .80 (Feeney et al., 1994).

Depression. The Centre of Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was used to measure depressive symptoms. The questionnaire comprises 20 self-reported items, of which 4 are reverse scored. The questionnaire incorporates statements such as “I felt that I could not shake off the blues even with help from my family or friends”. Each item is rated on a scale ranging from 0 (rarely) to 3 (all of the time). A total sum score ranging from 0 to 40 can be calculated. A higher total score indicates higher levels of depressive symptoms. The questionnaire has good internal consistency with Cronbach’s alpha $\alpha = .85$ and good test-retest reliability ranging from .45 to .70 (Björgvinsson et al., 2013; Thomas et al., 2001; Radloff, 1977).

Rumination. The Perseverative Thinking Questionnaire (PTQ; Ehring & Watkins, 2008) was used to measure rumination. The questionnaire comprises 15 negatively formulated items containing statements such as “the same thoughts keep going through my mind again and again”. Each item is rated on a scale ranging from 0 (never) to 4 (almost always). A total score ranging from 0 to 60 can be calculated by summing the item’s individual scores. A higher total score indicates higher levels of rumination. The questionnaire has good internal consistency with Cronbach’s alpha $\alpha = .95$ and satisfactory test-retest reliability $r = .69$ (Ehring & Watkins, 2008).

Perceived Social Support. The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) was used to measure perceived social support. It distinguishes three different support sources 1) family, 2) friends, and 3) significant other. The questionnaire comprises 12 items containing statements such as “I get the emotional help and support I need from my family”. Each item is rated on a 7-point-Likert scale ranging from very strongly disagree to very strongly agree. A total score ranging from 12 to 84 can be calculated by summing the item’s individual scores. A higher total score indicates higher levels of perceived social support. The questionnaire has good internal consistency with Cronbach’s alpha ranging from .89 to .93 and moderate test-retest reliability ranging from .43 to .52 (Clara et al., 2003; Edwards, 2004; Pedersen et al., 2009).

Demographic variables. Gender and age were included as demographic variables.

Statistical Analyses

Data were pre-processed before commencing statistical analyses. This entailed cleaning up the data by checking for missing data or potential errors. Outliers were excluded from the analyses based on being more than three standard deviations away from the mean.

The IBM SPSS statistics program (Version 28) and the PROCESS tool Version 4.2 (Hayes, 2022) were used to perform the data analysis. Statistical significance was determined by an alpha level of .05 (two-tailed). By taking answering tendencies into consideration, representative data was ensured. Hereby, responses with no variance on each questionnaire were excluded. Preliminary analyses on descriptives and intercorrelations were run to investigate the characteristics and relations of the variables.

The PROCESS macro Model 6, describing a sequential mediation, (Haye, 2022) was used to investigate the hypotheses. Two different models were tested. The first Model consists of attachment anxiety as the independent variable (IV), depression as the dependent variable (DV), rumination as the first mediator (M1), and perceived social support as the second mediator (M2). Model B consists of attachment avoidance (IV), depression (DV), rumination (M1), and perceived social support (M2).

Results

Preliminary Analyses

Means and intercorrelations

Participants reported moderate attachment anxiety (ASQ anxiety) ($M = 56.37$, $SD = 9.98$), moderate attachment avoidance (ASQ avoidance) ($M = 54.33$, $SD = 11.69$) low

depressive symptoms (CED) ($M = 17.12$, $SD = 8.83$), moderate rumination (PTQ) ($M = 29.83$, $SD = 9.80$), and high perceived social support (MSPSS) ($M = 67.53$, $SD = 11.29$). Table 1 depicts the results, intercorrelations, and the range of scores.

Table 1

Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5	Range
1. ASQ anxiety	56.37	9.98	—					15 – 90
2. ASQ avoidance	54.33	11.69	.46**	—				17 – 102
3. PTQ	29.83	9.80	.56**	.21*	—			0 – 60
4. MSPSS	67.53	11.29	-.40**	-.48**	-.26**	—		12 – 84
5. CED	17.12	8.83	.47**	.34**	.52**	-.43**	—	0 – 40

Note. Small $r = 0.1$, medium $r = 0.3$, large $r = 0.5$ (Cohen, 1988) * $p < .05$. ** $p < .001$.

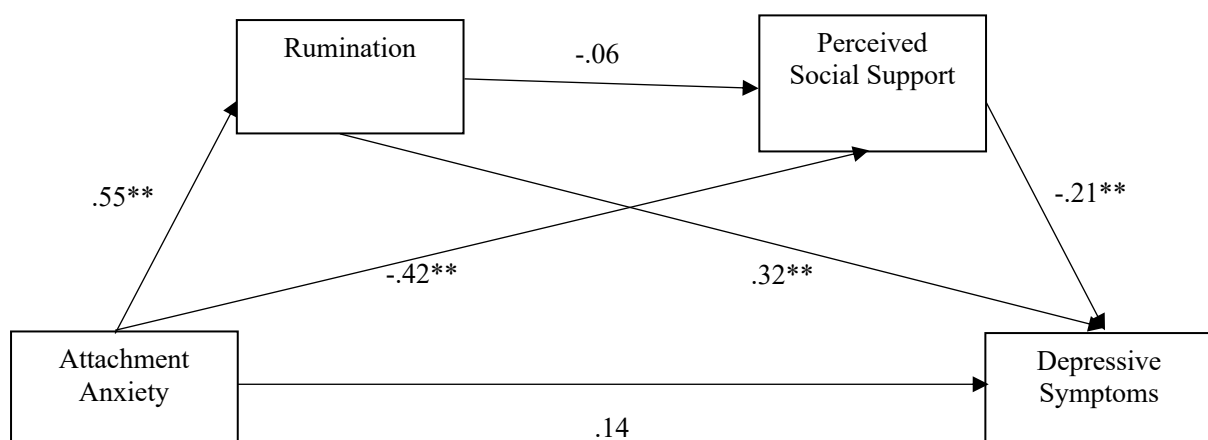
Before conducting the confirmatory analyses, mediation assumptions were tested as suggested by Hayes (2017). All assumptions, except for the assumption of multicollinearity were met. Hereby, a linear regression including each attachment domain, each mediator, and depressive symptoms was run, and indicated variance inflation factors over 10.

Confirmatory analyses

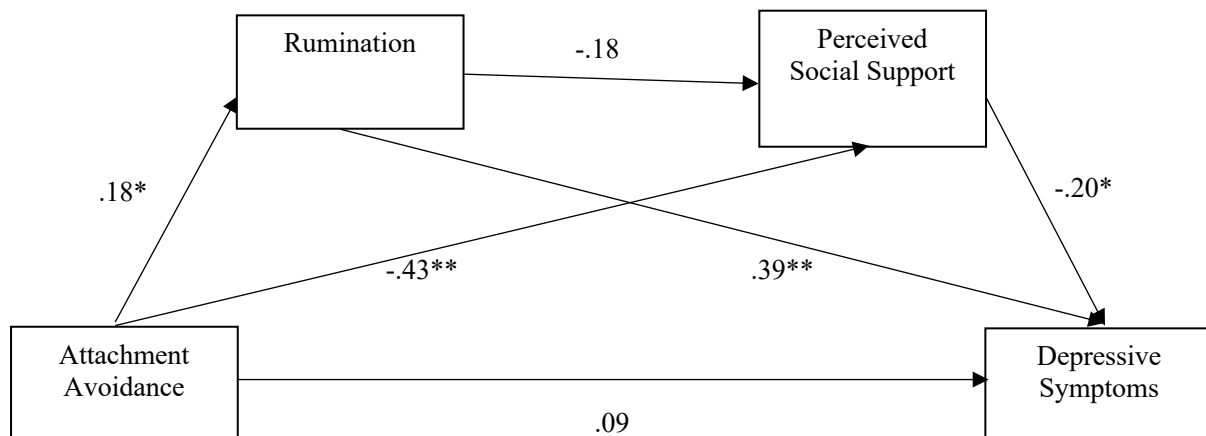
The PROCESS macro model 6 in SPSS (Hayes, 2022) was run to examine the hypotheses. Results are shown in Figure 1 and Figure 2 below.

Figure 1

Sequential mediation model



Note. Unstandardized regression coefficients of each path are shown. * $p < .05$, ** $p < .001$.

Figure 2*Sequential mediation model B*

Note. Unstandardized regression coefficients of each path are shown. $*p < .05$, $**p < .001$.

Hypothesis one stated that rumination mediates the relationship between each attachment domain and depressive symptoms. Specifically, that the mediation is stronger for individuals high in attachment anxiety. Results show that the 95% CI of the effect of attachment anxiety on depressive symptoms through rumination ranges from .08 to .30, with a significant indirect effect $b = .18$, $SE = .05$ (Figure 1). Hereby, rumination accounts for 43.09% of the total effect of attachment anxiety on depressive symptoms. Additionally, the same model was run using attachment avoidance as the independent variable (Figure 2). Results show that the 95% CI of the effect of attachment avoidance on depressive symptoms through rumination ranges from .01 to .14, with a significant indirect effect $b = .07$, $SE = .03$. Here, rumination accounts for 35.77% of the total effect of attachment avoidance on depressive symptoms. Therefore, the first hypothesis was supported.

Hypothesis two stated that perceived social support mediates the relationship between each attachment domain and depressive symptoms. Specifically, that the mediation is stronger for individuals high in attachment avoidance. Results indicated that the 95% CI of the effect of attachment anxiety on depressive symptoms through rumination ranges from .02 to .17, with a significant indirect effect $b = .09$, $SE = .04$). Here, perceived social support accounts for 21.42% of the total effect of attachment anxiety on depressive symptoms. The same model was run using attachment avoidance as the independent variable (Figure 2). This showed that the 95% CI of the effect of attachment avoidance on depressive symptoms through perceived social support ranges from .03 to .16, with a significant indirect effect $b = .09$, $SE = .04$. Here, perceived social support accounts for 33.94% of the total effect of

attachment avoidance on depressive symptoms. Therefore, the second hypothesis was supported.

Lastly, hypothesis three stated that rumination and perceived social support sequentially mediate the relationship between each attachment domain and depressive symptoms. Specifically, that this would be stronger for individuals high in attachment anxiety. However, results only partially supported this hypothesis. For individuals high in attachment anxiety the 95% CI of the effect ranges from $-.02$ to $.04$, with an indirect effect of $b = .007$, $SE = .02$. As previously established, the effect is only considered to be significant, if the 95% CI does not include zero. For individuals high in attachment avoidance the 95% CI of the effect ranged from 0 to $.02$, with an indirect effect of $b = .007$, $SE = .005$. Accordingly, the sequential mediation including attachment avoidance can be considered to be significant. Furthermore, results showed that for each attachment domain there was no significant direct effect to depressive symptoms $b = .14$, $p = .087$ for individuals high in attachment anxiety, and $b = .09$, $p = .144$ for individuals high in attachment avoidance. Therefore, hypothesis three was partially supported by the results. Table 2 shows the results of the confirmatory analyses.

Table 2

Results of Mediation Analyses for Attachment Anxiety

Path	<i>b</i>	<i>t</i>	<i>SE</i>	95% CI		<i>p</i>
				<i>LL</i>	<i>UL</i>	
c'	.14	1.72	.08			.087
a1	.55	7.40	.07			<.001
b1	.32	4.07	.08			<.001
a1*b1	.18		.05	.08	.30	
a2	-.41	-3.59	.12			<.001
b2	-.21	-3.39	0.6			<.001
a2*b2	.09		.04	.02	.17	
d	-.06	-.48	.12			.63
a1*d*b2	.007		.02	-.02	.04	

Note. $N = 120$. Displayed are the unstandardized regression coefficients (*b*), the *t-values*, the standard errors (*SE*), the lower and upper 95% *CI*, and the *p-values*.

Table 2b

Results of Mediation Analyses for Attachment Avoidance

Path	<i>b</i>	<i>t</i>	<i>SE</i>	95% CI		<i>p</i>
				<i>LL</i>	<i>UL</i>	
c'	.09	1.47	.06			.144
a1	.18	2.39	.08			.018
b1	.39	5.59	.07			<.001
a1*b1	.07		.03	.01	.14	
a2	-.43	-5.50	.08			<.001
b2	-.20	-3.02	.07			.003
a2*b2	.09		.03	.03	.16	
d	-.18	-1.96	.09			.052
a1*d*b2	.007		.005	0	.02	

Note. $N = 120$. Displayed are the unstandardized regression coefficients (*b*), the *t-values*, the standard errors (*SE*), the lower and upper 95% *CI*, and the *p-values*.

Discussion

This study investigated the mediating effects of rumination and perceived social support in the relationship between the attachment domains and depressive symptoms. The results of the confirmatory analyses supported hypothesis one and two, whereby the third hypothesis was partially supported. It was shown that (1) rumination mediates the relationship between each attachment domain and depressive symptoms. Specifically, indicating a stronger mediation for individuals high in attachment anxiety. Furthermore, results indicated that (2) perceived social support mediates the relationship between each attachment domain and depressive symptoms. Specifically, indicating a stronger mediation for individuals high in attachment avoidance. Results partially supported the third hypothesis, indicating a significant sequential mediation only for individuals high in attachment avoidance. Based on the proposed theoretical framework and previous findings (Cloitre et al., 2008; Flynn et al., 2010; Garrison et al., 2014; Struck et al., 2020), this result was not expected.

In line with the first hypothesis, there is a mediational effect of rumination, which is stronger for individuals high in anxious attachment. Therefore, the notion that the two attachment domains hold distinct differences is supported (Brumariu & Kerns, 2010; Jinyao et al., 2012; Murray et al., 2021). The results yield implications for the prevention of depression in insecurely attached individuals. Consistent with *response styles* theory, rumination exacerbates depressive symptoms (Nolen-Hoeksema et al., 2008). Due to the moderate mean score of rumination, it seems to be a relatively frequently used maladaptive

copied strategy. Therefore, interventions such as cognitive-behavioural therapy (CBT) and mindfulness-based CBT could be beneficial for insecurely attached individuals, specifically those high in attachment anxiety, who are prone to use hyperactivating strategies (Watkins & Roberts, 2020). Furthermore, results indicated that perceived social support mediates the relationship between attachment domains and depressive symptoms. As previously mentioned, individuals high in attachment avoidance hold negative beliefs about their social support system. However, results also showed a negative relationship between individuals with anxious attachment and perceived social support. Even though this relationship was slightly weaker than for avoidant individuals, this finding implicates the importance of targeting *perceived* social support. Therefore, interventions such as cognitive reframing, might be beneficial in changing insecurely attached individuals', especially those high in attachment avoidance, negative beliefs regarding their support system (Eagle et al., 2019).

Although it was predicted that the sequential mediation would be stronger for individuals high in attachment anxiety, results indicated a weak sequential mediation only for individuals high in attachment avoidance. This might be explained by the finding that perceived social support accounts for more of the total effect in individuals high in attachment avoidance, or by a moderating effect of perceived social support. Prior research suggested the *buffering hypothesis* as a suitable framework to explain the relationship between social support and depressive symptoms. (Cohen & Willis, 1985). It proposes that social support buffers individuals from the negative consequences of distress. Indeed, perceived social support mitigates the risk to develop psychopathology by buffering the negative effects of rumination (Kang & Kim, 2021; Lee, 2019). Most studies focus on the beneficial effects of social support, but disruptions and inverse associations between perceived social support and depression have been found as well (Collin & Feeney, 2004; Grey et al., 2020; Holt-Lunstad et al., 2015; Kang & Kim, 2021; Lee, 2019). Thereby, it seems plausible to assume that perceived social support might not only be an explanatory factor, but also a moderating factor, exacerbating the distress caused by rumination.

Based on the assumption that maladaptive coping strategies bias perception of support, it was assumed that rumination precedes perceived social support. However, previous research also stated the opposite, suggesting that perceived social support precedes rumination (Guo et al., 2022; Wang et al., 2019). Accordingly, this raises the possibility of a reciprocal relationship between the candidate mediators. Having said that, due to the cross-sectional design of the present study, the temporal sequence of mediators cannot be tested adequately. A recent study by Flynn and colleagues (2022) utilized ecological momentary

assessment (EMA) methodology to explore real-time experiences of coping, perceived social support and well-being (Flynn et al., 2022). Thereby, they were able to show that perceived social support acted as a protective factor and identified trends of predominant coping strategies. Accordingly, EMA methodology provides the possibility for real-time assessment of the variables of interest and accurately depicts temporal relationships. Future research might adapt EMA methodology in their study design to investigate the interaction between different coping strategies.

Limitations

Despite the findings of this study, it is important to consider the limitations as well. Since data collection utilized a convenience sample, it is assumed that most participants are students from UU, representing a western, educated, industrialized, rich and democratic (WEIRD) society. Zhu and colleagues (2016) found distinct differences between cultural groups in adult attachment. Chinese adults appeared to have higher ratings in insecure attachment domains than U.S. adults. This might be due to differences in expressions of intimate affection (Wang & Mallinckrodt, 2006; Zhu et al., 2016). Considering the increase in migration, it would be interesting for future research to not only compare individuals from different countries, but to compare cultural groups within one country. Therefore, future research on attachment should consider including a diverse sample for more generalizable and insightful results.

Additionally, in terms of sample characteristics, this study obtained subclinical levels of depressive symptoms. Therefore, results might have been affected by that and should not be generalized to clinical populations. It is suggested to replicate the present study with a clinical sample, who are more prone to engage into maladaptive coping strategies and experience higher levels of depressive symptoms (Thompson et al., 2010).

Although, it is tolerated to use cross-sectional data when performing mediation analyses, causal inferences about directionality of effects cannot be inferred (Hayes, 2018). Thereby, rumination might not be the antecedent of perceived social support, but the relationship might be of bidirectional nature: (1) Rumination triggers low perceived social support, making individuals more prone to experience depressive symptoms, (2) Depressive symptoms then cause insecure attached individuals to hold negative beliefs about their social network, which in turn (3) triggers rumination. Therefore, individuals with insecure attachment might be submitted to a perpetuating vicious cycle between rumination and perceived social support, which act to maintain and increase depressive symptoms. As a result, future research should consider a longitudinal study design (Toh & Hermán, 2008).

Finally, the current study, as well as most previous research, measured coping strategies by means of questionnaires (Budimir et al., 2021). However, the reliance on self-report measures subjects the current study to bias and might therefore not accurately measure the study variables (Murray et al., 2021). Therefore, it is suggested that future research considers the usage of EMA methodology to avoid any biases (Stone & Shiffman, 1994).

Conclusions

Despite these limitations, the current study contributed to the understanding of factors that foster and maintain the development of depressive symptoms in insecurely attached individuals. Since the hypotheses were only partially confirmed, results call for further research. Specifically, the findings outlined in the mediation models suggest distinct differences between attachment domains. Therefore, intervention programs could utilize the current study's insights to address the maintaining and perpetuating factors of depressive symptoms in individuals with insecure attachment. However, acknowledging both the strengths and limitations of the current study, future research is encouraged to explore the suggested implications. In conclusion, attachment domains and their mechanisms should be further investigated to prevent and combat the development and increase of depressive symptoms.

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