The role of emotion regulation in the association of adult attachment and mental health: A systematic review

Zeinab Mortazavizadeh, Simon Forstmeier*

Authors' affiliations:
Developmental Psychology, University of Siegen, Siegen, Germany

* Corresponding Author: Prof. Dr. Simon Forstmeier, University of Siegen, Faculty II – Dept. of Education Studies & Psychology, Developmental Psychology, Adolf-Reichwein-Str. 2a, 57068 Siegen, Germany, Email: simon.forstmeier@uni-siegen.de, Phone +49 (0)271 740-4020, Fax +49 (0)271 740-4555, ORCID: 0000-0003-0580-1512

Abstract

Attachment style is one of the most significant driving forces across the lifespan as identified by a variety of studies. Many studies have suggested that there might be an association between attachment and mental health. In a different thread of research, studies provided evidence that dysfunctional emotion regulation has a potential impact on an individual’s mental health. The present review has the purpose to examine available papers on the association of adult attachment with mental health with particular emphasis on the role of emotion regulation in this association.

A database search was conducted for published data in Psych INFO, Elsevier and Google Scholar by combining search terms: ‘adult attachment’, ‘mental health, diseases or illnesses’ and ‘emotion regulation’.

A total of 182 studies were identified and screened, and finally 19 studies met inclusion criteria. Results of this review revealed a moderate association between insecure attachment and several mental disorders. Also, individuals with insecure attachment showed more difficulty in emotion regulation. However, some studies found no positive association between avoidant attachment and mental disease.

This review suggests that individuals with insecure attachment show an increased risk for mental disorders and that and emotion dysregulation might mediate this relationship. However, most of studies had non-clinical samples which could affect result. Therefore, further research is needed to examine clinical samples regarding the attachment in adulthood and mental health and the role of emotion regulation to come up with more accurate results in the future.

Keywords: insecure attachment, attachment style, emotion regulation, mental health
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1. Introduction

Mental health in adulthood might be affected by several causes such as genetics (Button et al. 2008; Lau and Eley 2008), drugs and alcohol (Newton-Howes and Boden, 2015), physical and sexual abuse (Cutajar et al., 2010; Mueser et al., 1998; Mueser, Salyers, et al., 2004), exposure to disasters such as flood or earthquake (Norris et al., 2002) and violence (Follingstad 2009; Golding 1999). Although mental illness has been linked with abundant risk factors, attachment and emotion regulation seem to be very important components in the development of mental disorders (Ponizovsky et al., 2007; Nolen-Hoeksema & Aldao 2011).

Given the importance of attachment and its trace during life period, many studies have investigated the relationship between attachment and mental health and detected a strong association between those (Banford et al., 2015; Gajwani et al., 2013; Roberts et al., 1996; Wei et al., 2003, 2004, 2006., Kobak, Sudler, and Gamble, 1991). Strong evidence shows that individuals with anxious or avoidant attachments face a higher risk of mental health problems (Besser & Neria, 2010, 2012; Elwood & Williams, 2007).

In a different thread of research, there is growing evidence that emotion dysregulation such as anger and sadness to emotional and behavioral problems are linked to increased vulnerability to developing mental disorders (Gilbert, et al., 2011; Gilbert et al., 2012; Eisenberg, Cumberland, et al., 2001; Storch et al., 2011; Silk, Steinberg, & Morris, 2003; Clyne et al., 2010). Also emotion regulation showed a substantial association with attachment as plenty of studies have demonstrated (Bost et al., 2014; Van der Meer et al., 2015; Mikulincer & Florian, 1998; Shakory et al., 2015).

Several studies investigate the hypothesis that emotion regulation is at least partly responsible for the link between adult attachment style and mental health. However, there is so far no literature review available on this association. Therefore, this comprehensive review provides an overview of the literature of the relationship between attachment and mental health in adulthood, considering the role of emotion regulation to supply a wide range of suggestions for future research. This review begins with a description of theory of attachment and explanation of its categories. Then, a concept of the relationship between emotion regulation, attachment and mental health will be examined. Subsequently, this paper reviews the empirical papers to examine the relation between attachment, emotion regulation and mental disorder in adulthood. At the end, we provide a conclusion of the reviewed papers.

1.1. Adult attachment and dimensions

Attachment theory (Bowlby, 1969; Ainsworth and Bowlby, 1991), which started with a focus on infant-mother attachment, has developed about 20 years since its beginnings to also focusing on adult functioning (Hazan and Shaver, 1987). Bowlby explained attachment theory as ‘a way of conceptualizing the propensity of human beings to make strong affectional bonds to particular others and of explaining the many forms of emotional distress and personality disturbance, including anxiety, anger, depression, and emotional detachment, to which unwilling separation and loss give rise’ (Bowlby, 1979, p. 127).
Studies have shown that the type of attachment style during childhood becomes relatively stable in adulthood (Hazan and Shaver, 1990; Fraley, 2002). The dimensions of attachment style are described by using three terms: secure, anxious, and avoidant attachments (George, Kaplan, and Main, 1987; Hazan and Shaver 1987; Brennan, Clark, & Shaver, 1998). These dimensions are also suggested in a four-category model of adult attachments (Bartholomew and Horowitz, 1991). Generally speaking, anxious attachment is characterized by worriedness of availability of people and motivates to achieve attention and love from a partner or close person to overcome distress. A person with avoidant attachment strives to rely on himself and would not inquire help even though he needed. Securely attached adults, however, demonstrate low anxiety and low avoidance and are comfortable to trust other people, thereby developing an intimate long-term relationship. (Bowlby, 1969; Shaver and Fraley, 2008; Mikulincer and Shaver, 2003). Meanwhile, Bartholomew and Horowitz (1991) illuminated four aspects of attachment as: preoccupied, dismissing-avoidant, fearful-avoidant and secure attachment which have been used in various researches. Preoccupied attachment is specified by high anxiety and low avoidance, dismissing-avoidant attachment with high avoidance and low anxiety, and fearful-avoidant attachment by high anxiety and high avoidance. However, securely attached individuals show both low anxiety and low avoidance.

1.2. Attachment and mental health

The explanation of attachment theory will provide a path to understanding the development of secure attachment, that it may assist people to overcome distress and restore confidence and emotional balance (Cassidy & Shaver, 2016). Bowlby (1973, 1980) explained that individuals with different attachment orientations have different internal working models of the self and of others. Interaction with the caregivers who are supportive in times of demand, bring up the development of attachment security (Sroufe and Waters, 1997). As a result, positive internal working models build a foundation for proper mental health (Mikulincer & Shaver, 2003). Nevertheless, when individuals develop negative representations of themselves or others through uncertain parental support, they become more vulnerable to psychopathology. A negative internal working model of self derives from inconsistent care and attention from caregivers, and leads to attachment anxiety. Individuals with avoidant attachment have a negative internal working model of others, because they did not receive sufficient response from their caregiver (Mikulincer et al., 2003; Pietromonaco and Feldman Barrett, 2000). Therefore, anxiously attached individuals seek proximity to an excessive extent, they experience distress when they find people unavailable and they encounter with fear of abandonment. While avoidantly attached individuals feel uneasy being close to others, they attempt to become self-reliant and they minimize emotional displays (Brennan et al., 1998). A growing body of research investigating the association of attachment and mental disorder (Ponizovsky et al., 2007; West & George, 2002; Bartholomew and Horowitz, 1991; Brennan, et al., 1998; Hazan and Shaver, 1987; Allen et al., 2001; Bifulco et al., 2002) found that individuals with secure attachment represented higher psychological functioning, while individuals with insecure patterns of attachment style experience more mental illness symptoms.

1.3. Attachment and emotion regulation

Attachment theory (Bowlby, 1973, 1980, 1982) is a useful and influential framework
for understanding emotion regulation across the lifespan (Mikulincer, Shaver & Pereg, 2003). Following Bowlby (1980), modern attachment theorists (Cassidy & Berlin, 1994; Thompson, 2013; Cassidy & Kobak, 1988) recently discovered the maintaining role of emotion regulation in relationship with attachment figures. Also, Sroufe (1996) expressed that attachment can be described in terms of dyadic regulation of emotion regulation.

The development of attachment style in individuals derives from the basic attachment experience with their caregiver. Two dimensions of insecure attachment (Brennan et al., 1998) will appear across childhood and adulthood as attachment avoidance and attachment anxiety. High attachment anxiety will lead to desperation and make individuals uncertain about their ability to handle distress without the attachment figure’s assistance (Mikulincer et al., 2003). Anxious attachment would be associated with a heightening of negative emotions whereas these individuals learned that a heightening of negative emotions would be essential to draw attention from others (Cassidy, 1994). Nonetheless, individuals with an avoidant attachment style prefer to have emotional distance; therefore, they rarely possess comfortable feelings about others. Also, avoidant individuals rely upon deactivating strategies which lead to suppression of negative emotions and cognitions and distance from the attachment context. Subsequently, a long term of hyper-activation and deactivation may make individuals vulnerable to pervasive emotional problems (Mikulincer et al., 2003). In contrast, a secure attachment individual facing threat engages in proximity-seeking behaviors in order to be close to an attachment figure. Hence, a raised adaptive mechanism of emotion regulation relieves distress and continues to support security (Mikulincer & Shaver, 2008).

1.4. Emotion regulation and mental disorder

Emotion regulation (ER) develops throughout the lifespan (Cole, 2014). The impact of emotion regulation on mental health has recently become a substantial theme in many investigations (Aldao et al., 2010; Gross & Thompson, 2007; Koole, 2009; Kring & Sloan, 2009). Yet, the concept of emotion regulation has been found in several definitions and there is a lack of universal definition for emotion regulation (Cole et al., 2004). According to Gross (1998) emotion regulation is “the process by which individuals influence which emotions they have, when they have them and how they experience and express these emotions” (p. 275). However, Campos et al. (2004) suggested that emotions can simultaneously occur with the regulation of the same emotion. Therefore, several definitions became apparent for emotion regulation. With regards to regulation of emotion, two categories of ER can be distinguished, adaptive and maladaptive emotion regulation. Problem solving and reappraisal of positive or neutral interpretations of events are examples of adaptive emotion regulation (Aldao et al., 2010). Suppression and avoidance are examples of maladaptive emotion regulation (Gross, 1998; Hayes et al., 2004). Gross and John (2003) categorized ER into two categories of strategies: antecedent-focused strategy and response-focused strategy. According to this model, an antecedent-focused strategy occurs early and thereby intervenes before the emotional response tendencies have been fully generated. Maladaptive emotion regulation, which is described as response-focused strategy (Gross and John, 2003), would reduce the behavioral expression of negative emotion, and occur after the
generation of the emotional responses. Although both emotion regulation strategies could have positive and negative consequences, maladaptive ER is suggested as being associated with a wide range of mental disorders (Gross & Munoz, 1995; Moore et al., 2008; Aldao et al., 2010). Additionally, Baradly (2000) has noted that maladaptive ER may precede the development of psychopathology. Indeed, a deficit of emotion regulation is a common problem in abundant psychiatric disorders (Berking and Wupperman 2012). Therefore, emotion regulation has been proposed as a robust predictor of mental health functioning (Nolen-Hoeksema and Aldao 2011). Additionally, as Gross and Levenson (1997) explained, psychiatric disorders might be conceptualized as difficulties with emotion regulation.

2. Method of the review

To find pertinent publications on the topic of attachment and mental health in adulthood which includes emotion regulation as a mechanism, a database search has been conducted. The search was conducted in the electronic databases Psych INFO, Elsevier and Google Scholar by combining the key terms: ‘adult attachment’, ‘mental health, diseases or illnesses’ and ‘emotion regulation’. Further criteria of eligible papers were English language, adulthood and published in peer reviewed journals. Subsequently, the reference lists of relevant papers were examined to identify additional suitable papers. The term “emotional disclosure” as an aspect of emotion regulation was also used in the search to bring up more study results.

Assuming these criteria, 182 studies were identified, of which 56 were duplicates and removed. Afterwards, 111 studies were excluded according to the following criteria (see figure 1):

- Did not assess all criteria ‘attachment, emotion regulation and mental disorder’ together
- Using participants under 18 years of age
- Not published in a peer reviewed journal
- Not written in English

Finally, 19 qualified studies were identified for inclusion in this paper.
3. Results

Table 1 summarizes the 19 identified studies and their key results on the link between attachment and mental health, taking into account the role of emotion regulation. It describes details of sample, measurement, and results. Subsequently, we synthesize the findings for different categories of mental health outcomes.

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Figure 1. PRISMA flow chart.
Table 1. Summary of relationships found between attachment and mental health and role of emotion regulation in the studies included in this review

<table>
<thead>
<tr>
<th>Title /Author</th>
<th>Sample</th>
<th>Attachment measure</th>
<th>Emotion regulation measure</th>
<th>Mental health measure</th>
<th>Key results</th>
</tr>
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<tbody>
<tr>
<td><strong>Depression and anxiety disorder</strong></td>
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<tr>
<td>Depressive affect among health care seekers: How it is related to attachment style, emotional disclosure, and health complaints. Zech et al. (2006)</td>
<td>198 patients</td>
<td>Adult Attachment Scale (Collins &amp; Read, 1990).</td>
<td>Emotional Disclosure Questionnaires (Stroebe et al., 2002).</td>
<td>VROPSOM (van Rooijen, 1979), the Dutch adaptation of the Depression Adjective Checklist (Lubin, 1965).</td>
<td>Anxious attachment was correlated with depressive affect and disclosure, while avoidance attachment was not related to disclosure and depressive affect.</td>
</tr>
<tr>
<td>Disentangling the effects of depression symptoms and adult attachment on emotional disclosure. Garrison et al. (2012)</td>
<td>121 college students Mean age=19.76, SD=3.48; 96 women,25 men</td>
<td>Experiences in Close Relationships Scale (ECRS; Brennan et al., 1998).</td>
<td>Distress Disclosure Index (DDI, Kahn and Hessling, 2001).</td>
<td>Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007).</td>
<td>Depression symptoms were negatively related to emotion disclosure tendencies. Attachment avoidance was negatively related to disclosure. Attachment anxiety and intra-individual disclosure positively related.</td>
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<tr>
<td><strong>Distress and adult Psychopathology</strong></td>
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<tr>
<td>Do Attachment Style and Emotion Regulation Strategies Indicate</td>
<td>98 participants at 50 % risk for HD, CADASIL, or</td>
<td>Experiences in Close</td>
<td>Cognitive Emotion Regulation</td>
<td>Brief Symptom Inventory (BSI; De Beurs and Zitman</td>
<td>Attachment anxiety associated with distress. Attachment</td>
</tr>
<tr>
<td>Maternal Attachment Style and Responses to Adolescents’ Negative Emotions: The Mediating Role of Maternal Emotion Regulation. Jones et al. (2014)</td>
<td>277 adolescent and their mothers. M,(SD) mothers= Time 3, Time 4, Time 5 = 44.09 (6.07) 45.13 (6.08) 46.65 (6.19); Adolescents= 13.06 (0.89) 14.02 (0.90) 15.04 (0.95).</td>
<td>Experiences in Close Relationships Scale (ECR; Brennan et al., 1998).</td>
<td>Difficulties in Emotion Regulation Scale (DERS; Gratz &amp; Roemer, 2004).</td>
<td>Coping with Children’s Negative Emotions Scale – Adolescent Version (CCNES-A; Fabes &amp; Eisenberg, 1998).</td>
<td>Difficulties with emotion regulation mediated the link between maternal attachment style and responses to adolescents’ negative emotions.</td>
</tr>
<tr>
<td>Well being</td>
<td>632 participants</td>
<td>Attachment Styles Questionnaire (van Oudenhoven, Hofstra, &amp; Bakker, 2003).</td>
<td>Emotion Regulation Questionnaire (ERQ; Gross &amp; John, 2003; Dutch translation Koole, 2004).</td>
<td>Dutch version of the Resilience Scale (RS–nl, Portzky et al. 2010; original RS, Wagnild &amp; Young, 1993). Dutch version of the WHO-Five well-being index (WHO, 1999).</td>
<td>Each attachment style was associated with a unique pattern of emotion regulation and resilience. All attachment styles had indirect effects on well-being through reappraisal and resilience.</td>
</tr>
</tbody>
</table>

<p>| The Mediating Role of Emotion Dysregulation in the Relations Between Childhood Trauma History and Adult Attachment and Borderline Personality Disorder Features: A Study of Italian Nonclinical Participants. Fossati et al. (2016) | 354 adults Mean age=34.70, SD = 15.22 years 251 women 180 men | Attachment Style Questionnaire (ASQ; Feeney, Noller, &amp; Hanrahan, 1994). Difficulties in Emotion Regulation Scale (DERS; Gratz &amp; Roemer, 2004). | Borderline Personality Inventory (BPI). The BPI (Chabrol et al., 2004;Leichsenring, 1999a). Childhood Abuse and Trauma Scale (CATS; Sanders &amp; Becker-Lausen, 1995). | Childhood abuse and adult attachment were associated with emotion dysregulation and borderline personality features. Emotion dysregulation mediated the relevance of emotional abuse and fearful/occupied attachment and borderline personality feature. |
| Eating disorder | College Student Binge Eating: Insecure Attachment and Emotion Regulation. Han and Pistole (2014) | 381 undergraduate &amp; graduate students Mean age =25.2, SD = 6.06; 155 men, 221 women | Experiences in Close Relationship Short Form (ECR-S; Wei, Russell, Mallinckrodt, &amp; Vogel, 2007). Emotion Regulation Scale (DERS; Gratz &amp; Roemer, 2004). | Binge Eating Scale (BES; Gormally, Black, Daston, &amp; Rardin, 1982). | Insecure attachment and binge eating were related and the insecure attachment–binge eating association was fully mediated by emotion regulation. |
| Binge eating in bariatric surgery candidates: The role of insecure attachment and emotion regulation. Shakory et al. (2015) | 1388 morbidly obese patients Mean age=44.69, SD = 10.59 Women =79.3% | The Experiences in Close Relationships scale (ECR-M16; Lo et al., 2009). Difficulties in Emotion Regulation Scale (DERS; Gratz &amp; Roemer, 2004). The Eating Disorder Examination Questionnaire (EDE-Q 6.0; Fairburn &amp; Beglin, 1994). | Difficulty with emotion regulation mediated the relationship between both avoidant and anxious attachment styles and binge eating. |</p>
<table>
<thead>
<tr>
<th>Insecure Attachment and Disordered Eating in women: The Mediating Processes of Social Comparison and Emotion Dysregulation. Ty &amp;</th>
<th>247 participants Mean age= 24.51, SD = 4.05</th>
<th>Relationships—Relationship Structures (ECR-RS; Fraley, Heffernan, Difficulties in Emotion Regulation Scale (DERS; Gratz &amp; Roemer, 2004). Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr &amp; Garfinkel, 1982).</th>
<th>Avoidant and anxious attachment styles predicted the level of disordered eating symptoms. Emotion dysregulation and</th>
</tr>
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<tbody>
<tr>
<td>Child abuse</td>
<td>109 participants</td>
<td>Adult Attachment Interview (AAI; George et al., 1996).</td>
<td>General Expectancy for Negative Mood Regulation scale (NMR; Catanzaro &amp; Mearns, 1990).</td>
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<td></td>
<td>Mean age= 35.61,</td>
<td>Child Maltreatment Interview Schedule (CMI; Briere, 1992).</td>
<td>Child suggested available relationship between insecure attachment and psychiatric outcomes. Also, emotion regulating plays a role in this relationship.</td>
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<td></td>
<td>SD = 10.79</td>
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<td>109 women, 0 men</td>
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<td></td>
<td>Mean age=19.1,</td>
<td>Crime and Analogous Behavior (CAB scale; Miller &amp; Lynam, 2003).</td>
<td>Types of child maltreatment were related to anxious and avoidant attachment styles, emotion dysregulation, and a variety of risk behaviors.</td>
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<tr>
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<td>SD = 1.7; 225</td>
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<tr>
<td></td>
<td>women, 135 men, 1 unknown</td>
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<tr>
<td>Dementia disorder</td>
<td>168 participants</td>
<td>Attachment Style Questionnaire (Hazan &amp; Shaver, 1987).</td>
<td>Feelings and Emotions Inventory (FEI).</td>
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<td></td>
<td>diagnosed as having dementia with their caregivers.</td>
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<td>BEHAVE-AD (Reisberg et al., 1987).</td>
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<td></td>
<td>Mean age=76.3 years,</td>
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<td>Attachment styles designations were related to patterns of emotion regulation. Attachment style was related to the pattern of behavioral symptoms displayed by dementia patients, and to caregiver burden.</td>
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<td>SD=7.3; 80% women</td>
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<td></td>
<td>Mean age= 33,</td>
<td>Emotional Expressivity Inventory (CIS; Endler &amp; Parker, 1994).</td>
<td>Coping Inventory for Stressful Situations (CIS; Endler &amp; Parker, 1994).</td>
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<tr>
<td></td>
<td>SD=9.28</td>
<td></td>
<td>Higher level of attachment security was associated with fewer PTSD symptoms post trauma. Emotion regulation mediated the association between attachment and PTSD symptoms.</td>
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<td></td>
<td>16 women, 20 men</td>
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</table>

3.1. Depression and anxiety disorders

Recently, Nielsen et al. (2017) investigated the relationship between adult attachment style and anxiety disorders and the mediating role of emotion regulation in a sample of 147 participants with 90 participants diagnosed with anxiety disorders. Results of this study revealed an association between anxiety and attachment anxiety (b=4.60, p < .0001). Also, emotion dysregulation was significantly related to attachment anxiety (b=10.30, p < .0001) and anxiety symptoms (b= 1.06, p < .0001).
However, when using attachment anxiety in the mediation model, avoidant attachment was not correlated with anxiety or emotion regulation.

In a study of 18-48 years old adults, Marganska et al. (2013) reported a vice versa correlation between secure attachment, emotion dysregulation and symptoms of generalized anxiety disorder and depression. Preoccupied and fearful avoidant attachment presented a significant association with depression (b = .31, and .25, respectively, p < .01) and generalized anxiety disorder (b= .25, and .18, respectively, p < .01). This study indicated that emotion dysregulation was positively related to insecure attachment and also mediated the relation between attachment style and depression and anxiety disorder.

Garrison et al. (2012) investigated adult attachment and depression symptoms as a predictor of individual’s emotional disclosure in a community sample of 121 college students. Emotional disclosure as a means of emotion regulation in this paper is defined as sharing information about one’s emotional experiences. Individuals with higher level of depression symptoms reported weaker emotional disclosure during their engagement in emotional events. This finding shows that depression symptoms are relevant to emotional disclosure. They also found a negative association between attachment avoidance and both generalized disclosure tendencies and daily emotional disclosure (b= −.14 and −.04, p < .05). Attachment anxiety, on the other hand, indicated a moderation role between daily event intensity and disclosure relation (b= .12, p < .05).

In another study concerning emotional disclosure and mental disease, Zech et al. (2006) investigated depressive affect in 198 patients visiting a general practitioner (GP) to find whether it is related to attachment, emotional disclosure and health complaints. Individuals with anxious attachment showed more depressive affect (b= .30, p < .001) and they disclose their emotion (r= .31). In contrast, avoidant attachment was negatively related to depressive affect (b=0.35, p < .001) and the patients also displayed less emotional disclosure (r= −.22). Nonetheless they had greater physical problems.

### 3.2. Distress and adult psychopathology

McDonald et al. (2016) examined the relation between psychological disorder and mindfulness taking into account the role of attachment and emotion regulation in a community sample of 17-24 year-old adults. In this study, psychological distress had a positive correlation with emotion regulation and attachment anxiety. A bootstrap confidence interval (BCI) revealed that emotion dysregulation and attachment anxiety were significant mediators of the relationship between mindfulness and stress (95% BCI −1.70 to −0.99; 95% BCI −0.51 to −0.12). However, attachment avoidance did not show a significant relation to psychological distress and mindfulness, but was correlated with dysfunctional emotion regulation. Also, they found a strong indirect effect of dysfunctional emotion regulation in comparison with attachment anxiety when they measured distress.

In addition, more recently, Van der Meer et al. (2015) investigated a community sample of 98 adults with 50% risk in neurogenic disorder such as Huntington’s disease, to detect whether an insecure attachment style and emotion regulation is associated with distress before and after predictive testing. They found that attachment anxiety and level of distress were associated before the test (b=0.239, p=0.03). Also, research has shown that attachment anxiety displayed distress up to 2 months after testing. In contrast, attachment avoidance was not
associated before and after test. Besides this, the results reported that maladaptive emotion regulation did not have an effect after predictive testing.

Similarly, McCarthy et al. (2006) found support for the mediating role of emotion regulation expectancies and preventive coping recourse between attachment and stress outcomes (stress symptoms and stress produced emotion). Also, parental attachment was associated with stress symptoms and stress-produced emotions \((r = -0.45\) and \(-0.56\)). The authors suggested that mood-regulation expectancies in stressful situations need both sufficient preventive coping resources and an attachment background.

Jones et al. (2014) conducted a longitudinal study in a sample of 227 adolescents and their parents. They examined the relation between mother’s attachment and their response to their adolescent’s negative emotions and also whether emotion regulation could mediate this relation. Negative emotions included: distress responses (e.g., becoming anxious), harsh responses (e.g., invalidating emotion) and supportive responses (e.g., helping to solve the problem). Mothers with avoidance attachment \((b = .20, p < .05)\) or anxiety attachment \((b = .47, SE = .14, p < .01)\) exhibited more difficulty with emotion regulation. Also, emotion dysregulation was positively correlated to mothers’ distress responses to their adolescents’ negative emotions \((b = .53, p < .01)\). Mothers were more likely to endorse distress and harsh responses, and they displayed greater difficulties with emotion regulation. The authors suggested that difficulties with emotion regulation mediated the relation between maternal attachment style and response to adolescents’ negative emotions.

In another longitudinal study, Pascuzzo et al. (2015) investigated the role of attachment and emotion regulation strategies in a 10-year longitudinal design on adult symptoms of psychopathology which included 33 young women and 17 young men. In this study, participants filled in various questionnaires, such as attachment security to peers and parents, emotion regulation and self-reported symptoms of psychopathology in different ages. Adolescents who reported higher attachment insecurity to their parents showed greater symptoms of psychopathology in their adulthood \((b = .64, p < .01)\) and this relationship was partially mediated by emotion-focused strategies. Moreover, the association between anxious romantic attachment in young adulthood and adult psychopathology was fully mediated by emotion-focused strategies.

### 3.3. Well-being

Karreman and Vingerhoets (2012) also investigated the association between attachment and well-being by considering the role of emotion regulation and resilience as mediators amongst 632 individuals 16-67 years old. While secure and dismissing attachment was associated with high well-being \((b = 8.57, p < .001\) and \(b = 3.77, p < .01)\), preoccupied attachment negatively predicted well-being \((b = -4.75, p < .001)\). However, fearful attachment was not associated with well-being and suppression could not mediate the relation between attachment and well-being. The results showed that all types of attachment styles affected well-being through the reappraisal dimension of emotion regulation and resilience.

### 3.4. Borderline and somatoform disorder

Van Dijke and Ford (2015) examined attachment and emotion dysregulation in a community sample of 472 patients with borderline personality disorder (BPD), somatoform disorder (SoD) or another psychiatric disorder. Results showed that...
under-regulation was associated to attachment anxiety, namely fear of abandonment \( (r = 0.30, p < 0.001) \). However, over-regulation correlated with attachment avoidance, namely fear of closeness \( (r = 0.44, p < 0.001) \). Furthermore, BPD was associated with under-regulation of affect and fear of abandonment. The SoD group tended to over-regulate and was associated with fears of abandonment or closeness. Also, Fossati et al. (2016) recently provided an investigation among 354 non-clinical adults and evaluated the mediation role of emotion regulation in the relationship between child trauma history, adult attachment and BPD. Results showed that childhood (emotional) abuse and adult attachment were positively associated with emotion dysregulation and BPD features \( (r = .41, p < .001) \). BPD features were associated with both preoccupied/fearful and anxious/ambivalent insecure attachment. However, only preoccupied/fearful attachment was associated with both emotion dysregulation and BPD features. Furthermore, emotion dysregulation significantly moderated the relationship between both emotional abuse and fearful/preoccupied attachment and BPD features.

3.5. Eating disorder

Han and Pistole (2014) investigated emotion regulation as a mediator of attachment insecurity and binge eating in a sample of 381 students who were recruited in an online survey. Insecure attachment and binge eating were positively correlated \( (b = .37, p < .001) \). The results also provide evidence for a full mediating role of emotion regulation for the insecure attachment and binge eating association. Additionally, in other research regarding binge eating, Shakory et al., (2015) examined binge eating and the role of insecure attachment and emotion regulation among 1388 morbidly obese patients with binge eating who are bariatric surgery candidates. Results revealed a positive correlation between anxiety attachment and binge eating \( (b = 0.02, t=6.36, p = .001) \). However, avoidance attachment was not associated with binge eating unless difficulties with emotion regulation controlled as a mediator, in which case a significant association appeared \( (b = -0.10, p = .006) \). Moreover, difficulty of emotion regulation mediated the relationship between attachment avoidance/anxious and binge eating.

In a further study, Ty and Francis. (2013) also examined disordered eating and insecure attachment in women by considering the mediation role of emotion regulation and social comparison. This research identified a positive and significant association between anxious and avoidant attachment and eating disorder symptoms and also with emotion dysregulation. However, attachment anxiety towards partner showed the strongest correlation with eating disorder \( (r = .34, p < .001) \).

3.6. Child abuse

In a clinical sample of 109 women with childhood abuse histories, Cloitre et al. (2008) identified a correlation between insecure attachment and psychiatric outcomes, and insecure participants showed more problematic functions compared to secure participants \( (b=.25, p <.05) \), with emotion regulation playing a role in this relationship \( (b=.09, p <.05) \). Nonetheless, the author could not detect results for the dismissing group due to the small number of participants in this category.

One study, which included 361 undergraduate students, investigated attachment style and emotion regulation in relation to child maltreatment and types of risk behaviors (Oshri et al., 2015). The authors found that variables such as
emotional abuse were associated with anxious \((b = .30, p = .001)\) and avoidant \((b = .15, p = .010)\) attachment. Also sexual abuse alternatively was related to anxious \((b = .11, p = .013)\) and avoidant attachment \((b = .19, p = .001)\). They were also related to abundant risk behaviors and emotion dysregulation. This study demonstrated a different association in various types of abuse. Verbal abuse, for instance, was not related to any dimension of emotion regulation or attachment styles (Oshri et al., 2015).

3.7. Dementia disorder

Magai and Cohen (1998) conducted a study measuring attachment and emotion regulation in elderly dementia patients and their relation to caregiver burden. Results showed that the burden for caregivers who care for an individual with avoidant and ambivalent premorbid attachment was higher than those with secure premorbid attachment \((t = -3.54, p < .02, t = 3.51, p < .001)\). This study showed that avoidant premorbid attachment style was also associated with premorbid emotions of anger, contempt and reserve and in contrast with secure individuals; they had greater levels of disturbance and paranoid delusions. Ambivalent premorbid attachment, on the other hand, was associated with premorbid emotions of sadness and was related to higher levels of anxiety and depression.

3.8. Posttraumatic stress disorder

Benoit et al. (2010) investigated emotion regulation as a mediator between attachment and Posttraumatic stress disorder (PTSD) symptoms in a sample of 33 adults. The finding showed that attachment security was negatively associated with all dimensions of PTSD symptoms at 12 weeks post trauma. Also, individuals with secure attachment tended less to utilize emotion-focused strategies to cope with traumatic experiences \((r = -0.47, p = 0.004)\). Moreover, emotion-focused strategies and substance use - two dimensions of emotion regulation examined in the study - mediated the association between attachment and PTSD symptoms.

4. Discussion

4.1. Attachment, Emotion regulation and mental disorders

In this literature review, a moderate association between attachment style and mental disorders emerged. Additionally, regarding the potential role of emotion regulation, individuals with insecure attachment had more difficulties in emotion regulation; therefore, the group with insecure attachment and emotion dysregulation showed an increased risk for mental disorders.

In spite of the results demonstrating the relation between insecure attachment and mental illness, some insight into avoidant attachment examined in several studies provided different results that need to be discussed. Although most studies reviewed in this paper showed an association between emotion regulation, attachment and mental health, in some studies emotion regulation failed to be a mediator of this relationship. For example, Shakory et al. (2015) found no positive association between avoidant attachment and binge eating. It should be noted, however, that individuals with avoidant attachment downregulate their emotions with suppression and denial of negative emotions (Tasca & Balfour, 2014; Shaver et al., 2008). In addition, in a more recent study, Nielsen et al. (2017) found no relation between avoidant attachment and both anxiety disorder and emotion regulation, while it was covariant with attachment anxiety. Also, Van der Meer et al. (2015) and McDonald et al. (2016)
found that there was no correlation between avoidant attachment and psychological distress. Similarly, Karreman and Vingerhoets (2012) found no direct correlation between fearful attachment and well-being when controlling for other attachment styles scores. Moreover, although in this study suppression of emotion expression was associated with attachment and well-being, it failed to mediate this link.

Mikulincer and Shaver (2007) suggested that individuals with relatively high levels of avoidant attachment may find it difficult to express their thoughts and emotions, or may not be aware of having problems, and are known to under-report symptoms of distress. Also, these authors believe that the level of stress experienced by a non-clinical sample might not be enough to activate the typical pattern of responses associated with avoidant attachment. Moreover, individuals with an avoidant attachment pattern tend to dismiss or downregulate distressing emotions through emotional suppression or dissociation, and are less inclined to report distress.

With regard to gender aspects, the study of McDonald et al. (2016) is noteworthy since it includes mainly women. For instance, it is possible that women are more inclined to report anxious, as opposed to avoidant attachment (Ainsworth et al. 1978).

Furthermore, Garrison et al. (2011) claimed that avoidant attachment is negatively related to generalized disclosure tendencies and daily emotional disclosure. To explain this, they assume individuals who are high in avoidant attachment tend to suppress their emotions and do not seek social support when they are distressed (Mikulincer et al., 2003). Also, the findings of Zech et al. (2006) showed that avoidant attachment was not associated with emotion disclosure and depressive affect. However, the authors explained that while there is a growing independency in avoidant individuals, they would not accept negative feelings. Moreover, to suppress affective reactions, individuals with avoidant attachment utilize defensive strategies (Mikulincer & Orbach, 1995).

In another study examining attachment style with anxiety and depression disorders, avoidant (dismissive) attachment was associated only with depression whereas fearful avoidant and preoccupied attachment predicted both depression and anxiety disorders (Marganska et al., 2013). To interpret this finding, both styles (fearful avoidant and preoccupied) might be characterized by hyper-activating emotion regulation strategies that involve increased monitoring of threats to the self, especially social threats such as abandonment. In addition, the hyper-activating strategies used by preoccupied and fearful individuals frequently involve attempts to elicit care and attention from others, often through clinging behaviors (Mikulincer et al., 2003). Meanwhile, Roberts et al. (1996) found that individuals with higher level of avoidant attachment reported more depressive symptoms that are associated with their negative models of the self. Moreover, Magi and Cohen (1998) found that those dementia patients who possess avoidant attachment had fewer depression and anxiety disorders than individuals with secure and anxious attachment.

However, it should be noted that individuals with avoidant attachment are believed to under-report their depressive symptoms (Dozier & Kobak, 1992). Furthermore, Pascuzzo et al. (2015) also indicated no relation between avoidant romantic attachment orientation and the global index of psychopathology, and emotion regulation (namely, emotion-focused strategy) partially mediated the association between insecure parent-adolescent attachment and adult symptoms.
of psychopathology. Nevertheless, some studies showed that under stress conditions avoidance might be related to the development of symptoms of psychopathology (Simpson & Rholes, 2004; Berant et al. 2001; Ein-Dor et al. 2010). However, the low-risk sample in this research, as the author found, might be a reason to restrict the high-level stress by participants. Also, according to minimization of distress signal strategy in individuals with avoidant attachment, under-reporting of symptom of psychopathology might be feasible (Mikulincer & Shaver, 2007, 2008).

4.2. Conclusions and Future Directions

This review of existing papers on the association of attachment and mental health with emotion regulation as a mediating variable reveals some limitations that need to be addressed by future investigations. In most papers in this review, a cross-sectional design was used, which presents a restriction with regard to the interpretation of the study results. A cross-sectional design may be prone to non-response bias if participants who consent to take part in the study differ from those who do not participate, resulting in a sample that is not representative of the population. However, it is possible to record exposure to many risk factors and to assess more than one outcome in a cross-sectional study (Philip Sedgwick, 2014). Therefore, further research is recommended using longitudinal and experimental designs to uncover causal links in the relationship between adult attachment, mental disorder and emotion regulation with more detailed information.

The samples included non-clinical participants in most studies, which could affect results; furthermore, generalizing the results with non-clinical samples to clinical samples is not feasible. To clarify this, investigating clinical populations could be an essential issue to provide variety of knowledge in respect of the relationships between the variables and ultimately to come up with more accurate conclusions. Thus, additional studies are needed to examine clinical samples regarding the attachment in adulthood and mental health and the role of emotion regulation in the future.

Additionally, sample size in some studies was not sufficient enough to be adequately powered. This is another reason why generalizing the results is problematic. It would be an advantage for future investigations to provide an equal sample with both men and women and endeavor to encompass a large community sample as well.

Self-report questionnaires are used in most of the reviewed papers. Self-report measures are particularly vulnerable to the effects of social desirability and retrospective bias (Pervin, 1999). Therefore, future studies ought to utilize various measures like observation or interviews to assess psychopathology, attachment style, and emotion regulation to avoid this possible bias. Furthermore, papers in this review differ widely in the applied measures of attachment, emotion regulation, and psychopathology. Hence, consistency in the use of identical measures in future studies would be beneficial.

Moreover, few studies have considered how all attachment patterns are related to all dimensions of ER. Despite the lack of research in these areas, however, more insight is needed into how different aspects of ER and attachment are relevant to mental disorders in order to derive more conclusive results.
5. References


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