Matthew Rosen Marsh BA Hons

RELATIONSHIPS BETWEEN INSECURE ATTACHMENT, MEDIATORS AND DEPRESSION

Section A: Mediators between insecure attachment and depression – a review of the literature
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Section B: Investigating relationships between insecure attachment, self-compassion, self-criticism, brooding and depression in a non-clinical sample
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Summary of the MRP portfolio

Section A provides a review of the literature on mediators between insecure attachment and depression. Attachment theory and measurement is explained and issues about the relationship with depression are clarified. Mediators are divided into cognitive, interpersonal and affect-regulation categories although it is acknowledged that such categories are porous. The clinical and research implications of the review are explored.

Section B is a cross-sectional survey of the general population and explores the relationships between insecure attachment, self-criticism, brooding, self-compassion and depression using multiple regression and multiple mediation bootstrapping analyses. There are a number of findings: firstly differences are found in the mediational pathways between anxious and avoidant attachment and depression. Secondly self-criticism and self-compassion are found to be independent predictors of depression and thirdly self-compassion reduces depression by reducing hated self-criticism and brooding. Theoretical and clinical implications, study limitations and suggestions for further research are explored.

Section C provides a critical appraisal of the project with some reflections on what has been learned and implications for clinical practice as a result of the research.

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Section A: Literature Review

Mediators between insecure attachment and depression - a review of the literature

WORD COUNT: 5500 (plus 425 additional words)

Abstract.

There has been extensive research on the relationship between insecure attachment and depression and this has included studies of the variables that mediate the relationship in order to develop more effective interventions for those suffering from depression.

A critical review of the mediator studies found a complex and interweaving picture of cognitive, interpersonal and affect regulation mediators although categories were somewhat porous due to many mediators being multi-faceted. Of twenty-eight studies, only two did not find any evidence of mediation. Some studies were able to demonstrate different meditational pathways between avoidant and anxious attachment and depression and there was generally a stronger association between anxious attachment and depression.

Many studies showed partial mediation so there was a need for further research to use multimediational models to include other potential mediators as well test for covariance. Additionally testing for positive psychology mediators such as self-compassion would offer theoretical support for interventions which emphasise the promotion of mental health rather than merely the prevention of illness.

Introduction

There has been extensive research in recent years on the relationship between insecure attachment and depression following on from Bowlby's postulation of the theoretical links (1973, 1980). Studies have shown both anxious and avoidant insecure attachment types to be correlated with depression (e.g. Davila, 2001; Wayment & Vierthaler, 2004). Further research has investigated the variables that mediate the relationship as a way of developing interventions for those that are suffering from depression. However there has not as yet been a critical review of the literature on these mediators. Therefore this review seeks to address the question of what mediates the relationship between insecure attachment and depression. In order to provide the necessary context, the review will firstly outline depression and attachment theory. This will be followed by a review of empirical studies on mediators and finally suggestions for future research.

Depression

Depression refers to a range of mental conditions characterized by persistent low mood, absence of positive affect and a range of physiological, emotional, behavioural and cognitive symptoms (American Psychiatric Association, 2000). Depression occurs in about 10 per cent of the UK population at any one time (Health & Social Care Information Centre, 2007). Research has consistently shown that certain early rearing experiences, such as criticism, overprotection,

intrusiveness and rejection, may play a causal role in the development of depression in later life (e.g. Gerlsma, Das, & Emmelkamp, 1993).

Attachment

Attachment Theory suggests that the way a child is treated by caregivers not only affects physical survival but influences important cognitive and emotional systems (e.g. Gerhardt, 2004), which contribute to the formation of distinct adult attachment styles:

- Secure: an attachment figure who is consistently available and responsive reinforces proximity seeking in the child and contributes to a build up of positive memories of effective distress management and thereby positive internal working models of self and others.
- Insecure: there are a number of distinctive strategies that can result because the proximity seeker's distress is not alleviated and the attachment system is disrupted.
    - A 'hyperactivation' strategy where there is a failure to co-regulate distress and the person works harder to gain attention and protection from the attachment figure because they experience the attachment figure as inconsistently or rarely available. This is the distinguishing feature of an anxious attachment style.
    - A 'deactivation' strategy which is generally the result of an intrusive, excessively stimulating and controlling interactional style with the infant (Fonagy, 2001). Seeking greater proximity to the attachment

figure is seen as futile and the seeker adopts deactivating strategies such as denial of attachment needs and a commitment to deal with threats alone – these are the salient characteristics of dismissive avoidant individuals.

- Fearful avoidance - This is a combination of high avoidance and high anxiety and is a result of a failure of both hyperactivation and deactivation strategies. People with this type of attachment style fear being close and relying on the other but they are also anxious because they also want their partner's love and support. Mikulincer and Shaver (2007) found that fearful avoidant people had the poorest mental health of all attachment types.

Research has shown that attachment styles remain relatively stable over time and across different relationships but accommodation and updating of working models in response to new attachment experiences can continue as well (Mikulincer & Shaver, 2007).

Theoretical Links - Attachment and Depression

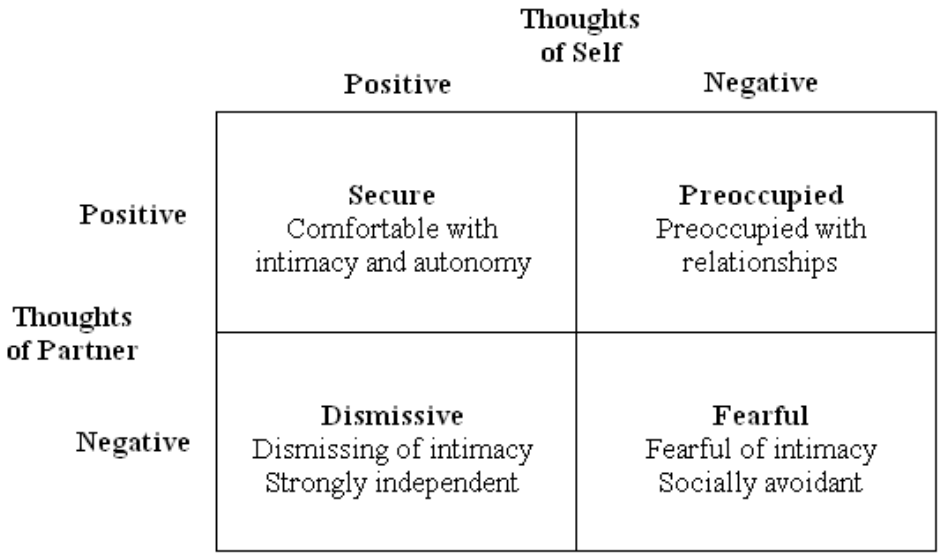
Bowlby (1973, 1980) proposed that the formation of pessimistic and hopeless representations of self and others which is characteristic of insecure attachment was fertile ground for depression particularly when an insecure individual encountered later losses and hardships. These ideas have been supported by longitudinal studies of the effects of negative attachment-related experiences in

childhood on adult depression (Cummings & Cicchetti, 1990; Harris, Brown & Bifulco, 1990).

Attachment measures used in the literature

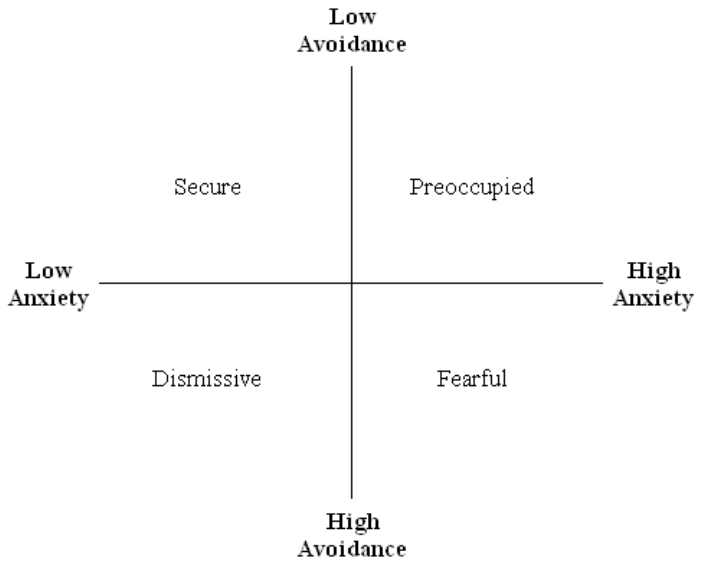
According to Bowlby (1979), a long-term romantic relationship is the prototype of attachment bonds in adulthood. Following this, Shaver, Hazan and Bradshaw (1988) proposed that romantic bonds in adulthood are conceptually parallel to infants' emotional ties to their primary caregivers, and adult attachment self-report measures have been based on this. Bartholomew and Horowtiz (1991) developed a model that identified four categories of adult attachment based on positive or negative thoughts about self and positive or negative thoughts about partners. The four categories of secure, preoccupied, dismissing and fearful are illustrated in figure 1.

Figure 1. Illustration of attachment styles (categorical model)



After factor analysing a large range of adult attachment measures, Brennan, Clark and Shaver (1998) developed the Experience in Close Relationships Scale (ECR) which is based on the dimensions of anxiety and avoidance. The anxiety scale in the ECR relates to beliefs about self-worth and whether or not one will be accepted or rejected by others. The avoidance scale in the ECR relates to beliefs about partners and about taking risks in approaching or avoiding other people. Combinations of anxiety and avoidance can thus be used to define the four attachment styles as per figure 2.

Figure 2. Illustration of attachment styles (dimensional model)



The ECR is currently the most widely used self-report measure**.** Inevitably this review will switch between dimensional and categorical attachment terminology depending on the attachment measure used in the reviewed paper.

The relationship between attachment and depression

Before reviewing mediators between attachment and depression it is relevant to discuss several issues that frame the literature.

Insecure attachment as predictor of depression

Mikulincer and Shaver (2007, p.380) list over one hundred studies that have found a positive association between insecure adult attachment and high levels of depression. Although the majority are cross-sectional, there have been a number of prospective studies that have found attachment insecurities predict subsequent increases in depression over periods of time ranging from one month to two years (e.g. Davila, 2001; Whiffen, 2005). In addition, Haaga et al. (2002) and Roisman, Fortuna and Holland (2006) manipulated the mood of participants and showed that insecure attachment styles remained stable and were not an artefact of depressed mood. Barnet and Gotlib (1988) found that working models of introversion and interpersonal dependency, which are associated with depression, endured even after full recovery from depression.

Differences between types of insecure attachment and depression

In all of the hundred plus studies reviewed by Mikulincer and Shaver (2007, (p.379) anxious attachment was associated with depression. The relationship between avoidance and depression was more mixed: half of the studies showed some relationship but this more consistently involved fearful rather than dismissive avoidance. In categorical terms, people with fearful and preoccupied

attachment (both high on the anxious attachment dimension) are more likely to get depression. Murphy and Bates (1997) found that a dismissive avoidant attachment style, unlike fearful, did not correlate with the self-criticism subscale which is highlighted as a strong depressive vulnerability. Superficially it would seem that people with dismissive avoidance are as immune to depression as secure types. However, there is evidence that under chronic demanding stressful conditions the deactivating strategies of dismissive avoidance collapse. Birnbaum, Orr, Mikulincer and Florian (1997) found that those with avoidant attachment exhibited as high distress as those with anxious attachment during the divorce process and research with mothers of children with chronic heart disease has supported these findings (Berant, Mikulincer & Florian, 2001).

Subtypes of depression

Researchers from diverse theoretical backgrounds have consistently divided depression into two subtypes. One has features of overdependence and neediness variously termed ‘sociotropic’ (Beck, 1976), ‘dominant-other’ (Arieti & Bemporad, 1980) and ‘anaclitic’ (Blatt, 1974). The other is dominated by achievement related characteristics such as perfectionism and self-criticism and has been called ‘autonomous’ (Beck, 1976), ‘dominant-goal’ (Arietti & Bemporad, 1980) and ‘introjective’ (Blatt, 1995.) Studies have shown that different insecure attachments may lead to a vulnerability to different depression subtypes (e.g.Batgos & Leadbeater, 1994; Davila, 2001). People with anxious attachment seem vulnerable to the sociotropic type of depression and avoidant individuals

seem vulnerable to the autonomous type of depression. Reis and Grenyer (2002) repeated these findings but also found that a preoccupied attachment style predicted autonomous depression and question whether autonomous depression may occur as a result of a more heterogeneous set of psychological events. A limitation of the evidence is that it is correlational and therefore definitive causal conclusions are not possible.

In summary there is some evidence of a predictive relationship between insecure attachment and depression, of some types of insecure attachment having a stronger relationship with depression than others and of mixed findings concerning how different types of attachment are associated with different types of depression. Having established the relevant context, it is possible to address the main concern of this review, namely the factors that mediate the relationship between insecure attachment and depression. In all the reviewed studies, the term 'depression' is treated as degrees of depressive symptoms on a continuum rather than a clinical category and it is this definition which is used by the review.

Critique of attachment theory

Before going to the main review it is important to highlight some criticisms of attachment theory and that this review by its very nature excludes potentially important variables that impact on depression. One criticism raised by systemic theorists such as Minuchin (2012) is that attachment theory places too much emphasis on relationship with the primary caregiver and neglects other important

influences such as the extended family. Linked in with this is a cultural bias of attachment theory to Western family and child care patterns typical of Bowlby's time (e.g. Miyake & Chen, 1985). This is not only relevant to cultures such as in West Africa where infants are brought up in more communal surroundings but also to many modern families in the West which do not fit into the dyadic model characteristic of attachment theory. Thus attachment theory has been challenged in not being able to address the complexity of infants' and childrens' social experiences as they often have multiple relationships within the family and in child care settings (e.g. McHale, 2007).

Kagan (2011) points out that there is no evidence that child-rearing practices which are antithetical to the developmental model of secure attachment but which were normative for the culture and time e.g. North German mothers believing that children have to regulate their own distress or Chinese infants. raised in austere residential day care centres during the Maoist era have led to a greater prevalence of psychological problems in those societies. Kagan cites his own research that supports the theory that genetically inherited infant temperament is an important arbiter of vulnerability to distress and not related to infant attachment to the mother.

Finally, attachment theory ignores research that shows that in many cultures growing up in a disadvantaged social class (defined in the West by type of work, education and employment) is the strongest predictor of adult depression

(Kagan, 2011). Evidence from the 1958 and 1970 British prospective birth cohort studies cited socio-economic deprivation as one of the issues which affected childhood mental well-being (Mensah & Hobcraft, 2008).

However despite these criticisms there is mounting empirical evidence from western cohorts that shows attachment security predicting important aspects of adjustment and functioning throughout childhood and into adulthood (Sroufe, Egeland, Carlson & Collins, 2009). Whilst any theoretical model has its limitations, there seems a sufficiently strong evidence base (exemplified by the Minnesota Longitudinal Study of Risk and Adaption started in 1978) for attachment theory to be used as a theoretical model for investigating causes of psychological pathology particularly in westernised societies.

Literature Search

Psycinfo, Medline and Web of Knowledge databases were searched up until 21st December 2012 using a combination of 'attach$', 'mediat$' and 'depress$' terms. Papers were selected if they met the following criteria: adult sample, attachment as independent variable, mediational model, depression measured as a distinct dependent variable. Papers needed to use measures of romantic relationship based on findings that an individual's experience in early close relationships shape their adult love relationships (Hazan & Shaver, 1987; Colins & Read, 1990). A more comprehensive description of the search strategy is provided in Appendix 1.

Overview of papers

Twenty-eight studies exploring mediators of the relationship between attachment style and depression were identified.

Review Design

Mediators were divided into cognitive (n=18), interpersonal (n=8) and affect regulation (n=3) following Mikulincer and Shaver's (2007) delineation. A comprehensive table detailing each paper is listed in Appendix 2. The majority of studies were of cross-sectional design where all measures are taken at the same time and thus directionality cannot be established. However there were six prospective studies which have been highlighted and these have the advantage of being able to infer some degree of causality. In the prospective designs,

attachment was always measured at Time 1, mediators measured at Time 1 and/or Time 2 and depression always measured at Time 1 and Time 2 but controlled for at Time 1. The review starts with cognitive mediators.

Review

Cognitive Mediators

Implicit in Attachment Theory (Bowlby, 1980) is the idea of cognitive mediation; it is hypothesized that insecurity is mentally encoded in working models consisting of negative beliefs about oneself and important others, and that when these cognitive structures are activated, they can contribute to psychological disorders such as depression.

Dysfunctional attitudes and self esteem

In their eight-week prospective study, Roberts, Gotlib and Kassel (1996) found that dysfunctional attitudes (e.g. “if I fail at my work then I am a failure as a person”) and self-esteem completely mediated the relationship between both anxious attachment and depression and difficulty being close to others (one of two facets of avoidant attachment) and depression. The results suggested that the mediators were separate constructs as there was no overlapping variance. By using the Adult Attachment Scale (AAS, Collins & Read, 1990) which uses one anxious and two avoidant categories, the authors were able to show how perceived lack of dependability of attachment figures (the other facet of avoidance) was not associated with the pathway. Hankin, Kassel and Abela, (2005, Study 2) used the same prospective model as Roberts et al. and replicated their findings, however the Close and Depend dimensions were collapsed into an overall avoidant dimension.

Reineke and Rogers (2001) extended the research to a clinical population using the same attachment measure but looking at just dysfunctional attitudes; dysfunctional attitudes were found to completely mediate between insecure attachment and depression. Insecure attachment was aggregated due to covariation of the three attachment categories, hence the findings are less specific than the previous two papers. In a more recent study, Williams and Riskind (2004) found that pessimistic explanatory style partially mediated the anxious attachment – depression relationship.

Self-efficacy

Two papers (Strodl & Noller, 2003; Wei, Russell & Zakalik, 2005) suggest that self-efficacy (belief in one's capability to initiate social contact and develop new friendships) is a mediator between anxious attachment and depression. However Wei and Ku (2007) used a multi-mediational model involving self-defeating patterns (behaviour characterised by paying long-term negative psychological costs for immediate short-term benefits), self-esteem and self-efficacy and found that self-efficacy was not a mediator when self-defeating patterns were controlled for. It should be noted that Strodl and Noller sampled from a clinical population and used a different self-efficacy subscale from the other two studies.

Maladaptive perfectionism

Wei, Mallinkrodt, Russell and Abraham (2004) and Iannantuono and Tylka (2012) both found that maladaptive perfectionism (e.g. not being satisfied even whilst knowing that one has done one's best) partially mediated between anxious attachment and depression and fully mediated between avoidant attachment and depression. Wei et al. proposed that the lack of a direct association between avoidant attachment and depression could be explained by the deactivation strategy of people high in avoidance whereby attention is diverted from distress-evoking stimuli and thus distress/depression is denied but if someone with an avoidant attachment style judges that they have failed to live up to their high standards, depression can result. Conversely, striving for perfection in order to gain acceptance could explain anxious attachment's link to maladaptive perfectionism.

Maladaptive perfectionism and ineffective coping

Whilst previous research (e.g. Lopez, Mauricio, Gormley, Simko & Berger, 2001) has suggested that ineffective coping was a single mediator between insecure attachment and distress, Wei, Heppner, Russell and Young's (2006) prospective study found that maladaptive perfectionism and ineffective coping (both measured at Time 2) mediated between insecure attachment and depression. It appears that the two mediators influenced each other over time and this combined covariation led to depression. The authors conclude that maladaptive perfectionism tendencies lead to a person using ineffective coping to deal with

depression, however no evidence is offered to prove that maladaptive perfectionism precedes ineffective coping rather than the other way round.

Surprisingly there was no attempt by any of the papers on maladaptive perfectionism to build on Reis and Grenyer's (2002) findings that socially-prescribed perfectionism (striving to meet the high standards of others) partially mediated between preoccupied attachment and sociotropic depression (characterised by overdependence) and that both socially-prescribed and self-oriented perfectionism (self-imposed unrealistic standards) partially mediated between fearful avoidant attachment and autonomous depression (characterised by self-criticism). By making links between types of insecure attachment, types of maladaptive perfectionism and types of depression, the authors were able to give a more detailed picture of the particular mediational pathways involved.

Self-criticism and dependence

Cantazero and Wei (2010) and Permuy, Merino and Fernandez-Rey (2009) looked at self-criticism and dependence (preoccupation and worry about interpersonal relationships) in college students. However the latter study was limited by a weak statistical and theoretical framework and was therefore not examined in detail. Cantazero and Wei found that a combination of self-criticism and dependence fully mediated attachment anxiety-depression and partially mediated attachment avoidance-depression. None of the authors acknowledge Thompson and Zuroff (2004) who divided self-criticism into 'comparative' (a

negative view of oneself in comparison to others) and 'internal' (a negative view of the self in comparison with internal standards) and found that those on the anxious dimension were related to both types. It may be that avoidance is correlated with only internal self-criticism thus explaining why self-criticism was only a partial mediator of avoidant attachment.

Cantazero and Wei found that dependence was an inverse mediator for avoidance; those higher in avoidance had less dependence and less depression – this fits in with the idea of people high in avoidance fearing interpersonal closeness and also that they may be able to prevent depression through their aversion to dependence. However, Besser and Priel (2008) found that dependence fully mediated between negative view of self (shared by anxious attachment and fearful avoidance) and depression in an older adult population. These somewhat contradictory findings regarding avoidance are perhaps indicative of its heterogeneous nature encompassing both a negative and positive view of self.

Perceived discrimination

Zakalik and Wei (2006) found that perceived discrimination partially mediated between anxious attachment and depression amongst gay men supporting the idea that the hyperactivating strategy of anxiously attached people leads to increased attention to perceived rejection signals. Perceived discrimination didn't mediate between avoidant attachment and depression and was negatively

associated with avoidance when anxious attachment was controlled for. The authors surmise that controlling for anxious attachment restricted the avoidance cohort to those with a positive working model of self and perhaps therefore more capacity to self-validate their sexual orientation and deactivate perceptions of discrimination.

Perceptions of lack of support

Keleher, Wei, and Liao (2010) and Rodin et al. (2007) found that perceptions of lack of support partially mediated between anxious attachment and depression both amongst patients with metastatic cancer and amongst lesbians. Anxious attachment encompasses a negative working model of self and a corresponding need for validation from outside sources, however anxiously attached people are thought to be ambivalent about the capability of others to provide the support they need hence their perception of lack of support. Based on avoidant people's negative view of the other, Keleher et al. had hypothesised that perceptions of lack of support would mediate the relationship between avoidant attachment and depression but found no evidence for this. However Rodin et al. found perceptions of lack of support fully mediated the relationship and this may be due to the use of different measures of perceived support and different populations measured.

Mak, Bond, Simpson and Rholes (2010) compared how perceptions of lack of support from a romantic partner mediated the relationship between insecure attachment and depression in Hong Kong and American students. In line with

their hypothesis of how cultural expectations affect the relationship between insecure attachment and depression, perceptions of lack of support was a significantly stronger mediator between avoidant attachment and depression in the Chinese cohort than in the US cohort. It seems that people with avoidant attachment in Chinese society may find it more difficult to adjust to romantic partners because their avoidant behaviour and beliefs violate the cultural expectations of the collectivist culture where interdependence and close contact are seen as crucial in relationships.

Social anxiety

Eng, Heimberg, Hart, Schneier and Liebowitz (2001) studied a clinical cohort diagnosed with social anxiety disorder and found that symptoms of social anxiety mediated the relationship between anxious attachment and depression. The study included two clinical groups and one control, which increased validity, as well as including a more ethnically diverse mix than other studies.

Summary

There were a wide variety of cognitive mediators and this is summarised in Table 1.

Table 1. *Cognitive Mediators.*

Mediator		Mediation of Avoidant Attachment	Mediation of Anxious Attachment	No of studies	Comments
Dysfunctional attitudes	*Plus self-esteem*	Full	Full	2	One study found differences between two facets of avoidant attachment
			Full	1	Study unable to distinguish between facets of insecure attachment due to covariation
Pessimistic explanatory style		None	Partial	1	
Self-efficacy		None	Partial	2	Not a mediator when self-defeating patterns controlled for
Self-defeating patterns		Full	Partial	1	

Mediator		Mediation of Avoidant Attachment	Mediation of Anxious Attachment	No of studies	Comments
Maladaptive perfectionism		Full	Full and partial	3	Ineffective coping found as covariant mediator with maladaptive perfectionism.
	Socially-prescribed (SP)	None	Partial	1	SP and SO leads to autonomous depression SO leads to sociotropic depression
	Self-oriented (SO)	Partial	Partial		
Self criticism		Partial	Full	1	Cantazero and Wei used combination of self-criticism and dependence
Dependence		Partial (negative association) and full (negative view of self)	Full	2	
Perceived discrimination		None (negative association)	Partial	1	
Perceived support		Conflicting findings (negative association)	Partial (negative association)	3	Full mediation of avoidant cancer patients, partial mediation of avoidant Chinese and American students, no mediation of avoidant lesbians
Social anxiety		None	Full	1	Clinical cohort

A potential critique of some studies is that only a single mediator was tested; the value of using a multi-mediational model was that potential covariance of mediators could be ruled out.

Interpersonal

Attachment theory is primarily a theory of interpersonal relationships hence the study of interpersonal processes as mediators marks a logical extension to research.

Capacity for self-reinforcement and need for reassurance

Wei, Mallkinkrodt, Larson and Zakalik (2005) found that both capacity for self-reinforcement (the ability to encourage, reinforce and value oneself) and need for reassurance were partial mediators between anxious attachment and depression. Higher anxious attachment was associated with *decreases* in capacity for reinforcement but *increases* in need for reassurance, both these variables mediated increases in depression. This is consistent with attachment theory's assumption that anxiously attached people have a negative self-image and therefore are more likely to search for external resources of reassurance. Contrary to their hypothesis that increased capacity for reinforcement would mediate between avoidant attachment and decreases in depression, reduced capacity for self-reinforcement mediated between avoidance and increased depression. This led the authors to question their underlying assumption that unwillingness to rely on others (a feature of avoidant attachment) automatically

leads to greater capacity for self-reinforcement. The results are described as being most consistent for those who have a negative view of themselves and others – fearful avoidance.

Stress generation

Hankin, Kassel and Abela (2005, Study 3) argued that insecurely attached people are more likely to generate additional interpersonal stressors over time as they continually seek reassurance from close others and thereby alienate the people who can provide social support. Interpersonal stressors (e.g. argument with close family member) but not achievement stressors (e.g. exam failure) were found to mediate between both avoidant and anxious attachment and prospective increases in depression over a two-year period. The authors saw the results as supporting their argument firstly that stress generation was distinct from cognitive distortion (which should theoretically affect both achievement and interpersonal stressors) and secondly that stress generation was an important mediating mechanism between insecure attachment and depression. However the authors fail to delineate the different pathways to stress generation for each attachment style. This is particularly relevant given that theory and evidence point to reassurance seeking as being a trait solely of anxious attachment e.g. Wei et al. (2005) above.

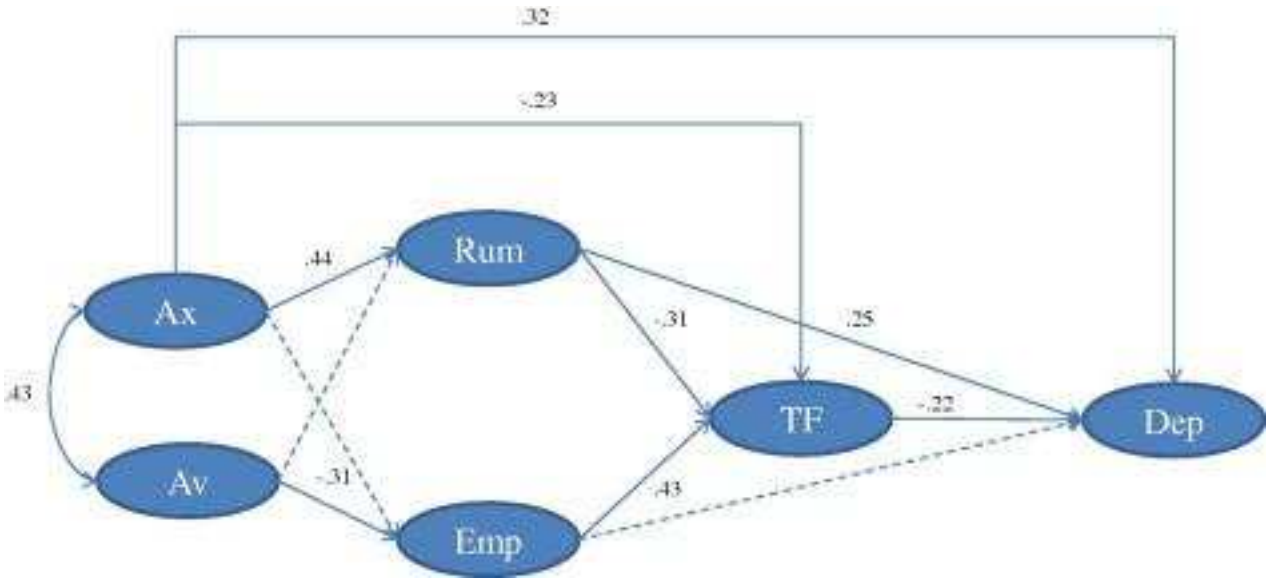
Ebherhard and Hammen (2010) pointed to previous research on the links between reassurance seeking, stress-generation and depression (e.g. Joiner &

Metalsky, 2001) and found that generated romantic conflict stress mediated the relationship between anxious attachment and depression for 104 women over a four week period. The authors distinguished stress generation as opposed to cognitive distortion by assessing the stressful event's objective impact and degree to which it was caused by the participant, however these measures were not standardised and therefore findings need to be treated with caution. Marchand–Reilly (2009) used an externally validated measure of romantic relationship conflict but found no evidence that conflict behaviours mediated between attachment orientations and depression.

Lack of forgiveness, lack of empathy, rumination

In a study that combined cognitive and interpersonal mediators, Burnette, Davis, Green, Worthington Jr. and Bradfield (2009) theorised that relational conflicts would activate the attachment system in different ways depending on attachment style and this would be revealed in the forgiveness process. Anxious attachment's relationship to depression was partially mediated by rumination and lack of forgiveness, whereas the avoidance-depression relationship was fully mediated by lack of empathy and lack of forgiveness (see figure 3).

Figure 3. Attachment, forgiveness, rumination and depressive symptoms.



Note: dotted lines = non-significant paths. Ax = anxious attachment; Av = avoidant attachment; Rum = rumination; Emp = empathy; TF = forgiveness; Dep = depression.

This fitted their hypothesis that, when experiencing an attachment threat, those who are anxiously attached have difficulty regulating their emotions and respond with anger, hurt and rumination, while those who are avoidantly attached seek psychological distance and downplay the relationship. However, the authors failed to distinguish between the brooding and reflective dimensions of rumination; brooding has been isolated as the maladaptive element of rumination (e.g. Treynor, Gonzales & Nolen-Hoeksema, 2003) and this might help further refine this model.

Marital satisfaction

In a prospective study by Wjingaards-de Meij et al. (2005), marital satisfaction was found to mediate between anxious attachment and depression in couples who had lost a child. This was in line with previous studies on attachment and

bereavement (e.g. Wayment & Vierthaler, 2002) and a possible explanation is that those who are anxiously attached have high expectations of support from their partner that cannot be met because the partner is similarly distressed. A major disadvantage of the study was the lack of a non-bereaved control group so it could not be proved whether patterns of depression were bereavement-specific or general.

Summary

There was evidence for both stress generation and interpersonal cognitions as mediators between insecure attachment and depression and in some cases they were intertwined. There were more instances of interpersonal mediators between anxious attachment and depression and this would fit in with the theory of avoidantly attached people valuing relationships less than other people (e.g. Hazan & Shaver, 1987).

Table 2. *Interpersonal Mediators*.

Mediator		Mediation of Avoidant Attachment	Mediation of Anxious Attachment	No of studies	Comments
Capacity for self-reinforcement		Partial (negative association)	Partial (negative association)	1	
Need for reassurance from others		None	Partial		
Stress generation	*Interpersonal*	Partial	Partial	1	No distinction between anxious and avoidant attachment pathways
	Romantic	None	Partial and none	2	
Forgiveness	*Empathy*	Full (negative association)	None	1	
	Rumination	None	Partial		
Marital satisfaction		None	Partial	1	No control

Affect Regulation

The final category of mediators relates to affect regulation; Attachment theorists postulate that insecure attachment results in the affect regulation strategies of hyperactivation and deactivation.

Hyperactivation and deactivation

Tasca et al. (2009) studied 310 women with eating disorders and found that hyperactivation completely mediated between anxious attachment and depression whereas deactivation completely mediated between avoidant attachment and depression.

Basic psychological needs

Wei, Shaffer, Young and Zakalik (2005) suggested that it was important to look at the basic psychological needs that dysfunctional strategies such as maladaptive perfectionism try to meet. Merely trying to change the maladaptive strategy may not be enough, as unless such underlying needs are addressed, the insecurely attached person may revert back to the maladaptive strategy (or develop a new one) in an attempt to meet the need. The basic psychological needs for autonomy, competence and relatedness (Ryan & Deci, 2000) were found to partially mediate between anxious attachment and depression and fully mediate between avoidant attachment and depression.

Autonomy-connectedness

Bekker and Croon (2010) found that autonomy-connectedness (self-awareness, capacity for managing new situations, sensitivity to others) was not a mediator between insecure attachment and depression despite it conceivably sharing some variance with Ryan and Deci's construct.

Summary

Table 3. *Affect Regulation Mediators.*

Mediator	Mediation of Avoidant Attachment	Mediation of Anxious Attachment	No of studies	Comments
Deactivation	Full	None	1	
Hyperactivation	None	Full		
Basic psychological needs	Full	Partial	1	
Autonomy connectedness	None	None	1	

There was evidence to support the mediating role of deactivation and hyperactivation but there were conflicting findings concerning more complex affect regulation variables and this again highlights the impact that different measures of the same variable can have on findings.

Discussion

As can be seen from the tables, evidence of a wide range of cognitive, interpersonal and affect regulation mediators have been found. The review has

highlighted that many of the mediators fit with aspects of attachment theory, however there is a need to create an integrated mediational model.

In terms of the overall association between attachment styles and depression, findings were broadly in line with Mikulincer and Shaver's (2007) review of 100 studies where all showed a correlation between anxious attachment and depression but only about half between avoidant attachment and depression and this is perhaps indicative of the heterogeneous nature of the avoidant attachment style which encompasses both a negative and positive sense of self.

Some studies were able to demonstrate different mediational pathways between avoidant and anxious attachment and depression and that these were more numerous for the anxious attachment depression link. The majority of evidence was for cognitive mediation but it is unclear whether this is due to the majority of authors preferring this area of investigation or it being a more powerful mediator than others. Two papers found no evidence of mediation but comparisons are difficult due to different mediational measures used, however both used relatively small samples. By including different dependent variables such as anxiety (Hankin et al, 2005) or agoraphobia (Strodl & Noller, 2003), some studies were able to demonstrate that mediators were specifically mediating attachment and depression rather than general vulnerability to psychological distress.

It is important to recognise the interweaving nature of aspects of attachment style which lead to a general vulnerability to breakdown rather than a specific pathology. This is akin to the way the 'broaden-and build' cycle (Fredrickson, 2001) of attachment security leading to general resilience rather than a specific personal strength. Looking for a single most powerful mediating mechanism is deemed a fruitless task by Mikulincer and Shaver (2007) because the different difficulties reinforce each other in self-expanding cycles of maladjustment, inevitably this meant that mediator categories were somewhat porous.

Limitations to papers

Participants' ethnicity was majority white in all the papers except the study comparing different perceptions of support between Chinese and American populations (Mak, Bond, Simpson and Rholes, 2010). Previous research has indicated that the degree of insecure attachment as well as the association between anxious attachment and depression differs across ethnic groups (Wei, Mallinkrodt & Zakalik, 2004). Therefore caution needs to be used before generalising to other ethnic groups.

There is evidence of a link between depression and poverty (Gallup-Healthways Well-Being Index, 2009) and because the majority of Higher Education students come from the two highest social and economic groups (Bolton, 2010) there is a danger that student only surveys (18 of 29 in our review) don't reflect the general population.

Some papers used the popular Baron and Kenny (1986) mediational method but this has been criticised in the Mackinnon, Lockwood, Hoffman, West and Sheets (2002) review as has having the lowest statistical power compared to other methods examined.

All the papers relied on self-report measures of attachment and this raises the concern of solely one assessment method being used. This could be a particular problem with cross-sectional studies where high correlations between papers could be attributable to shared method variance, such as social desirability bias and mood effects. However, Mikulincer & Shaver, (2007) have argued that conscious and unconscious attachment processes operate in the same direction and self-reports have been shown to correlate well with indices of unconscious attachment-related processes such as semantic priming tasks (Zayas & Shoda, 2005). Clearly having other types of attachment measurement such as interview can increase the validity of a study, but this is perhaps not always realistic with large sample sizes.

There is a need to include more mediating variables in studies as many studies found only partial mediation, which implies there are other potential mediators involved.

Finally, papers focused on different attachment relationships; some papers concentrated on mediators exclusively in romantic relationships, some included

family and friends and others were inclusive of all relationships. There is increasing awareness amongst researchers of the need to include both generic and relationship-specific measures of attachment orientations in studies because of recurrent finding that these measures tap correlated but distinguishable constructs (e.g. Overall, Fletcher, and Friesen (2003).

Directions for Further Research

Given the limitations identified above regarding single mediator studies**,** multimediational models could simultaneously test for the impact of a number of mediators, how they interact with each other and whether the mediators are overlapping constructs.

In terms of the attachment-depression link, clinical populations have been under-researched, however approximately 25% of UK mental health resources is devoted to secondary and tertiary services (Oxford Economics, 2007) so it is important to ensure that future research is relevant to this sector of the population.

In terms of measuring depression, it may be that people with dismissive avoidance, as part of their defensive deactivation, are less likely to report depression on simple measures with high face validity, but more likely to do so in the context of a broader distress variable measured by a multiplicity of tests.

Therefore it would be interesting for future research to use a broader distress variable.

There has been a growing emphasis within psychology on the promotion of mental good health rather than merely the prevention of illness (e.g. Marks & Shah, 2004; Layard, 2005) and it seems therefore important that more research should be conducted on positive psychological mediators that might promote this. One example is self-compassion, which has been shown to mediate between attachment and well-being (e.g. Neff & McGehee, 2010). Indeed there are strong theoretical links between self-compassion and attachment theory; Gilbert (Compassion Focused Therapy, 2009) and Mikulincer and Shaver (2004) have emphasized that the ability to self-soothe is based on being comforted by attachment figures early in life.

Conclusion

The research so far into mediators between insecure attachment and depression paints a complex picture, avenues of further exploration include multimediational models and the role of positive psychological mediators.

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Section B: Empirical Study

Investigating relationships between insecure attachment, self-compassion, self-criticism, brooding and depression in a non-clinical sample

WORD COUNT: 7961 (plus 648 additional words)

Abstract

The aim of this study was to investigate the role of self-compassion, self-criticism and brooding as mediators between insecure attachment and depression in a multimediational model. Additional aims were to investigate whether self-compassion and self-criticism were independent predictors of depression and whether self compassion could protect against depression through reducing self-criticism and brooding.

Three hundred and fifty six participants selected through convenience sampling completed measures of attachment, self-criticism, self-compassion, brooding and depression as part of an online survey. Multiple regression showed self-criticism and self-compassion independently predicted depression. Multimediational analysis found that the relationship between anxious attachment and depression was fully mediated by self-criticism, brooding and self compassion. The relationship between avoidant attachment and depression was partially mediated by hated self-criticism and brooding. H ated self-criticism and brooding partially mediated between self-compassion and depression.

This study linked the related areas of self-compassion and attachment, the findings add to evidence supporting the potential value of compassion-focused therapies and further clinical and theoretical implications are discussed.

Introduction

Depression is a prevalent, debilitating disorder involving a range of physiological, emotional, behavioural and cognitive symptoms. Depression occurs in about 10 percent of the UK population at any one time (Health & Social Care Information Centre, 2007) Research has consistently shown that certain early rearing experiences may play a causal role in the development of depression in later life (e.g. Gerlsma, Das & Emmelkamp, 1993). In this study, depression will be treated as degrees of depressive symptoms on a continuum rather than a clinical category and this is in line with much of the literature e.g. Murphy & Bates (1996), Raes (2010).

Attachment Theory (Bowlby, 1973, 1980) purports to explain the link between early experience and later psychopathology, including depression. Bowlby proposed that humans have evolved an affect-behavioural attachment system, which increases the chance of survival for the infant or child by indicating physiological and psychological need to caregivers. An experience of an unresponsive and/or unavailable care giver can lead the child to develop negative 'internal working models' of the self and/or other, and influences how the child and then adult perceives and interprets events. Attachment styles reflect the thoughts and expectations that constitute working models and there has been a plethora of research highlighting the relationship between insecure attachment styles and psychological problems (e.g. Mikulincer, Florian & Weller, 1993; Seiffge-Krenke & Beyers, 2005). Brennan, Clark and Shaver (1998) used

factor analysis to find two dimensions underpinning attachment styles: firstly 'anxiety', characterised by a negative view of self combined with a desire for care and reassurance from others and a fear of rejection and abandonment. Secondly 'avoidance', characterised by a negative view of others combined with discomfort with emotional closeness and a desire for independence. In terms of a categorical attachment model (Bartholomew & Horowitz, 1991), secure attachment comprises low anxiety and avoidance, while insecure attachment comprises 'anxious' (high anxiety and low avoidance), 'dismissive avoidant' (low anxiety and high avoidance) and 'fearful' (high anxiety and high avoidance) categories.

There is evidence that the anxious attachment dimension is more strongly associated with depression than avoidant attachment; over 100 studies were reviewed by Mikulincer and Shaver (2007) and all were found to show a significant association between attachment anxiety and depression, but only half were found to show one between avoidant attachment and depression. However it is unclear whether attachment anxiety was controlled for in the studies that found a relationship between avoidance and depression; without anxiety being controlled for it remains possible that any relationship between avoidance and depression was due to a shared association between avoidance, depression and anxiety. Mikulincer and Shaver as well as others (e.g. Van Buren & Cooley, 2002) have emphasised that the attachment styles incorporating a negative view of self (anxious, fearful) are those which are consistently associated with

negative mood states and that this is the critical factor in predicting symptoms of depression.

Mediators

There has therefore been considerable research into the mediators by which insecure attachment is translated into depression given that many people with insecure attachment do not go onto develop depression (Mikulincer & Shaver, 2007) and trying to change a client's insecure attachment style is perceived as a difficult and lengthy process (e.g. Bowlby, 1988; Rothbard & Shaver, 1994). However there are a number of gaps in the literature; firstly, many studies look only at single mediators and therefore are unable to test to what extent particular mediating variables mediate the predictor outcome relationship conditional on other mediators in the model. Secondly there is a lack of research on potentially positive psychological mediators that could be protective factors against depression. It should of course be noted that there may be other variables active in the broad and complex relationship between attachment and depression; some examples include the moderating roles of gender (Erickson, Sroufe & Egeland, 1985); environmental stress,(Fagot & Kavanagh, 1990) and intellectual capacity, (Lyons-Ruth, Alpern & Repacholi 1993), this study by it's very nature is particularly focused on mediation.

While it is helpful to have multiple mediators in individual papers it is clearly impossible to look at all potential mediators. The focus in this paper will be on

three specific mediators which are of theoretical interest and potential clinical value. Specifically, research has consistently shown that those with insecure attachment have been found to have higher levels of *self-criticism* and *rumination* and be more vulnerable to depression whereas those with secure attachment have higher levels of *self-compassion* and better mental health (Gilbert & Proctor, 2006; Nolen-Hoeksema, Wisco & Lyubormirsky, 2008). A more detailed look at each of these potential mediators between attachment and depression will now be taken.

Self-criticism

Cantazero and Wei (2010) found self-criticism completely mediated between anxious attachment and depression and partially mediated between avoidant attachment and depression. However, other studies have found that it is fearful avoidance (which includes the anxious attachment dimension), but not dismissive avoidance, that is associated with self-criticism (Murphy & Bates, 1996; Reis & Grenyer, 2002). Self-critical thinking styles appear to develop in the context of certain negative early attachment experiences (Blatt, 2004) and have also been found to be a major prospective and concurrent factor in depression (Brewin & Firth-Cozens, 1997; Rector, Bagby, Segal, Joffe & Levitt, 2000). Recent research has highlighted that self-criticism is a multifaceted experience; Thompson and Zuroff (2004) distinguished between *comparative* self-criticism, which is a negative view of oneself in comparison with others, and *internal* self-criticism, which is a negative view of the self in comparison with internal personal

standards. Alternatively, Gilbert, Clarke, Hempel, Miles and Irons (2004) separated *inadequate* self-criticism, based on self-correction and wanting to improve, from *hateful* self-criticism, which was about self-disgust and wanting to hurt the self. The latter model is the one that will be followed here as there is a strong evidence base for this distinction (e.g. Castilho, Pinto-Goveia, Amaral & Duarte, 2012; Gilbert et al., 2004; Harman & Lee, 2010; Irons, Gilbert, Baldwin, Baccus & Palmer, 2006; Longe et al., 2010; Lucre & Corten, 2012).

Rumination

Rumination is defined as a "mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms" (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008, p.400). Recent research (e.g. O'Connor & Noyce, 2008; Treynor, Gonzalez & Nolen-Hoeksema, 2003) has identified two types of rumination: *brooding* referred to as "self-critical pondering" (O'Connor & Noyce, p.14) and *reflection,* which is non-evaluative awareness of present experiences. There is a growing corpus of research that it is brooding which is the more maladaptive type of rumination and specifically related to depression (e.g. Burwell & Shirk, 2007; Raes & Hermans, 2008). The only study which looked at brooding as a mediator between insecure attachment and depression (Burnette, Davis, Green, Worthington and Bradfield, 2009) found brooding partially mediated between anxious attachment and depression. There is evidence that brooding and self-criticism are separate variables. O'Connor & Noyce found that

although there was some correlation between the two variables, 57% of the variance was not shared, suggesting that they are not measuring the same construct.

It has been argued by various theorists (e.g. Gilbert, 2010; Nolen-Hoeksema & Jackson, 2001) that both self-criticism and brooding could develop as safety strategies for those with a negative sense of self. If a distressed child experiences others as angry, critical, hostile or not responsive, it may be that self-criticism is a safer way to interpret these experiences rather than blaming others which can potentially bring a threat response from the adult (Gilbert, 2010). Similarly developing a type of thinking characterised by churning over why things have happened and what could have been done differently (rumination) might be driven by an aim to avoid negative interactions in the future and could be part of the hypervigilant aspect of anxious attachment where there is excessive attention to emotional states in oneself and others, (e.g. Ruijten, Roelofs & Rood, 2011).

Self-compassion

Whilst there is some evidence that self-criticism and rumination may be important mechanisms in translating insecure attachment styles into vulnerability to depression, there is also a growing focus within psychology on the mechanisms through which some people are protected against psychopathology. This has its origins in the development of positive psychology (Seligman &

Csikszemntmihalyi, 2000) and the increasing awareness of non-Western perspectives such as mindfulness (Teasedale, Segal & Williams, 1995). One area that is the subject of increased research is self-compassion, which as been described by Neff (2003a) as comprising *kindness* (kindness towards oneself in the face of difficulties), *common humanity* (seeing one's experience as something everyone shares) and *mindful acceptance* (awareness and acceptance of painful thoughts and feelings rather than over-identifying with them).

Two major reviews have found evidence consistent with the possibility that self-compassion represents a potentially important protective factor for emotional problems such as depression. Macbeth and Gumley (2012) conducted a meta-analysis of 14 studies on the relationship between self-compassion and psychopathology and found an overall significant negative correlation of r = -.54. In another review Barnard and Curry (2011) found eight studies which all showed significant negative correlations (r=.-21 to r=.-61) between self-compassion and depression.

Gilbert (2010) emphasizes the impact of early attachment experiences on the development of self-compassion through the way that threat-focused and affiliative-focused affect regulation systems shape a child's sense of inner security. A child brought up in a non-caring environment is likely to have a strong threat system and weak affiliation system and therefore may struggle to feel safe

alone and/or with others, leading to a reduced capacity to be compassionate. Equally, attachment theorists such as Gillath, Mikulincer and Shaver (2005) have proposed that the ability to self-soothe is based on being comforted by attachment figures early in life.

Consistent with these theories, there is evidence that self-compassion partially mediates, in a negative direction, between anxious attachment and well being; i.e. more anxious attachment is associated with less self-compassion and less wellbeing (Neff & McGehee, 2010; Wei, Liao, Ku & Shaffer, 2011). There is also preliminary evidence that self-compassion mediates between both anxious and avoidant attachment and depression (Raque-Bodan, Ericson, Jackson, Martin & Bryan, 2011). However as neither attachment dimension was controlled for in this study, it is not possible to be clear whether self-compassion mediated the avoidant – depression pathway due to the element of covariance between anxious and avoidant attachment.

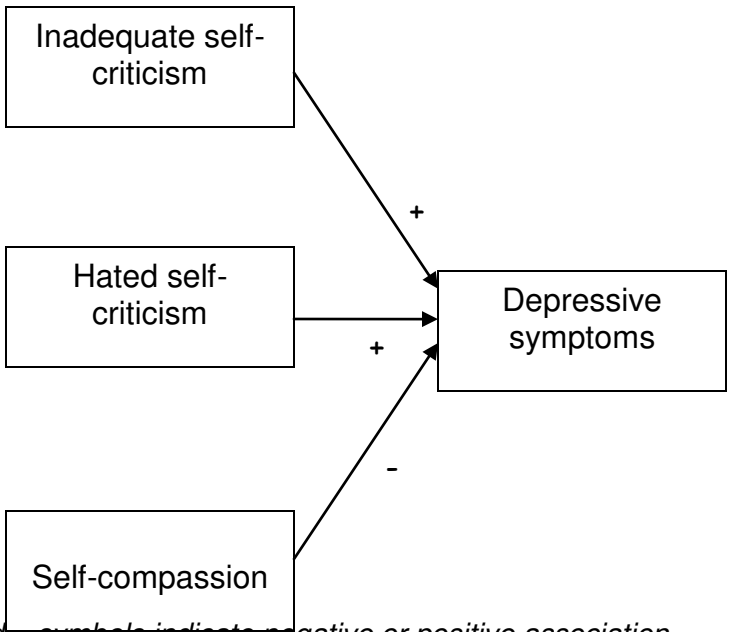
Self-compassion has been shown to be inversely correlated with rumination (Neff & Vonk, 2009; Shapiro, Brown, Warren & Biegel, 2007) and self-criticism (Gilbert & Proctor, 2006; Wong, Mak & Winnie, 2013). Furthermore, there is preliminary evidence (e.g. Irons et al, 2006) that self-criticism and self-compassion are not opposite ends of the same latent construct, and that it may be the inability to be self-compassionate, rather than high levels of self-criticism per se, that is most critical in maintaining depression. In addition, Raes (2010) found that brooding

was one of the mediators between self-compassion and depression and suggests that one way self-compassion could be a protective factor against depression is through its positive effect on brooding.

Areas for further research and hypotheses

There are a number of areas in need of further research. Firstly, to provide evidence that self-compassion and self-criticism make an independent contribution to the prediction of depression; this will be extending Irons et al.'s (2006) findings, which used a measure of self-reassurance rather than self-compassion. Such evidence could have clinical implications regarding developing therapies that build on a client's capacity to be compassionate to themselves rather than on simply removing their self-critical thoughts (see Figure 1).

Figure 1. Model of self-compassion and self criticism as predictors of depression.

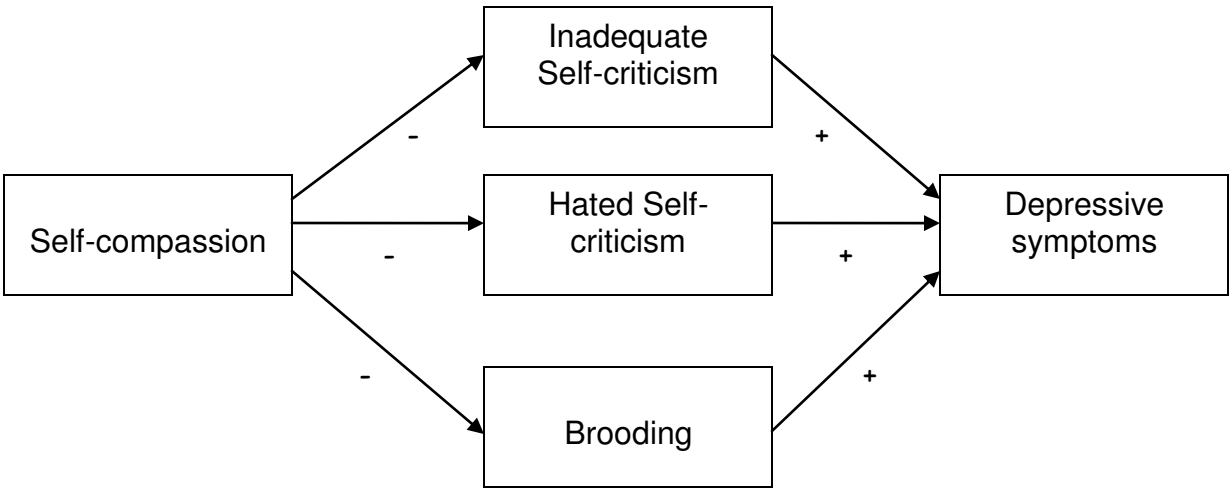


+ and – symbols indicate negative or positive association

Hypothesis 1: Self-compassion and self-criticism will make significant and independent contributions to the prediction of depression.

Secondly it is important to explore how self-compassion may protect against the effects of depression through reducing self-criticism and brooding. Therefore, given the evidence reviewed that self-criticism plays an important role in the development of depression, the model employed by Raes (2010) was extended to include inadequate and hated self-criticism (see Figure 2).

Figure 2. Multimediational model of self-criticism and brooding as mediators between self-compassion and depression.



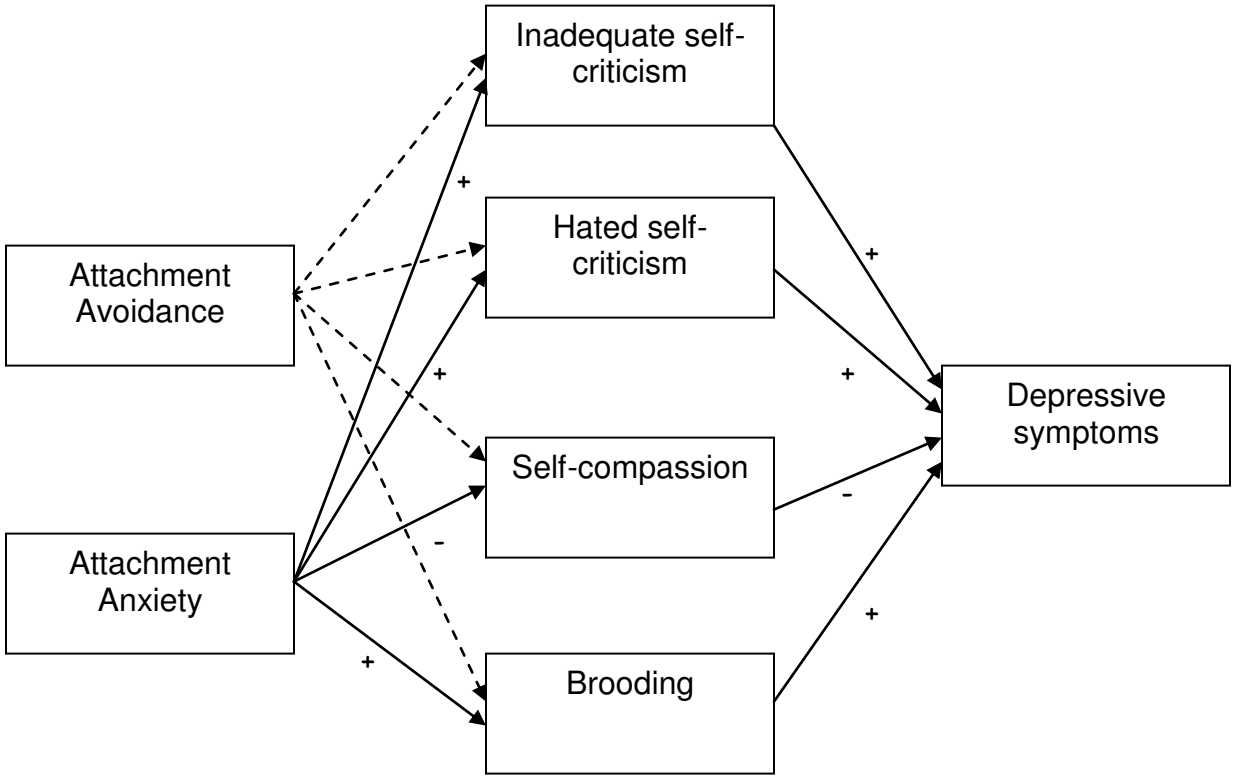
+ and – symbols indicate negative or positive association

Hypothesis 2: The relationship between self-compassion and depression will be mediated by inadequate self-criticism, hated self-criticism and brooding.

Thirdly there is evidence for an anxious but not avoidant attachment pathway to depression via brooding, self criticism and self-compassion (e.g. Burnette et al.,

2009; Cantazero & Wei, 2010; Neff & McGehee, 2010) but further clarification is needed due to the limited number of studies, conflicting findings and lack of control for covariance between the attachment dimensions. It seems important to clarify whether there are different mediational pathways to depression between avoidant and anxious attachment as this could further our understanding of how to tailor interventions for depression depending on the client's attachment. Additionally, using one overall model allows us to test to what extent each mediating variable mediates the predictor – outcome relationship alongside the other mediators in the model (see Figure 3).

Figure 3. Multimediational model of self-criticism, self-compassion and brooding as mediators between insecure attachment and depression.



+ and – symbols indicate negative or positive association

Hypothesis 3: Self-criticism, self-compassion and brooding will mediate the relationship between anxious attachment and depression.

Hypothesis 4: Self-criticism, self-compassion and brooding will not mediate any relationship between avoidant attachment and depression once anxiety is controlled for.

Method

Participants

The 356 participants were recruited through social media, email and other clinical psychology training courses. Inclusion criteria were that the participants needed to be 18 or over. Further demographic information is presented in the data analysis section.

Design

A cross-sectional design was employed with each participant completing a battery of measures at one time point via an online survey.

Procedure

An online survey was created at www.surveymonkey.com. Participants read an information sheet (Appendix 3) and then a consent form (Appendix 4), which had an 'agree' button that had to be clicked before participants could proceed onto the questionnaire. After completing the survey, information about potential sources of support was provided for any participants who had experienced distress from the questions (Appendix 5). There was also the choice of entering a prize draw for a £40 Amazon voucher and it was explained that this was not linked to the participant's data.

Measures

Five variables were measured in the following order:

Self-Compassion:

Self-Compassion Scale Short Form (SCS-SF). Score range 1 – 5. The SCS-SF (Raes, Pommier, Neff & Van Gucht, 2011, Appendix 6) was found to correlate near perfectly (r ≥ .97) with the long form Self Compassion Scale (Neff, 2003b) and demonstrate internal consistency of α ≥ .86. Confirmatory factor analysis on the SCS-SF supported the same six-factor structure as found in the long form SCS as well as a single higher order factor of self-compassion (Raes et al.). While there is no test-retest reliability for the short form, test-retest reliability for the long form was *r* = .93 (Neff, 2003b). Scores are measured on a scale of 1- 5)

Attachment:

Experiences in Close Relationship Scale – Short Form (ECR-S). Score range 1 - 7. The ECR-S (Wei, Russell, Mallinckrodt & Vogel, 2007, Appendix 7) is a short form of the ECR 36 item scale (Brennan, Clark & Shaver, 1998). The ECR was designed to measure attachment avoidance and anxiety dimensions following Brennan et al's factor analysis of a number of well-known adult attachment measures. Wei et al. (2007) found ECR-S's internal consistency to be α=.86 for anxiety and .88 for avoidance, test-retest reliability was r=.82 for Anxiety and .89 for Avoidance. Good construct validity was found for both short and original versions of the ECR.

Self-Criticism

Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS). Score range 0 – 4. The FSCRS (Gilbert, Clark, Hempel, Miles & Irons, 2004, Appendix 8) was developed to measure self-criticism and the ability to reassure. Data were analysed for the two self-criticism subscales; inadequate self (dwelling on mistakes, sense of inadequacy) and hated self (wanting to hurt self, feeling self-disgust/hate). Gilbert et al. found internal consistency for inadequate self was α = .90, for hated self α = .86 and that the FSCRS was significantly correlated with the Levels of Self-Criticism Scale (LOSC, Thompson & Zuroff, 2000) indicating convergent validity.

Depression:

Center for Epidemiological Studies Depression Short Form (CESD-SF). Score range 0 – 3). The CES-D (Radloff, 1977, Appendix 9). is a widely used self-report scale that measures the current level of depressive symptomology in the general population, with an emphasis on depressed mood during the past week. The CES-D is derived from five validated depression scales including the Beck Depression Inventory (BDI) and performs comparably with the latter (Zich, Attkisson & Greenfield, 1990). The CES-D-SF (Andresen, Malmgren, Carter & Patrick, 1994) has been shown to have a very high correlation with the CES-D (ρ = 0.97), test-retest reliability of r=.71 (Andresen et al.) and internal consistency of α=.88 (Zhang et al., 2012).

Rumination:

The Brooding subscale of Ruminative Response Scale (RRS). Scoring range 1 - 1). The RRS (Nolen-Hoeksema & Morrow, 1991, Appendix 10) has been shown to be internally consistent (α = .91) and have good test-retest reliability (r= .70) (Luminet, 2004). Treynor, Gonzalez and Nolen-Hoeksema (2003) conducted a psychometric analysis of the RRS that supported a two factor model of reflection and brooding and found the brooding subscale had internal consistency of α = .77 and test-retest correlation was r = .60. Convergent validity was indicated by the high correlations between the brooding subscale of the RRS and the rumination subscale (defined as neurotic self-attention) of the Rumination-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999). In the present study the complete RRS was administered so that the brooding items were given in the same context in which they were validated.

Ethics

Ethical approval was obtained from the Salomons Ethics Committee (Appendix 11). All participants provided informed consent and British Psychological Society good practice in research guidelines were followed (BPS, 2010).

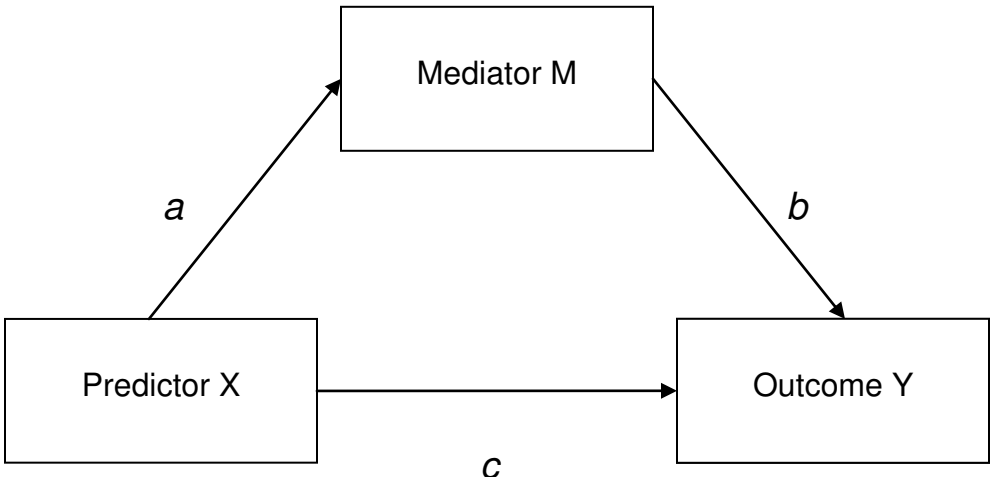
Data analysis

Demographic information of study participants was summarised and internal reliability (Cronbach's alpha) was calculated on the measure scores to check whether they were biased by errors. Field (2013, p.172) states that because of

the central limit theorem, normality can be assumed in samples over 160 even where outliers exist and recommends against using significance tests for deviation from normality in large samples because they are likely to be significant even when the sampling distribution is normal.

As normality was assumed, Pearson's parametric tests were used for calculations of bivariate associations. Mediational analysis was carried out based on the commonly used Baron and Kenny (1986) framework (see figure 4).

Figure 4. Baron and Kenny Mediation Model



For mediation to have occurred: 1) the predictor must significantly predict outcome – *c*-pathway; 2) the predictor must significantly predict the mediator – *a*-pathway; 3) the mediator must significantly predict the outcome – *b*-pathway; 4) the relationship between predictor and outcome is reduced by including the mediator – *c'*- pathway (direct effect). However, the Baron and Kenny model has been questioned for reliance on significance tests to decide whether mediation

has occurred (p.410, Field, 2013; Hayes, 2009). In addition, Mackinnon, Lockwood, Hoffman, West and Sheets (2002) found that the Baron and Kenny method for testing the significance of an indirect effect had the lowest statistical power among the 14 methods they examined.

Mackinnon et al. (2002) and Field (2013) recommend 'bootstrapping', as it has higher power whilst retaining reasonable control over the Type 1 error rate. Bootstrapping estimates the indirect effect (combined effect of paths *a* and *b*) and its confidence interval, thus allowing the degree of mediation to be reported rather than just testing for significance (Sobel test). Bootstrapping involves repeatedly sampling data from the original sample to create a sampling distribution based on these new samples. By repeating this process thousands of times, confidence intervals for the indirect effect are built up. Bootstrapping is also resilient to violations of assumptions and outliers (Salibian-Barrera & Zamar, 2002; Thomas, 2000). Field (2013) recommends using the standardised indirect effect as a measure of effect size and this was calculated along with other bootstrapping data using the PROCESS programme (Hayes, 2009). This programme can also be used with non-mediated regressions (Hayes, 2009) and therefore was also used for Hypothesis 1.

In terms of whether to use a single multiple mediation model or several simple mediation models, there are a number of advantages to the former approach. Firstly, it allows us to test to what extent specific mediating variables mediate the

XY effect conditional on other mediators in the model. Secondly, the likelihood of parameter bias due to omitted variables is reduced. Thirdly, including several mediators in one model allows us to calculate the relative magnitude of the specific indirect effects associated with all mediators. With the sample of 356 participants there was sufficient power (0.8) to detect a medium effect size for two predictors in a multiple mediation model (p.313, Field, 2013).

Results

Demographics

Table 1: *Participant Demographics.*

Variable	Mean	Median	Range	SD
Age	34.4	30	23-77	10.9
	N	Percentage		
Gender				
Male	83	22.7%		
Female	*273*	*77.3%*		
Ethnicity				
White British	240	67.4%		
White Irish	10	2.8%		
Any other white background	71	19.9%		
Mixed white and Black Caribbean	2	0.6%		
Mixed white and Asian	3	0.8%		
Any other mixed background	7	2.0%		
Indian	8	2.2%		
Caribbean	3	0.8%		
African	3	0.8%		
Chinese	1	0.3%		
Any other	8	2.2%		
Marital status				
Single	145	40.7%		
Married	109	30.6%		
Living as married	84	23.6%		
Separated	3	0.8%		
Divorced	14	3.9%		
Widowed	1	0.3%		
Occupation				
Looking after home/family	3	0.84%		
Retired	10	2.81%		
Student	72	20.22%		
Permanently sick or disabled	1	0.28%		
Employee part-time	1	0.28%		

Employee full-time	212	59.55%
Self-employed part-time	12	3.37%
Self-employed full-time	15	4.21%
Unemployed	1	0.28%
Other	4	1.12%
Religion		
None	179	50.28%
Christian	99	27.81%
Buddhist	11	3.09%
Hindu	2	0.56%
Jewish	53	14.89%
Muslim	1	0.28%
Sikh	3	0.84%
Any other religion	8	2.25%

Descriptive Statistics

Table 2. *Descriptive Statistics of Research Variables.*

Variable	Mean	SD	Range	Alpha
Avoidant	2.43	.10	1.00-5.20	.81
Anxious	3.56	1.10	1.17-6.83	.74
Inadequate self	1.70	.90	0.00-4.00	.91
Hated self	.60	.69	0.00-3.20	.80
Self-Compassion	3.08	.65	1.45-4.75	.84
Brooding	2.30	.37	2.00-3.40	.75
Depression	.75	.51	0.00-2.50	.83

All measures were completed without missing data. Means, standard deviations and Internal consistency for the ECR Avoidant scale, FSCRS (self-criticism), SCS-SF (self-compassion), and CESD-10 (depression) were all in line with previous studies using these questionnaires (Wei et al., 2007; Gilbert et al., 2003; Clark et al., 2004; Raes et al., 2011; Nolen-Hoeksema & Morrow, 1991;

Andresen et al., 1994). Alpha for RRS (brooding) and the ECR anxiety scale was lower but still classed as acceptable (Kline, 1999).

Details of the scoring procedures are in the measures section. Only the ECR-S (attachment security) had a table of norms and both anxious and avoidant attachment were in the normal range (Fraley, 2012). The below average avoidant scores could be explained by women outnumbering men by four to one in the sample as there is evidence of men showing higher avoidant attachment and lower anxious attachment than women (meta-analyisis by Del Guidice, 2011). The FSCRS (inadequate and self-criticism) was not designed to have a clinical cut off (C.Irons, personal communication October 30, 2013) but scores were in line with scores from other studies of general populations (Castilho et al., 2012; Gilbert et al., 2004; Longe et al., 2010). Neff (2009) states that average overall self-compassion scores for the SCS-SF tend to be around 3 so the results are in line with the average. In terms of brooding (RRS), Nolen-Hoeksema (Appendix 10a) recommends using percentile cut-offs to find “high” or “low” ruminators e.g. top 33% of the sample as high ruminators. This was not deemed relevant for the purposes of our study but as the overall mean was slightly above mid-point, it can be assumed that the scores were in line with the average. The CES-D 10(depression) was the only scale to have a defined clinical cut off ≥1 (Andresen et al., 1994; Zhang et al., 2012) which puts the overall mean in the non-clinical range as would be expected for a sample from the general population.

Correlations

Table 3: *Pearson's Correlations between Attachment, Self-Criticism, Self-Compassion, Brooding and Depression.*

	Avoidant	Anxious	Inadequate	Hated	Self-Compassion	Brooding
Anxious	.28**					
Inadequate	.19**	.39**				
Hated	.31**	.38**	.69**			
Self-Compassion	-.26**	-.38**	-.75**	-.58**		
Brooding	.06	.32**	.60**	.44**	-.50**	
Depression	.36**	.36**	.57**	.57**	-.53**	.43**

* = p<.05; ** = p<.01; *** = p<.001 (two tailed)

The bivariate correlations were all significant except for avoidant attachment and brooding. Inadequate and hated self-criticism shared only 43% of variance supporting the idea that self-criticism consists of two separate components.

Multiple Regression

Hypothesis 1: Self compassion and self-criticism will make significant, independent contributions to the prediction of depression

In order to clarify whether self-criticism and self-compassion were not opposite ends of the same construct, hierarchical regression was used as this enables us to determine if adding a new variable leads to a significant increase in the variability of the outcome accounted for by the predictors. In hierarchical regression, predictors are entered in order of importance in predicting the outcome based on previous research. As there had been no prior relevant study in this case, two regressions were carried out; one with self-criticism first and one with self-compassion first.

Table 4: *Multiple Regression Analysis with Depression (DV) regressed onto Self-Criticism Model 1 and Self-Compassion Model 2. 95% confidence intervals based on bootstrapping shown in brackets*.

	B	**T**	**Sig**	**Standardized Beta**
Model 1				
Constant	.29	6.18	.000	
Inadequate Self-Criticism	.18 (.02,.25)	5.71	.000	.33
Hated Self-Criticism	.25 (.15,.32)	5.93	.000	.34
Model 2				
Constant	.88	4.39	.000	
Inadequate self-criticism	.11 (.04,.19)	2.84	.005	.20
Hated self-criticism	.23 (.15,.32)	5.54	.000	.32
Self-compassion	-.15 (-.25,-.05)	-3.02	.003	-.19

Model 1 produced a significant regression model ($F(2,353) = 109.45$, $p < .001$, $R^2 = .38$). When self-compassion was added to the model to create Model 2, variance accounted for increased by 5%. This increase was significant ($F(1,352) = 9.15$, $p < .001$, $R^2 = .40$)

Table 5: *Multiple Regression Analysis with Depression (DV) regressed onto Self-Compassion Model 1 and Self-Criticism Model 2. 95% confidence intervals based on bootstrapping shown in brackets.*

	B		**T**	**Sig**	**Standardized Beta**
Model 1					
Constant	2.02		18.35	.000	
Self-compassion	-.41	(-.48,-.34)	11.75	.000	-.53
Model 2					
Constant	.88		4.39	.000	
Self-Compassion	-.15	(-.25,-.05)	-3.02	.003	-.19
Inadequate self-criticism	.11	(.04,.19)	2.84	.005	.04
Hated self-criticism	.23	(-.15,.32)	5.54	.000	.32

p values are one tailed

Model 1 produced a significant regression model ($F(1,354) = 138.12$, $p < .001$, $R^2 = .28$). When self-criticism was added to the model to create Model 2, variance accounted for increased by 43%. This increase was significant ($F(2,352) = 34.44$, $p < .001$, $R^2 = .40$). Collinearity diagnostics showed inadequate self-criticism sharing .51 and self compassion sharing .97 of dimension 4 indicating some degree of collinearity, there was no collinearity for hated self-criticism and self-compassion.

Field (2013) advises studying the standardised beta values when looking at model parameters as they are all measured in the same standard deviation units and are therefore directly comparable. In this case, results were all in the predicted direction: higher self-criticism predicted higher depression and higher self-compassion predicted lower depression. Hypothesis 1 was supported as when either self-compassion or self-criticism were added to the

model, there was a significant increase in the variability of the outcome accounted for by the predictors. Therefore, self-compassion and self-criticism appear to make significant, independent contributions to the prediction of depression.

Multiple Mediation

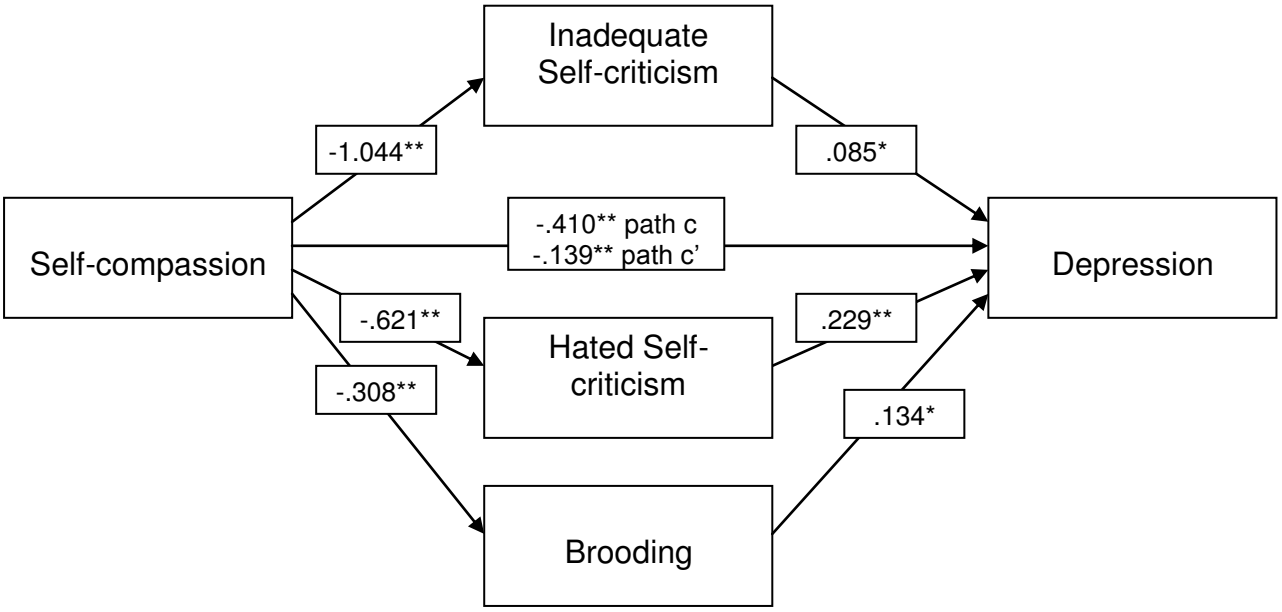
A multimediational analysis was proposed in order to investigate hypotheses 2, 3 and 4 regarding whether self-compassion buffered the effects of depression by reducing levels of brooding and self-criticism, and whether anxious and avoidant attachment relationships with depression were mediated by self-criticism, self-compassion and brooding. Bootstrapping was used for the analyses; this bypasses the causal steps approach of Baron and Kenny and produces the relevant regressions simultaneously (Preacher & Hayes, 2008). For each model, firstly the goodness of fit data are presented (i.e. whether or not the model has improved the ability to predict outcome), followed by the parameters of the model, namely the strength of the coefficients, indirect effects and their confidence intervals. The relevant hypotheses are considered in turn.

Hypothesis 2: Self-compassion will reduce depression by reducing levels of the mediators brooding, inadequate and hated self-criticism

A *c*-pathway regression was calculated predicting the outcome (depression) from the predictor variable (self-compassion), which found that self-compassion was a significant predictor of depression (r=.53, $F(1,354) = 138.12$, $p<0.01$; adjusted $r^2=.28$). *A*-pathway regressions predicting the

mediators from the predictor variable found that there were significant relationships between self-compassion and the mediator variables; inadequate self-criticism (r=.75, F(1,354)=461.04, p<0.01; adjusted r^2=.566), hated self-criticism (r=.58, F(1,354)=182.41, p<0.01; adjusted r^2=.34), and brooding (r=.50, F(1,354)=119.07, p<0.01; adjusted r^2=.25). *C'*-pathway regressions predicting the outcome from both the predictor variable and the mediators produced a significant model (r=.64, F(1,354)=59.87, p<0.01; adjusted r^2=.41). The multimediational model with beta coefficients for each pathway is shown in Figure 5, with the indirect effects, confidence intervals and effect sizes shown in Table 6.

Figure 5: Model of self-criticism and brooding mediating the relationship between self-compassion and depression.



* = p<.05; ** = p<.01

Self-compassion significantly predicted all three mediators, with higher levels of self compassion predicting lower levels of inadequate and hated self-criticism and brooding. The mediators in turn significantly predicted outcome with higher levels of inadequate and hated self-criticism and brooding predicting higher levels of depression. There was partial mediation as there still remained a significant pathway between self-compassion and depression once the mediators were included.

Table 6. *Indirect effects, confidence intervals, effect sizes of mediated pathways from self-compassion to depression.*

Pathway	Indirect effect	Bootstrapped confidence Intervals 95%	Standardised indirect effect (effect size)	Bootstrapped confidence Intervals 95% for effect size
Self-compassion -- Inadequate -- depression	-.089	-.176,.007	-.114	-.228,.009
Self-compassion – hated -- depression	-.142	-.199,-.088	-.184	-.257,-.116
Self-compassion – brooding – depression	-.041	-.095,.000	-.053	-.118, .000

p values are one tailed, non-signficant pathways in grey.

From Table 6 it can be seen, there was a significant indirect effect of self-compassion on depression through hated self-criticism , which showed a medium to large effect (p.413, Field, 2013) and also through brooding (small effect). Inadequate self-criticism was not significant as a mediator as the confidence interval crossed zero. Hypothesis 2 was partially supported in that the self-compassion-depression relationship was mediated by brooding and hated self-criticism.

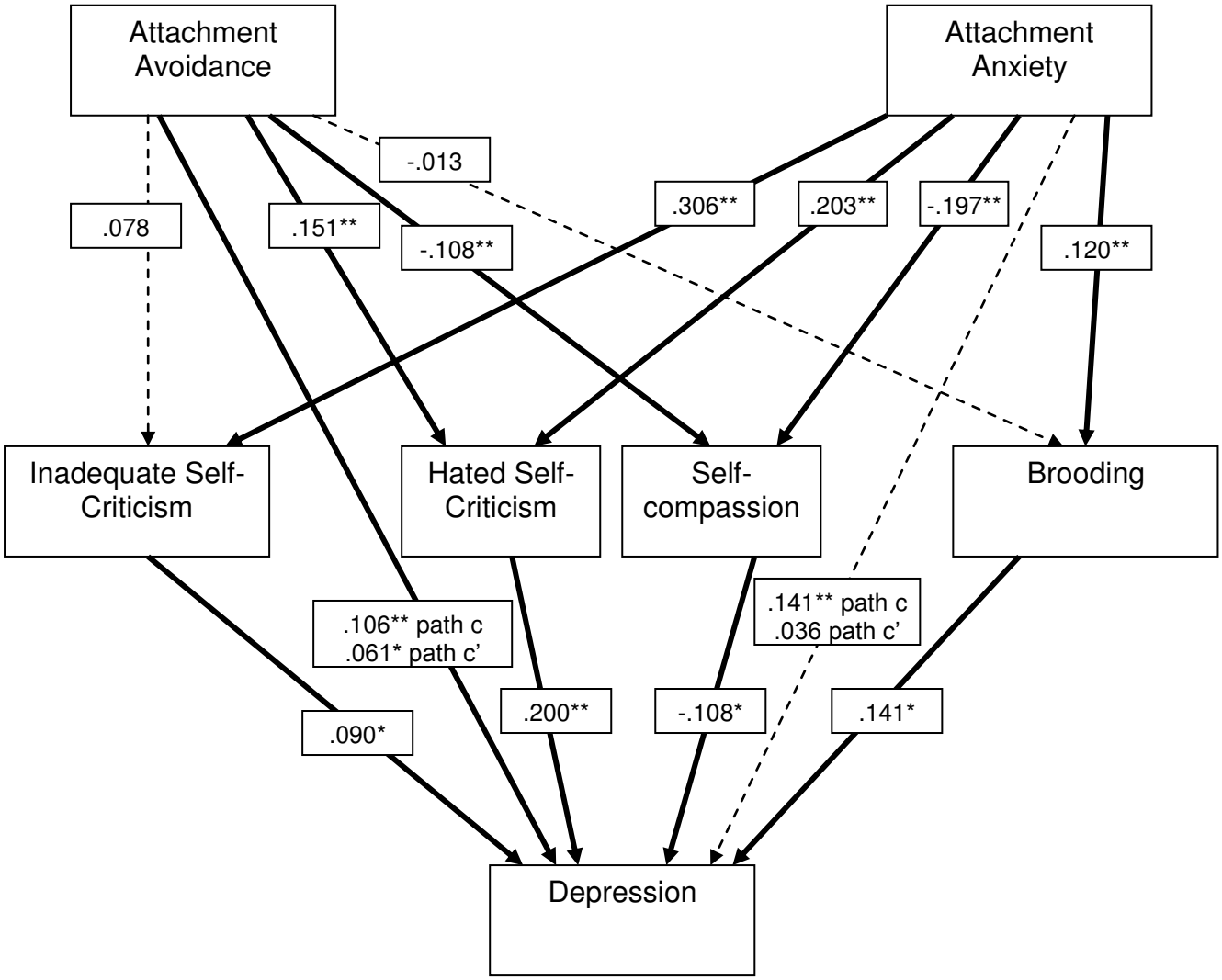
Hypotheses 3: Self-criticism, self-compassion and brooding will mediate the relationship between anxious attachment and depression.

Hypothesis 4: Self-criticism, self-compassion and brooding will not mediate the relationship between avoidant attachment and depression.

Findings will be presented in the same manner as for the previous model. The goodness of fit data were the same for the attachment and avoidance pathways as the model takes into account the combined variance of both pathways. *C*-pathway regressions predicting the outcome (depression) from

the predictor variables (anxious and avoidant attachment) revealed that these predictor variables had a significant impact on depression (r=.42, $F(2,353)=36.88$, $p<0.01$; adjusted $r^2=.17$). *A*-pathway regression predicting the mediators from the predictor variables found that there were significant relationships between anxious and avoidant attachment and: inadequate self-criticism (r=.40, $F(2,353)=34.09$, $p<0.01$; adjusted $r^2=.16$), hated self-criticism ($r=.43$, $F(2,353)=40.83$, $p<0.01$; adjusted $r^2=.19$), self-compassion ($r=.41$, $F(2,353)=35.57$, $p<0.01$; adjusted $r^2=.17$), brooding ($r=.32$, $F(2,353)=20.17$, $p<0.01$; adjusted $r^2=.10$). *C'*- pathway regressions predicting the outcome from both the predictor variable and the mediators produced a significant model ($r=.65$, $F(2,353)=20.17$, $p<0.01$; adjusted $r^2=.10$). The multimediational model with beta pathways is displayed in Figure 6, indirect effect, confidence intervals and effect size are shown in Table 7.

Figure 6: Model of self-criticism, self-compassion and brooding mediating the relationship between insecure attachment and depression.



* = p<.05; ** = p<.01

Bootstrapping allows for covariates to be controlled for thus enabling an examination of the independent contributions of anxious and avoidant attachment pathways to depression. Attachment avoidance significantly predicted hated self-criticism and self-compassion whilst attachment anxiety significantly predicted all the mediators. The mediators in turn significantly predicted outcomes with higher levels of, inadequate self-criticism, hated self-criticism and brooding and lower levels of self-compassion predicting higher levels of depression. There was partial mediation for the avoidant attachment

pathway but total mediation for the anxious attachment pathway because in the latter case c' was no longer significant.

Table 7: *Indirect Effects, Confidence Intervals, Effect Sizes of Mediated Pathways to Depression from Insecure Attachment.*

Pathway		Indirect Effect	Bootstrapped Confidence Intervals 95%	Standardised Indirect Effect (effect size)
Anxious	Inadequate – depression	.028	.001,.058	.059
	Hated-depression	.039	.019,.063	.084
	Self-compassion – depression	.021	.004,.043	.046
	Brooding – depression	.020	.002,.040	.037
Avoidant	Inadequate - depression	.007	-.001,.025	.015
	Hated – depression	.029	.013,.054	.062
	self-compassion - depression	.016	.002,.027	.025
	Brooding - depression	-.002	-.013,.005	.004

p values are one tailed, non-signficant pathways in grey. No CIs for effect size as PROCESS unable to do this with covariates in the model

The table shows that only the indirect effects of avoidant –> inadequate self-criticism -> depression and avoidant –> brooding –> depression were not significant, because their confidence intervals crossed zero. All the other meditational pathways showed significant indirect effects. The effect sizes of the pathways were in the small to medium category (p.413, Field, 2013).

In line with Hypothesis 3, the anxious attachment relationship with depression was fully mediated by self-criticism, self-compassion and brooding as the direct pathway became non-significant once all the mediators were included in the model. Furthermore, all four mediators contributed to this mediation, as

they all showed significant indirect effects. Contrary to Hypothesis 4, the avoidance – depression pathway was partially mediated by self-compassion and hated self-criticism. As the c' pathway between avoidance and depression remained significant, there may be other variables which mediate that relationship.

Discussion

This study explored a number of research questions: firstly do self-compassion and self-criticism independently contribute to the prediction of depression? Secondly does self-compassion appear to buffer the effects of depression through its neutralising effects on self-criticism and brooding? Thirdly do self-criticism, self-compassion and brooding mediate the relationship between avoidant and anxious attachment and depression when they are included in the same mediational model? Fourthly are there differences between avoidant and anxious attachment pathways to depression via the parallel mediators of self-criticism, self-compassion and brooding?

The main findings and theoretical implications related to each hypothesis will be addressed followed by limitations of the study, clinical implications, future research and conclusion.

In both this study and the literature, self-compassion is sometimes used as a predictor (e.g. Raes, 2010; Raes, 2011, Shapira & Mongrain, 2010) and sometimes as a mediator (e.g. Irons et al., 2006; Neff & McGehee, 2010; Raque-Bodan et al., 2011, Wei et al., 2011). The rationale for including self-compassion as both in this study was because two different things were being tested. Firstly whether self-compassion mediated the relationship between insecure attachment and depression and secondly whether self-compassion acted as a 'neutraliser' against the other mediators which were all measures of pathology. In the latter case, positioning self-compassion as a predictor

made it easier in terms of statistical analysis to find evidence of such a relationship and prevent the phenomenon of 'data fishing' (seeking more information from a data set than it actually contains).

Main findings

Although there was some degree of collinearity and quite high covariance (57%) between inadequate self-criticism and self-compassion, the regression analyses showed that self-compassion and self-criticism both made significant increases in the variability of the outcome accounted for by the predictors and this supports Hypothesis 1 that they would make independent contributions to the prediction of depression. The results provide evidence for the view both that people are more vulnerable to depression when they experience self-criticism (Greenberg, Rice & Elliot, 1990) but also that people may be more likely to become depressed if they are unable to be compassionate to themselves (e.g. Irons et al., 2006). This is relevant for therapies such as Compassion Focused Therapy (CFT, Gilbert, 2010), which focus on development of a more compassionate self to self-relationship (rather than just reducing self-criticism). It is also consistent with the idea proposed by Gilbert (2009) that self-compassion is not simply the opposite of self-criticism and that self-criticism stems from a different affect-regulation system. Longe et al., (2010) conducted a magnetic resonance imaging (fMRI) study and found that being self-critical or self-reassuring to difficult events activated different brain areas.

Although there is ample evidence for a negative relationship between self-compassion and psychopathology (Macbeth & Gumley, 2012), this is only the second study to look at the mechanism by which self-compassion may protect against depression. Hypothesis 2 was partially supported; hated self-criticism and brooding mediated the relationship between self-compassion and depression and the data was consistent with the possibility that self-compassion reduced depression by reducing levels of hated self-criticism and brooding. This expands on Raes (2010) by showing self-compassion may be able to reduce not just brooding but also hated self-criticism and thereby protect against depression. In terms of brooding, the finding further emphasises the importance of delineating different subtypes of rumination and supports previous research which shows brooding as a maladaptive type of rumination (e.g. Burwell & Shirk, 2007; Raes & Hermans, 2008).

In terms of self-criticism, hated self-criticism was a significant mediator between self-compassion and depression but inadequate self-criticism was not and this resonates with Gilbert and Proctor's (2005) study of a CFT intervention which found that hated self-criticism but not inadequate self-criticism was significantly reduced. The path from hated self-criticism to depression appeared to be stronger but this seems unlikely to be due to measurement reliability; inadequate self-criticism had higher internal consistency (α=.91) than hated self-criticism (α=.80). One possible reason for the stronger buffering effect of self-compassion on hated self-criticism is that hated self-criticism is a marker of more extreme psychopathology as it is more prevalent in clinical populations (P. Gilbert, personal communication, June 18,

2013) and there is also evidence that inadequate self-criticism can evolve into hated self-criticism under stressful conditions (Gilbert et al, 2004). This seems an area worthy of further research. Another possible reason is that people perceive inadequate self-criticism as a form of self-correcting motivation and therefore something that they are attached to (e.g. Neff, Ya-Ping & Kullaya 2005), so increasing self-compassion may not automatically lead to a decrease in that type of self-criticism.

While it has been argued that high self compassion may not automatically lead to a reduction in self-criticism because they are rooted in different affect-regulation systems (Gilbert, 2009), the results do show a relationship between increased self-compassion and reduced self-criticism. However in terms of depression, the data is consistent with the idea that it is self compassion's buffering of self-hatred that is most important in protecting against depression.

Brooding and self-criticism were only partial mediators between self-compassion and depression, leaving room for other variables to explain the relationship. There is evidence that self-compassion may increase a sense of mastery and self-esteem (Allen & Knight, 2005), which in turn may help alleviate depression. Leary et al. (2007) found that people high in self-compassion appeared to judge their own performances more objectively than people low in self-compassion and this may be another mediating process. There may also probably be contextual factors such as income, employment and education level as there is established evidence of a relationship between depression and these variables (Gallup-Healthways Well-Being Index, 2009;

Social Exclusion Unit Report, 2004; Bjelland, Krokstad, Mykletun, Dahl, Tell, Tambs, 2008).

Turning to Hypothesis 3, self-compassion, self-criticism and brooding mediated the relationship between anxious attachment and depression so the hypothesis was supported. After controlling for anxious attachment, hated self-criticism and self-compassion continued to mediate the relationship between avoidant attachment and depression so Hypothesis 4 was not supported. However, the findings were consistent with the idea that people with anxious attachment are more vulnerable to depression in general and specifically through the mediators examined here than people with avoidant attachment (e.g. Mikulincer & Shaver, 2007; Caldwell & Shaver, 2012; Neff & McGehee, 2010).

As expected there was full mediation of the anxious attachment – depression pathway. This supports the idea that individuals with high attachment anxiety, who are thought to have negative internal working models of self and a strong fear of rejection and abandonment (Bartholomew and Horowitz, 1991), are vulnerable to depression through not being able to be self-compassionate, through brooding about their difficulties, through feeling that they must do better and through feeling self-hatred. Attachment theory predicts that those who are anxiously attached are self-critical in order to keep a good standing with others and ultimately earn their love (Cantazero & Wei, 2010) and this could explain the mediating role of inadequate self-criticism. Similarly, brooding has been linked to the development of anxious attachment, whereby

the child adopts a hyperactivating strategy to gain proximity and love and ruminates on the inconsistent availability of the caregiver (Mikulincer & Florian, 1998). While these findings are consistent with the existing literature, this is the first time that self-criticism, self-compassion and brooding have all been included in the same mediational model and therefore it has been possible to test to what extent the mediating variables mediate the insecure attachment – depression relationship conditional on other mediators in the model.

Once anxious attachment was controlled for there was still a significant indirect pathway from avoidance to depression via the mediators self-compassion and hated self-criticism. This is an important finding; it seems that even people who are higher in attachment avoidance (i.e. desiring independence and fearing interpersonal closeness) may be vulnerable to depression through having low self-compassion and high self-hating criticism. There is some evidence that the defences of people high in avoidance collapse under chronic stressful conditions (Berant, Mikulincer & Florian, 2001) or under cognitive load (Mikulincer, Birnbaum, Woddis & Nachmias, 2000). Bowlby (1980) theorised that people with avoidant attachment were vulnerable to severe stress because their segregated mental systems could not be hidden from conscious awareness indefinitely. Perhaps this relates to why self-hated rather than inadequate self-criticism was a mediator of the avoidant-depression pathway; it could be hypothesised that people with higher attachment avoidance may experience some kind of stress 'tipping point' where they can no longer suppress attachment related feelings and

thoughts and at that point they simply wish to destroy that part of themselves which is the cause of the distress – a feature of hated self-criticism. (Gilbert et al., 2004).

Inadequate self-criticism was not a mediator between avoidant attachment and depression, furthermore the association between avoidant attachment and inadequate self-criticism was not significant so the idea that avoidant people are prone to an inadequate type of self-criticism because they are constantly striving for perfection as a way to self-enhance and bolster their independence (e.g. Batgos & Leadbetter, 1994) does not seem to be borne out by our results.

Self-compassion mediated the relationship between both anxious and avoidant attachment and depression. It seems that, as with Raque-Bodan et al.'s (2011) findings, low self-compassion can be a pathway to depression for people with attachment avoidance. Thinking in terms of attachment theory, it may be that despite their deactivation strategy of suppressing and denying negative emotions (e.g. Fraley, Garner & Shaver, 2000), people high in avoidance may still experience low self-compassion even if this undermines their positive self-image. It may be that as with those with high anxious attachment, people higher in attachment avoidance also struggle to self-soothe as a result of a lack of comfort from an attachment figure in their early years (Gillath, Mikulincer & Shaver, 2005).

Strengths and Limitations

The current study included a sizeable sample (356) and drew on a non-clinical population with a broad range of age, ethnicity, occupation and religion (in contrast, Macbeth & Gumley , 2012, reviewed 14 self-compassion studies, all of which were based either on students, therapists or clinical populations). However convenience sampling was used to select participants and there is a suspicion that higher socio-economic backgrounds were overrepresented; only 0.28% of participants stated they were unemployed whereas the UK average is 7.7% (Office of National Statistics, 2013). This could have led to a negative skew of depressive symptoms as there is evidence that depression is linked to poverty (Gallup-Healthways Well-Being Index, 2009).

In terms of relevance to clinical populations, there is still some debate about whether depressive symptoms are qualitatively different between samples recruited from clinical and non-clinical sources. Meehl (1992) states that there is a 'difference in kind'. However Vrendenburg, Flett & Kranes (1993) found that depressive symptoms in students were similar to inpatients. It is still not clear how variables such as attachment or self-criticism may operate in different cohorts; e.g. there is some evidence that hated self-criticism is much more prevalent amongst certain clinical populations (P. Gilbert, personal communication, June 18, 2013). It may be that self-compassion will act as a buffer against brooding and self-criticism in a normal population and not in a clinical one and this needs to be further investigated.

Even if the results are consistent with the causal model being proposed, the cross-sectional nature of the study limits the extent to which conclusions can be drawn regarding causation. Additionally cross-sectional data gives a snapshot of the relationship between factors which may change over time, thus a longitudinal examination on how these factors covary over time might be more informative.

Self-report measures were used and there is a question of how factors such as social desirability bias and mood effects can affect self-report accuracy. However Mikulincer and Shaver (2007) offer a robust defence of attachment self-report measures by demonstrating their high correlations with indices of unconscious attachment-related processes such as semantic priming tasks (Zayas & Shoda, 2005).

Clinical Implications

This study has a number of potential clinical implications. Firstly lack of self-compassion was significantly related to depression, which highlights the need to assess for low self-compassion rather than just high levels of self-criticism as a potentially salient factor in depression. Secondly, self-compassion was significantly related to lower hated self-criticism and brooding which was in turn related to lower depression and therefore the study adds support for therapies that encourage the development of self-compassion such as CFT (Gilbert & Irons, 2005) or mindfulness, which is a component part of self-compassion, such as Mindfulness-Based Cognitive Therapy (Teasedale, Segal & Williams, 1995).

Thirdly, the data are consistent with the idea that people with high levels of attachment anxiety are particularly prone to depression in general and specifically through brooding, self-criticism and lack of self-compassion, so gauging a depressed client's attachment style at the beginning of therapy may help to tailor effective interventions. The therapist may need to act as a source of warmth, care and compassion for an anxiously attached client (in effect as a secure attachment figure) to allow them to develop a more self-compassionate relationship with themselves. Even though clients high in attachment avoidance may present very differently, the results are consistent with the possibility that they too could benefit from a therapist enabling the capacity for self-compassion to be developed as a way of reducing depression.

However as stated in the limitations section, one needs be careful applying conclusions from a non-clinical population to a clinical population due to such factors as different prevalence of variables between the populations and treatment effects in a clinical population. Fonagy (2001) points out that attachment coding systems were not developed with clinical groups in mind and therefore it is unclear whether severity of psychiatric morbidity might distort how attachment classifications are assigned.

Future research

Given that cross-sectional data only gives a snapshot of relationships between variables, one way to avoid this ambiguity would be to positively manipulate levels of self-compassion (e.g. Adams & Leary, 2007) to clarify for

instance how much it is a cause rather than just a correlate of depression. In general, longitudinal designs are a more effective way to assure the direction of causation is as hypothesised e.g. that changes of self-compassion lead to changes to depression with depression controlled for at Time 1. Longitudinal designs could also be used to contrast alternative mediation models e.g. depression as predictor, self-compassion as outcome, brooding and self-criticism as mediators.

Given concerns over the accuracy and reliability of self-reports to measure complex psychological processes, it may be useful for future studies to use physiological measures such as heart rate variability or immunological functioning as a way to measure the impact of self-criticism or brooding. This is particularly relevant in the case of people high in avoidance who, when exposed to stressful circumstances, can report low distress but show high levels of somatic symptoms implying that their defences might block conscious access to anxiety or depression (e.g. Wayment & Vierthaler, 2002). Neuroimaging studies of the brain are also an important avenue for showing how different emotions activate different brain areas (e.g. Longe et al., 2010) and also potential changes in brain plasticity as a result of self-compassion or mindfulness interventions (e.g. Davidson et al., 2003).

There appears to be a difference between inadequate and hated self-criticism and researching these differences as well as other aspects of self criticism e.g. internal and comparative self-criticism (Thompson & Zuroff, 2004) is an important avenue to explore.

Self-criticism and brooding have been shown to be associated with other conditions such as anxiety, post traumatic stress disorder, social phobia and psychosis (Brewin, 2003; Cox et al., 2000; Lee, 2005; Mayhew & Gilbert, 2006), so future research could investigate whether findings in this study are replicated in other conditions. In particular it would be interesting to see whether self-compassion can buffer self-criticism and brooding associated with other conditions to the same degree as with depression.

Research into self-compassion interventions is at an early stage and new avenues could include a randomized controlled trial for CFT for depression, studying the association between self-compassion and psychopathology in clinical samples and evaluating self-compassion as a mechanism in clinical trials of psychological therapies. There is also a need to further investigate the active components of self-compassion and how these are associated with various aspects of distress and wellbeing.

One way of further researching why the relationship between avoidant attachment and depression was mediated by hated self-criticism but not inadequate self-criticism would be to introduce current stress levels as an additional variable to see if this moderates the avoidant attachment – depression mediational pathway.

Conclusion

This study has expanded the evidence base linking the related areas of self-compassion and attachment, specifically how self compassion may protect

against depression and how the two different dimensions of insecure attachment may contribute to depression. Self-compassion was found to be an independent predictor of self-criticism and the data was consistent with the idea that self-compassion can protect against depression through its buffering effect on hated self-criticism and brooding. Self-compassion, hated self-criticism, inadequate self-criticism and brooding fully mediated the relationship between anxious attachment and depression. Self-compassion and hated self-criticism partially mediated the relationship between avoidant attachment and depression. Exploration of the mechanisms which may mediate the insecure attachment depression relationship allows a clearer model to be developed as to how different types of insecure attachment can lead to depression. Equally showing how self-compassion may protect against depression is an important step in expanding the evidence base for self-compassion based therapies.

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Section C: Critical Appraisal

WORD COUNT: 1988 (plus 5 additional words)

Section C

1. What research skills have you learned and what research abilities have you developed from undertaking this project and what do you think you need to learn further?

This was the first time I had undertaken a research project of this magnitude and I learned a number of important skills. Firstly an understanding of how to create a detailed proposal of prospective research and how to obtain ethics approval. As I did not apply for NHS ethics approval, learning to do this would be important part of continuing my research career.

I managed to recruit a larger number of participants than initially needed and I think this was the result of careful organisation. I had experienced respondent fatigue (Lavrakas, 2004) in answering a 40 minute questionnaire of another trainee and therefore determined to use short forms of measures where possible and was very aware to try to keep the answering time of the survey to as short as possible, I think this was a factor in the large number who completed the survey and also hopefully the accuracy of data. All the survey data were collected online and I gained useful experience and skills in managing web based data collection which is a rapidly expanding area.

Writing the Literature Review was by far the most challenging part of the dissertation, as I struggled with the sheer breadth and complexity of the literature on attachment. It took some time to work out on the one hand, a rationale for the review which could be linked to Section B, and on the other to establish clear parameters for the literature search. Initially I wasted a lot of time trying to understand and summarise studies which were tangential to the

review and I learned to be ruthless in keeping to the review parameters even if this meant sacrificing studies which were 'interesting' or which I had spent large amounts of time to trying to master, my Salomons supervisor was invaluable in helping me with this. This was also an issue in Section B where I was reminded to link discussion of results back to the hypotheses when it was tempting to be diverted by other findings which were interesting but not central to the main focus of the project. Therefore I learned about the importance of maintaining a strategic overview and I improved my ability to be able to summarise and synthesise material from a wide range of sources. I think I still have some work to do in dealing with perfectionist tendencies which can lead me to getting bogged down in detail.

In terms of data analysis, I developed an understanding of multiple regression and multiple mediation using bootstrapping and I think learning about the theory and technique behind these approaches will help me with further quantitative research I do in the future. As the study was quantitative, I did not use qualitative research methodologies such as grounded theory (Glaser & Strauss, 1967) and these would be useful skills to develop.

Research can be a somewhat lonely process and self-discipline is important, I learned the importance of having a regular routine supported by the Pomodoro technique (Cirillo, 2006) which breaks down work sessions into 25 minute segments. This enabled me to keep focused on the task in hand and gave me a sense of momentum even though the project completion seemed very far away at times. I worked on the project during a period of long term

sick leave and the technique helped alleviate some of the anxiety about whether I would be able to complete the dissertation.

2. If you were able to do this project again, what would you do differently and why?

I first became interested in the area as a possible focus of research after attending a presentation on Compassion Focused Therapy (CFT, Gilbert, 2009) at a third wave therapies conference. I felt a lot of enthusiasm for a model which combined my interest in attachment theory with self-compassion which I have used as a meditative practice. However I was not aware of two issues which in retrospect were quite challenging to overcome. Firstly because of strong personal resonances, I found it emotionally draining to be continually reading about insecure attachment. It is understandable that one is attracted to topics which one feels some personal connection and this can be quite motivating. However, with hindsight I would have been more circumspect about focusing on a topic which I recognise as having painful personal psychological ramifications. Secondly. I would have preferred to narrow the focus of the project to concentrate on self-compassion as a buffer and it would still have been possible to include attachment as relevant theory. The project felt very broad by having hypotheses firstly on the mediational pathways between different types of insecure attachment and depressive symptoms and secondly on self compassion being able to protect against depressive symptoms through its buffering effect on the mediators.

With regards to the literature review, many of the papers encompassed extremely complex models or included other areas of focus such as the

debate over stress perception vs stress generation, and I found it difficult to maintain a balance between explaining the findings and fitting them into the narrative structure of the review. Having said all that, two reviews on self-compassion interventions have been published in the last two years (Barnard & Curry, 2011; Macbeth & Gumley, 2012) so it might have been difficult to find a suitable Literature Review topic had the focus of research been solely on self-compassion as a buffer.

By focusing on Hypothesis 2 (how self-compassion protects against depression by acting as a buffer against self-criticism and brooding), I could have compared the self-reassurance subscale of the Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Gilbert, Clarke, Hempel, Miles & Irons, 2004) with the Self-Compassion Scale Short Form (Raes, Pommier, Neff & Van Gucht, 2011). There has been some questioning of the self-compassion scale as it has mixed items (C.Irons, personal communication June 25, 2013) and it would have been interesting to compare the scales in their relationship with the other variables.

Although I was very conscious to make the online survey as user-friendly and clear as possible, I failed to clarify whether the items on the self-criticism scale were to be answered in the context of just when things go wrong or in a more general sense. It could be this led to respondents giving lower levels of self-criticism because they thought the questions was asking about a generic thinking style rather than a response to a stressful situation.

In terms of recruitment, women made up over 75% of participants and male participants could have been targeted by posting advertisements on male oriented Facebook pages or contacting online media for men (e.g. http://www.mensfitness.co.uk/). There was also limited ethnic diversity and this could have been addressed by advertising on sites such as http://www.minorityrights.org/.

The complexity of the analysis was very challenging and perhaps if the study had been more narrowly focused I would have had the time and words to master the statistical techniques to expand the analysis. Technical problems meant that T tests could not be carried out to compare the strength of mediational pathways and I felt the discussion was somewhat hampered by my not being able to do this. Similarly it proved impossible to find a way of adapting the bootstrapping program to run a moderator in a multimediational model and thereby explore the gender difference found of more avoidant attachment amongst males.

A number of authors have used Structured Equational Modelling (SEM) for multimediational analysis, however I was advised by a statistician to take a conservative approach as the individual scores for SEM need to be interval or ratio for SEM (Shumacker & Lomax, 2010) and our scores were based on the Likert scale and therefore ordinal.

3. Clinically, as a consequence of doing this study, would you do anything differently and why?

Through undertaking this research I recognise how attachment is an important predictor of cognitive and emotional schema (e.g. Siegel, 2002) and therefore am more mindful of how insecure attachment might influence how a client responds in therapy. I would consider giving clients the Experiences in Close Relationship Scale (Brennan, Clark & Shaver, 1998) before beginning work with them as a way of gaining a useful perspective on how to tailor an intervention. This is also relevant to working more indirectly with other groups such as caregivers where insecure attachment may make it harder to change caregiving behaviour (Schuengel, Kef, Damen, & Worm, 2012).

As a Trainee Clinical psychologist hopefully soon to graduate, I will be working in teams where I will be well placed to facilitate thinking around how attachment may have influenced a client's difficulties, for instance why a client may not respond to a compassionate approach or have problems accessing self-compassion (e.g. Fonagy, 2000; Gilbert, McEwan, Matos & Rivlis, 2011).

Through my research on self-compassion I became interested in Compassion Focused Therapy (Gilbert, 2009) and undertook the three day training and have also chosen a specialist clinical placement in this area, I see this is an example of research influencing clinical practice. I am encouraged that there is an expanding evidence base showing the applicability of CFT in diverse areas such as personality disorder (Krawitz, 2012) and PTSD (Lee, 2012) and I hope to be able to use the model widely.

4. If you were to undertake further research in this area what would that research project seek to answer and how would you go about doing it?

There were a number of avenues that I would be interested in exploring further. Firstly to include stress as moderator in the attachment-depression mediational model and in particular to investigate how stress affects the avoidant-depression link. This would further extend evidence that under chronic stressful conditions the defences of people with attachment avoidance can collapse (e.g Berant, Mikulincer & Florian, 2001). This could be complemented by including physiological measures as well as self-reports; there is evidence of discrepancies between how people high in avoidant attachment self-report about reactions to stress and their concurrent heightened physiological arousal (e.g. Kim, 2006).

Given that there is a relationship between depression and poverty (Gallup-Healthways Well-Being Index, 2009) it would be interesting to explore this in relation to self-compassion by, for instance, including income levels in the descriptive data and seeing if it moderates levels of self-compassion.

I would like to carry out the same survey on a clinical population to clarify how relationships may differ. Macbeth & Gumley (2012) in their meta-analysis of self-compassion interventions recommend more research is needed on clinical populations. CFT was developed by Gilbert (2010) from his experience of working with clinical populations and his findings that people with high shame and self-criticism found it particularly difficult to experience self-compassion.

It has also been found that some people are actually *fearful* of self-compassion and affiliative emotions in general. Gilbert et al. (2011) found that inadequate and hated self-criticism were both linked to fears of self-compassion and Rockliff, Gilbert, McEwan, Lightman, & Glover (2008) found that high self-critics showed a stress response when asked to imagine a compassionate image. These results seem to indicate that self-criticism is not just about negative attitudes to oneself but also a fear-based orientation to affiliation. Gilbert et al. also found that fear of self-compassion was significantly related to insecure attachment which mirrors Gillath, Shaver & Mikulincer's (2005) findings that self-compassion is rooted in the attachment system. It seems that exposing some people to compassion can reactivate the attachment system and with it, difficult emotional memories. This has clinical implications since therapy will have limited impact if clients are not able to experience feelings of reassurance and compassion. It would therefore be interesting to conduct a longitudinal study to see if a compassion-based therapy such as CFT could reduce fears of self-compassion and whether this is correlated with reductions in self-criticism and also reductions in measures of insecure attachment.

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Section D: Appendices

Appendix 1:Search Criteria

Abstracts of papers on Psycinfo, Medline and Web of Knowledge databases were searched up until 30th October 2012 using a combination of 'attach$', 'mediat$' and 'depress$' terms. Papers were selected if they met the following inclusion criteria: English language, peer reviewed, adult sample, attachment as independent variable, mediational model, depression measured as a distinct dependent variable. One paper was excluded which had mediation in the title but measured correlations, not mediation. Papers needed to use measures of romantic relationship based on Hazan and Shaver's (1987) findings that an individual's experience in early close relationships shape their adult love relationships (Marchand-Reilly, 2009). Papers were excluded if they used attachment measures such as the INVAA and IPPA which had no proven correlation with adult romantic relationship attachment measures and which were not designed to classify people into attachment style categories or assess their location in the space defined by Ainsworth et al.'s (1978) two dimensions of attachment insecurity (anxiety and avoidance).

Appendix 2: Summary table of the studies critiqued in Section A

Table 1 – Cognitive Mediator Studies

Separate page for each mediator subcategory or divided by thick line

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Hankin et al., study 2 (2005)	Dysfunctional attitudes predicting self esteem	Prospective (8 weeks)	Students 151 female 51 male Mean age 19.6	AAS (collapses scales): Avoidant Anxious	Avoidant and anxious: complete mediation by dysfunctional attitudes and self-esteem
Roberts et al., (1996)	Dysfunctional attitudes predicting self-esteem	2 prospective studies (6 and 8 weeks)	Students 137 female 81 male Mean Age 20.3 119 female Mean age 18.5	AAS[1] Close Depend Anxious	Close and Anxious: complete mediation by dysfunctional attitudes and self-esteem
Reineke and Rogers (2001)	Dysfunctional attitudes	Cross-sectional	Clinical Depressives 23 male 31 female Mean age 38.2	RAAS : Close Depend Anxious	Complete mediation of aggregate insecure factor
Williams and Riskind (2004)	Pessimistic Explanatory Style	Cross-sectional	Students 208 female 83 male Mean age 22.5	ECR: Avoidant Anxious	Anxious: Partial mediation

Note: AAS = Adult Attachment Scale (Collins & Read, 1990), RAAS = Revised Adult Attachment Scale (Collins, 1996), ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998).

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Strodl and Noller (2003)	General self efficacy	Cross-sectional	Clinical Agoraphobics (44), Clinical Depressives, (25), Non Clinical control (53) 81 female 41 male	ASQ[1]: Confidence Discomfort with closeness Need for approval Preoccupation with relationships Relationships as secondary	Need for approval (.62 correlation with anxiety dimension):partial mediation
Wei et al., (2005)	Self-disclosure Social self efficacy	Prospective (4 months)	Students 183 female 125 male Mean age 18.3	ECR: Avoidant Anxious	Avoidant: Complete mediation by self-disclosure Anxious: partial mediation by social self-efficacy
Wei and Ku (2007)	Self-defeating patterns Self-esteem Social self-efficacy	Cross-sectional	Students 244 female 145 male Mean age 19.4	ECR: Avoidant Anxious	Avoidant: complete mediation by self-defeating patterns Anxious: partial mediation of self-esteem and self-defeating patterns

[1] **Note: ASQ = Attachment Style Questionnaire (Feeney, Noller & Hanrahan, 1994), ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998),.**

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Iannantuono and Tylka (2012)	Maladaptive perfectionsm Adaptive perfectionism Body Appreciation	Cross-sectional	Students 249 female Mean age 19.1	ECR[1] Avoidant Anxious	Avoidant: complete mediation Anxious: partial mediation
Reis & Grenyer (2002)	Maladaptive Perfectionism • Self oriented • Socially prescribed	Cross-sectional	Students 186 female 59 male Mean age 21.4	RQ and RSQ: Secure Preoccupied Dismissing Fearful	Fearful avoidance link to autonomous depression partially mediated by self-oriented and socially prescribed perfectionism Preoccupied link to sociotropic depression partially mediated by socially prescribed perfectionism
Wei et al., (2004)	Maladaptive perfectionism	Cross-sectional	Students 225 female 85 male Mean age 19.3	ECR: Avoidant Anxious	Avoidant: complete mediation Anxious: partial mediation
Wei et al., (2006)	Maladaptive perfectionism predicting Ineffective coping	Prospective (2 months)	Students 219 female 153 male Mean age 20.01	ECR: Avoidant Anxious	Avoidant : complete mediation Anxious: partial mediation

Note: RQ = Relationship Questionnaire (Bartholomew & Horowitz, 1991); RSQ = Relationship Scales Questionnaire (Griffin & Bartholemew, 1994); ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998).

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Besser and Priel[1] (2008)	Neediness (neediness and dependence used interchangeably)	Cross-sectional	Older adults 52 female 61 male Mean age 72	RQ: Positive Self Positive Other	Negative self: complete mediation of dependence
Cantazero and Wei (2010)	Self-criticism Dependence	Cross-sectional	Students 263 female 159 male	ECR: Avoidant Anxious	Avoidant: partial mediation by self-criticism and dependence (negative association with latter) Anxious: full mediation by self-criticism and dependence
Permuy et al., (2009)	Self-criticism Dependence (although use terminology of sociotropy and autonomy, same scale used as Cantazero and Wei study)	Cross-sectional	Students: 141 female 22 male	RQ: Secure Dismissive Preoccupied Fearful	Fearful: partial mediation by self-criticism Preoccupied: full mediation by dependence No tests for mediation of fearful by dependence or preoccupied by self-criticism

Note: RQ = Relationship Questionnaire (Bartholomew & Horowitz, 1991); ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998),

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Mak et al., (2010)	Perceived support in different cultures	Cross-sectional	Students 150 Hong Kong Chinese 209 US Caucasian 190 female 166 male	ECR: Avoidant Anxious	Avoidant and Anxious: partial mediation for both ethnic groups but strength of association with avoidance is stronger in Chinese group
Keleher et al., (2010)	Perceived support	Cross-sectional	Lesbians 163 female Mean age 30	ECR: Avoidant Anxious	Anxious: partial mediation
Rodin et al., (2007)	Perceived support	Cross-sectional	Clinical Cancer Sufferers 140 female 186 male Mean age 61.8	ECR: Avoidant Anxious	Avoidant: full mediation Anxious: partial mediation
Zakalik and Wei (2006)[1]	Perceived discrimination	Cross-sectional	Gay men 234 male Mean age 37	ECR: Avoidant Anxious	Anxious: partial mediation
Eng et al., (2001)	Social anxiety	Cross-sectional	Clinical socially anxious group 1 (118) Clinical socially anxious group 2 (56) Non-clinical control (36) 89 female 121 male	RAAS: Close Depend Anxious	Anxious: complete mediation

Note: ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998); RAAS = Revised Adult Attachment Scale (Collins, 1996),

Table 2 – Interpersonal Mediator Studies

Separate page for each mediator subcategory or divided by thick line

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Wei et al[1] (2005)	Capacity for self-reinforcement Need for reassurance from others	Cross-sectional	Students 261 female 169 male Mean age 19.4	ECR: Avoidant Anxious	Avoidant: complete mediation of capacity for self-reinforcement, partial mediation of reassurance from others Anxious: partial mediation of reassurance fr others
Hankin et al., study 3 (2005)	Interpersonal stress generation	Prospective (8 weeks)	Students 151 female 51 male Mean age 19.	AAS (collapsed scales): Avoidant Anxious	Avoidant: full mediation Anxious: partial mediation
Eberhard & Hammen (2010)	Romantic relationship stress generation	Prospective (4 weeks)	Students 104 female Mean age 18.2	ECR: Avoidant Anxious	Anxious: partial mediation by romantic relationship conflict
Marchand-Reilly (2009)	Romantic relationship conflict	Cross-sectional	Young adults 83 female 27 male Mean age 19.9	AAS: Close Depend Anxious	No mediation found

Note: **ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998; AAS = Adult Attachment Scale (Collins & Read, 1990; RQ = Relationship Questionnaire (Bartholomew & Horowitz, 1991).**

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Burnette et al (2009)	Lack of Empathy, Rumination Lack of forgiveness	Cross-sectional	Students 141 female 80 male	ECR: Avoidant Anxious	Avoidant: full mediation by lack of empathy and then forgiveness Anxious: partial mediation by rumination and then lack of forgiveness
Wijngaards-de Meij et al (2005)	Marital satisfaction	Cross-sectional	219 parent couples Mean age: 42.2	AAS[1] factor analysed to Anxiety and Avoidance subscales:	Anxious: partial mediation

[1] **ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998; AAS = Adult Attachment Scale (Collins & Read, 1990).**

Table 3 – Affect Regulation Mediator Studies

Separate page for each mediator subcategory or divided by thick line

Authors	Mediators	Research Design	Sample	Attachment Measure and categories	Results
Bekker and Croon (2010)	Autonomy-Connectedness • Self-awareness • Sensitivity to others • Managing new situations	Cross-sectional	Clinical: Anxiety and Mood Disorders 49 female 20 male Mean age: 41 Non-clinical adults: 55 female 50 male Mean age: 40	ASQ: subscales loaded onto anxious and avoidant dimensions	No mediation found in either group
Tasca et al., (2010)	Emotional reactivity Emotional Deactivation	Cross-sectional	Clinical Eating Disorders 310 female Mean age 26.31	ECR[1]: Avoidant Anxious	Avoidant: complete mediation of emotional reactivity Anxious: complete mediation of emotional deactivation
Wei et al., (2005)	Basic Psychological Needs Satisfaction • autonomy • competence • relatedness	Cross-sectional	Students 203 female 96 male Mean age 19.73	ECR: Avoidant Anxious	Avoidant: full mediation Anxious: partial mediation

[1] **Note ASQ = Attachment Style Questionnaire (Feeney, Noller & Hanrahan, 1994), ECR = Experience in Close Relationships (Brennan, Clark & Shaver, 1998)**

Appendix 3:INFORMATION SHEET

Title of Project: *Investigating the relationship between attachment, self-criticism, rumination and self-compassion with depression.*

Hello. My name is Matthew Rosen Marsh and I am a Trainee Clinical Psychologist at Canterbury Christchurch University.
I would like to invite you to participate in a research project that aims to look at the relationship between self-compassion, rumination, self-criticism and depression.

If you have any questions about the project that are not answered here then please contact me in the first instance (see below for details) and then either Fergal Jones, Clinical Psychologist or Chris Irons who are both my supervisors and whose details are also at the end of the sheet.

Why is this research happening?
Depression is very common in people and we are interested to see what things cause it and what things counter it. By doing such research we can then find more effective therapies to treat depression.

What will the research involve?
The research will involve answering an online survey. There will be 5 short questionnaires on personal characteristics totalling 67 questions, answers involve ticking boxes and it should take no longer than 20 minutes. There will be no requirement to input any personal information apart from your age, gender. Marital status and ethnicity. Your responses will be anonymised.

If I start taking part in the research, can I change my mind later?
Yes – you can withdraw from answering the survey at any time and your data will not be used.

Is there an incentive to take part
Apart from furthering knowledge, there will be a prize draw for a £40 Amazon voucher for those who complete the survey.

How can I find out about the findings of the study?
Please let me know if you would like to know the findings by writing to the below email address. If the results are published in a journal, I will let you know.

Matthew Rosen Marsh
Trainee Clinical Psychologist
salomonsthesis@gmail.com

Fergal Jones
Clinical Psychologist
Canterbury Christchurch University
fergal.jones@canterbury.ac.uk

Chris Irons
Clinical Psychologist
Bow and East London CMHT
Chris.Irons@eastlondon.nhs.uk

Appendix 4:CONSENT FORM

Title of Project: *Investigating the relationships between attachment, self-criticism, rumination and self-compassion with depression*

1. I have read and understood the information sheet for the above study and have had the opportunity to contact the researcher to clarify any issues .

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without my heath care or legal rights being affected.

3. I understand that I will not be identifiable on any reports of the findings and my participation is confidential and anonymous.

3. I agree to take part in the study.

Appendix 5:Thank You!

I hope you enjoyed answering the questionnaire.
If you have any questions, please contact me at:
salomonsthesis@gmail.com

If you are feeling distressed after answering the questions you may want to ring:

- The Samaritans 08457 90 90 90
- NHS Direct 0845 4647
- Your local GP

If you would like to participate in the raffle draw please send an email with this code in the subject header: JAMBOGUSHI.

Your email will be printed off and put in a hat to be picked out by a neutral arbiter. This will mean that I will see the email address of those entering the draw but any data from the survey will have been anonymised.

Appendix 6: SELF-COMPASSION SCALE–Short Form (SCS–SF)

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Appendix 7: Experiences in Close Relationship Scale-Short Form (ECR-S)

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Appendix 8: The forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS)

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Appendix 9: CES-D10 Depression Scale

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Appendix 10: Rumination Scale

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Appendix 10a

Dear Colleague,

Please find enclosed a copy of the Ruminative Responses Scale we have been using in much of our research on response styles for depression. For full information on the psychometric qualities of this scale, please see Treynor, Gonzalez, and Nolen-Hoeksema (2003), Cognitive Therapy and Research, 27, 247-259. To obtain scores on this scale, simply sum the scores on the 22 items.

I am often asked about cut-offs for determining whether an individual is a "ruminator" or not. We have not established any cut-offs; instead, I believe the appropriate use of this questionnaire is as a continuous measure. If you wish to select groups of "high" or "low" ruminators, I recommend using percentile cut-offs from your own sample (e.g., selecting people who score in the top 33% of your sample as "high" ruminators and people who score in the bottom 33% as "low" ruminators).

The original Response Styles Questionnaire also included Distraction and Problem-Solving subscales. Neither of these subscales has proven reliable or good predictors of depression change over time, so I am no longer distributing them.

Please send me copies of reports of all studies in which you use any of these scales. Good luck in your research.

Sincerely,

Susan Nolen-Hoeksema, Ph.D.
Yale University

Appendix 11

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Appendix 12: Submission Guidelines of the British Journal of Clinical Psychology

The British Journal of Clinical Psychology publishes original contributions to scientific knowledge in clinical psychology. This includes descriptive comparisons, as well as studies of the assessment, aetiology and treatment of people with a wide range of psychological problems in all age groups and settings. The level of analysis of studies ranges from biological influences on individual behaviour through to studies of psychological interventions and treatments on individuals, dyads, families and groups, to investigations of the relationships between explicitly social and psychological levels of analysis.

The following types of paper are invited:

• Papers reporting original empirical investigations

• Theoretical papers, provided that these are sufficiently related to the empirical data

• Review articles which need not be exhaustive but which should give an interpretation of the state of the research in a given field and, where appropriate, identify its clinical implications

• Brief reports and comments

1. Circulation

The circulation of the Journal is worldwide. Papers are invited and encouraged from authors throughout the world.

2. Length

Papers should normally be no more than 5000 words (excluding abstract, reference list, tables and figures), although the Editor retains discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length.

3. Submission and reviewing

All manuscripts must be submitted via http://www.editorialmanager.com/bjcp/. The Journal operates a policy of anonymous peer review. Before submitting, please read the terms and conditions of submission and the declaration of competing interests.

4. Manuscript requirements

• Contributions must be typed in double spacing with wide margins. All sheets must be numbered.

• Manuscripts should be preceded by a title page which includes a full list of authors and their affiliations, as well as the corresponding author's contact details. A template can be downloaded from here.

• Tables should be typed in double spacing, each on a separate page with a self-explanatory title. Tables should be comprehensible without reference to the text. They should be placed at the end of the manuscript with their approximate locations indicated in the text.

• Figures can be included at the end of the document or attached as separate files, carefully labelled in initial capital/lower case lettering with symbols in a form consistent with text use. Unnecessary background patterns, lines and shading should be avoided. Captions should be listed on a separate sheet. The resolution of digital images must be at least 300 dpi.

• All papers must include a structured abstract of up to 250 words under the headings: Objectives, Methods, Results, Conclusions. Articles which report original scientific research should also include a heading 'Design' before 'Methods'. The 'Methods' section for systematic reviews and theoretical papers should include, as a minimum, a description of the methods the author(s) used to access the literature they drew upon. That is, the abstract should summarize the databases that were consulted and the search terms that were used.

• All Articles must include Practitioner Points – these are 2–4 bullet points to detail the positive clinical implications of the work, with a further 2–4 bullet points outlining cautions or limitations of the study. They should be placed below the abstract, with the heading ‘Practitioner Points’.

• For reference citations, please use APA style. Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full and provide DOI numbers where possible for journal articles.

• SI units must be used for all measurements, rounded off to practical values if appropriate, with the imperial equivalent in parentheses.

• In normal circumstances, effect size should be incorporated.

• Authors are requested to avoid the use of sexist language.

• Authors are responsible for acquiring written permission to publish lengthy quotations, illustrations, etc. for which they do not own copyright. For guidelines on editorial style, please consult the APA Publication Manual published by the American Psychological Association.

5. Brief reports and comments

These allow publication of research studies and theoretical, critical or review comments with an essential contribution to make. They should be limited to 2000 words, including references. The abstract should not exceed 120 words and should be structured under these headings: Objective, Method, Results, Conclusions. There should be no more than one table or figure, which should only be included if it conveys information more efficiently than the text. Title, author name and address are not included in the word limit.

6. Supporting Information

BJC is happy to accept articles with supporting information supplied for online only publication. This may include appendices, supplementary figures, sound files, videoclips etc. These will be posted on Wiley Online Library with the article. The print version will have a note indicating that extra material is available online. Please indicate clearly on submission which material is for online only publication. Please note that extra online only material is published as supplied by the author in the same file format and is not copyedited or typeset. Further information about this service can be found at http://authorservices.wiley.com/bauthor/suppmat.asp
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Appendix 13: Summary of Research Findings sent to Salomons Ethics Committee

The relationship between attachment styles, self-criticism, rumination and self-compassion in influencing depressive symptoms

Background

There has been extensive research on the mechanisms that mediate the relationship between insecure attachment and depressive symptomology. This study looked at three mediators in particular; self-criticism, self-compassion and brooding; all three variables have been found to mediate the insecure attachment – depressive symptomology relationship but never before had they been included in the same model. One research aim was to explore any differences in the mediational pathways to depressive symptoms between avoidant and anxious attachment. This study also attempted to clarify if self-compassion and self-criticism were independent predictors of depressive symptoms and if self-compassion could protect against depressive symptomology by acting as a buffer against self-criticism and brooding.

What we did

We constructed an online questionnaire which consisted of five previously validated scales measuring attachment security, self-compassion, brooding, self-criticism and depressive symptoms. In the case of self-criticism, two subscales of inadequate and hated self-criticism were used as research has highlighted it is a multifaceted experience. Participants were selected through convenience sampling using social media and contacting other clinical psychology courses and 356 people completed the questionnaire. Multiple regression and multimediational analysis on the data was carried using a bootstrapping statistical programme.

What we found

Self-compassion and self-criticism were found to be independent predictors of depression supporting the theory that they are separate variables and not merely opposite ends of the same continuum. Hated self-criticism and brooding partially mediated between self-compassion and depressive symptoms and this adds to evidence that self-compassion may protect against depressive symptoms through its buffering effect on these mediators. In line with previous literature, the anxious attachment – depressive symptoms relationship was fully mediated by self-compassion, self-criticism and brooding. Even when controlling for anxious attachment, there was still a significant relationship between avoidant attachment and depressive symptoms partially mediated by hated self-criticism and self-compassion.

What we learned

People high on the anxious attachment scale seem to be the most vulnerable to depressive symptoms through the mechanisms of self-criticism, brooding and lack of self-compassion. Avoidantly attached individuals are also vulnerable to depressive symptoms through lack of self-compassion and hated self-criticism. Increasing self-compassion may help alleviate

depressive symptoms for both anxiously attached and avoidantly attached individuals.