

BELONGING, BURDENSOMENESS, AND SELF-COMPASSION AS MEDIATORS OF THE ASSOCIATION BETWEEN ATTACHMENT AND DEPRESSION

CAMILLA S. ØVERUP
Fairleigh Dickinson University

ERIN A. MCLEAN
Hofstra University

JULIE A. BRUNSON
The Pennsylvania State University

AMELIA D. COFFMAN
University of Houston

Depression is a widespread psychological issue. Research suggests that attachment theory provides a useful lens through which to understand the occurrence of depression, as attachment anxiety and attachment avoidance is associated with greater reports of depression. However, less is known about how attachment-motivated perceptions and cognitions relate to depression. In the current study, we examined self-compassion, and perceptions of belonging and burdensomeness as potential mediators of the association between depression and attachment anxiety and avoidance, using a sample ($N = 370$) of students from a large southern metropolitan university. Results suggested that self-compassion, and perceived belonging and burdensomeness, mediated the association between attachment anxiety and depression. Those with greater attachment anxiety reported less self-compassion, feeling less belonging, and more burdensomeness. These factors were associated with increased depressive symptoms. With respect to attachment avoidance, only belonging served as a mediator, such that those with

Address correspondence to Camilla S. Øverup, School of Psychology (T-WH1-01), Fairleigh Dickinson University, Metropolitan Campus, 1000 River Road, Teaneck, NJ 07666; E-mail: coverup@fdu.edu.

greater attachment avoidance reported feeling less belonging, and this related to feeling more depressive symptoms. An alternative model is also presented and discussed. These results suggest potential attachment-motivated perceptions and cognitions that may be addressed in clinical settings in an effort to minimize depressive symptoms.

Keywords: Depression, Attachment anxiety and avoidance, Self-compassion, Belonging, Burdensomeness

Depression is a major problem among adolescents and young adults. According to a 2012 survey by the Association for University and College Counseling Center Directors, an average of 36% of college students reported experiencing some level of depression (Mistler, Reetz, Krylowics, & Barr, 2013). Nationwide the rates may be higher, as many people who suffer from depression do not seek treatment (Furr, Westefeld, McConnell, & Jenkins, 2001; Oswald & Finkelberg, 1995; Shapiro et al., 1984). These high rates of depression highlight the importance of better understanding the underlying mechanisms of depression.

Much previous research has suggested that attachment theory may serve as a framework for understanding the etiology of depression. Specifically, attachment anxiety and attachment avoidance is associated with negative interpersonal biases and thought patterns that may predispose people to depression (Bowlby, 1973). However, the specific mechanisms that lead to depression may vary for attachment anxiety and attachment avoidance. The current research sought to examine self-compassion, perceived belonging, and perceived burdensomeness, factors that may relate to underlying attachment-related cognitions, as potential mediators of the association between attachment anxiety and avoidance and depressive symptoms.

OVERVIEW OF ATTACHMENT THEORY

Attachment theory is one of the most well-known theories in psychology, aimed at understanding optimal human functioning, particularly in the context of interpersonal relationships. At its core, attachment theory posits working models of the self and of others, which are developed in early childhood based on the caregiver's emotional availability and responsiveness to the

child (Bowlby, 1973, 1982). These working models have lasting impact into adulthood (Bowlby, 1988). The model of the other concerns the trustworthiness and reliability of others to be available and responsive when needed, while the model of the self concerns the evaluation of the self as worthy of love and attention from others (Bartholomew & Horowitz, 1991; Collins, 1996; Collins & Read, 1990).

Empirically, research distinguishes between anxious attachment and avoidant attachment. Individuals with greater attachment anxiety tend to have a positive view of others but a negative view of the self; in short, they tend to seek love and validation from significant others in their lives, but do not perceive that they are worthy of that love and affection (Pietromonaco & Feldman Barrett, 2000). Individuals higher in attachment anxiety tend to be hypervigilant of cues in their interpersonal relationships (e.g., Davis et al., 2006). They engage in behaviors aimed at maintaining proximity to close others and securing their support (Mikulincer & Shaver, 2007), while fearing rejection and abandonment (Mikulincer & Shaver, 2003). They tend to perceive higher levels of conflict, even when there is none (Campbell, Simpson, Boldry, & Kashy, 2005). Moreover, individuals with greater attachment anxiety tend to have lower self-esteem (Collins & Read, 1990; Feeney & Noller, 1990; Griffin & Bartholomew, 1994; Mikulincer, 1995), and experience higher levels of self-criticism (Cantazaro & Wei, 2010; Gilbert & Procter, 2006; Zuroff & Fitzpatrick, 1995).

Individuals higher in attachment avoidance, on the other hand, tend to have a negative model of the other. They tend to experience discomfort with intimacy, believing that others cannot be trusted to be consistently responsive to one's needs. These feelings often lead to attempts to create independence and emotional distance from attachment figures (Bartholomew & Horowitz, 1991; Pistole, 1993). With respect to the model of the self, some people with greater attachment avoidance may have a more positive model of the self (those that have a dismissing attachment orientation), while others do not (those that have a fearful attachment style; Pietromonaco & Feldman Barrett, 2000). However, research has found that generally, those with greater attachment avoidance appear to have a higher opinion of them-

selves and tend to seem self-confident (Bartholomew & Horowitz, 1991; Collins, 1996).

Much research has indicated that people's attachment orientations shape and negatively bias their processing of social information (Dykas & Cassidy, 2011) by influencing which information is attended to and remembered and how judgments and attributions about others are formed (Collins & Allard, 2001; Collins, Guichard, Ford, & Feeney, 2004). Specifically, people tend to respond to social information in ways that correspond to their attachment schemas. People high in avoidant attachment tend to react by defensively ignoring information that may be deemed threatening, while anxiously attached people tend to respond with increased negative emotion and rumination (e.g., Burnette, Davis, Green, Worthington, & Bradfield, 2009; Dykas & Cassidy, 2011).

ATTACHMENT STYLE AND DEPRESSION

Attachment has consistently been associated with depression, both in terms of clinical levels and non-clinical levels (Bifulco, Mahon, Kwon, Moran, & Jacobs, 2003; Jinyao et al., 2012; Venta, Mellick, Schatte, & Sharp, 2014; Roberts, Gotlib & Kassel, 1996; Wei, Mallinckrodt, Larson, & Zakalik, 2005; Wei, Shaffer, Young, & Zakalik, 2005); specifically, both greater attachment avoidance and attachment anxiety have been associated with greater depressive symptoms. Theoretically, it may be that people with greater attachment anxiety and attachment avoidance are at greater risk of depressive symptoms because of their negative biases about themselves and/or about others. These negative biases may decrease interpersonal functioning by: (1) limiting their likelihood of seeking emotional support from others, thus leading to isolation (Venta et al., 2014); (2) producing negative cognitions about the self and others (Venta et al., 2014); and (3) because of problematic emotion regulation (Malik, Wells & Wittkowski, 2015). However, some literature suggests that attachment anxiety is more strongly associated with depression than is attachment avoidance (see Cantazaro & Wei, 2010). Thus, it may be that attachment anxiety and attachment avoidance are associated with depression through differing mechanisms (e.g.,

Cantazaro & Wei, 2010; Malik et al., 2015; Wei, Mallinckrodt et al., 2005).

SELF-COMPASSION, BELONGING, AND BURDENSOMENESS AS MEDIATORS

Some potential mechanisms linking attachment anxiety and attachment avoidance to depression may be the extent to which people feel that they belong and that others care about them, the extent to which they feel like they are a burden to the people in their lives, and the extent to which they have compassion for themselves. These factors represent attachment-related cognitions that may be detrimental to mental health. Indeed, greater self-compassion and perceived belonging is associated with lower levels of depression, while greater perceived burdensomeness is associated with higher levels of depression (Neff, 2009; Joiner et al., 2009; Venta et al., 2014). Of note, belonging and burdensomeness have most often been studied in connection with suicidality as the outcome, rather than depression as the outcome, as part of the interpersonal theory of suicide (Joiner, 2005; Van Orden et al., 2010).

Extant research suggests that individuals with greater attachment anxiety may be more self-critical, and that such self-criticism may be one reason for elevated depressive symptoms (Cantazaro & Wei, 2010; Joeng & Turner, 2015). It may be that this greater self-criticism reflects a tendency to have little compassion for oneself. Indeed, Joeng and Turner (2015) found that self-compassion mediated the association between self-criticism and depression, such that those who were less self-critical reported more self-compassion and less depressive symptoms (see also, Neff, 2003). Moreover, Raque-Bogdan, Ericson, Jackson, Martin and Bryan (2011) found that self-compassion mediated the association between attachment anxiety and mental health, such that greater attachment anxiety was associated with poorer mental health in part because of lower self-compassion. Similarly, Wei, Liao, Ku, & Shaffer (2011) found that those with greater attachment anxiety reported lower levels of subjective well-being (e.g., life satisfaction, positive emotions, happiness) in part because they reported lower levels of self-compassion.

Moreover, people with greater attachment anxiety tend to have biased interpersonal perceptions, such that they tend to make more negative attributions about others' behavior (e.g., Collins, 1996; Collins, Ford, Guichard, & Allard, 2006; Gallo & Smith, 2001), and over-perceive conflict in relationships (Campbell et al., 2005). Individuals with more negative models of the self (a hallmark of attachment anxiety) have been found to perceive less love and commitment from their partner, compared to those with more positive self-views (Murray, Holmes, Griffin, Bellavia, & Rose, 2001). While these findings are from research examining romantic relationships, it would seem that such perceptual tendencies may reflect more general perceptual biases, and that these biases, in addition to sensitivity to and hypervigilance of rejection, may leave people with greater attachment anxiety more likely to feel that they are a burden to other people. These cognitions may also make them perceive that they do not matter to others, and that they do not have people with whom they belong (Raque-Bogdan et al., 2011; Venta et al., 2014).

With respect to attachment avoidance, the picture is less clear. As attachment avoidance reflects a distrust of others to be responsive, it is theoretically unclear whether greater attachment avoidance should be related to self-compassion. Previous research has found inconsistent associations; Neff and McGehee (2010) found a negative association for the fearful attachment style (negative model of the self and negative model of the other), but no association for the dismissive attachment style (positive model of the self with a negative model of the other). These two styles (Bartholomew & Horowitz, 1991) are similar with respect to their model of the other, but differ in their model of the self, providing a possible explanation for this differing association. However, given the conceptualization of attachment, it may be difficult to extrapolate how attachment avoidance will relate to self-compassion. Raque-Bogdan and colleagues (2011) did examine attachment avoidance and found that greater attachment avoidance was associated with less self-compassion; moreover, they found that self-compassion partially mediated the association between attachment avoidance and mental health, such that those with greater attachment avoidance experienced less self-compassion and lower mental health. They also found that

feeling one mattered to others served as a mediator, such that greater attachment avoidance was associated with lower feelings of mattering to others and lower reports of mental health. In essence, they found that a sense of belonging, of mattering to others, is important, even for people with greater attachment avoidance. However, some research suggest that attachment avoidance is unrelated to the need to belong (Leary, Kelly, Cottrell, & Schreindorfer, 2013). Indeed, theoretically, attachment avoidance is marked by a discomfort with dependence on others and a desire for independence. Thus, theoretically, it would seem that perceptions of belonging—as well as perceptions of burdensomeness, which previous research has not examined—should not explain the association between attachment avoidance and depression. Given the inconsistency in past work, it is unclear whether attachment avoidance is associated with belonging and burdensomeness.

CURRENT STUDY

The current study sought to examine some potential mediators of the association between attachment and depression. Though much research has established a connection between attachment and depression, little to no research has examined the proposed associations in a cohesive framework. That is, previous research has either used different conceptualizations of the variables (e.g., attachment, belonging, burdensomeness), used outcomes different from depression, or have studied only one or two of the proposed mediators. Thus, the current manuscript adds to the existing literature by examining in a single analysis the unique associations between attachment anxiety/avoidance, self-compassion, belonging, burdensomeness, and depression. Moreover, we are seeking to replicate findings using two different measures of depression.

As attachment anxiety and attachment avoidance differ with respect to their intra- and inter-personal orientations, it would seem that different mechanisms may exist that explain whether people with greater attachment anxiety and attachment avoidance experience depressive symptoms. In the current study, we examine self-compassion and perceptions of belonging and bur-

densomeness as potential mechanisms. Although the current study is exploratory in nature,¹ we would expect, based on theory and previous findings, that self-compassion, perceived belonging, and perceived burdensomeness may serve as mediators of the association between attachment anxiety and depression. With respect to attachment avoidance, we did not formulate any expectations, as previous research has yielded inconsistent results.

METHOD

Participants and Procedure

A total of 493 people entered and completed the survey to varying degrees. Throughout the survey, participants responded to attention check questions. One hundred and twenty three participants failed to correctly complete all four check questions (that is, they got between 0 and 3 check questions correct).² These participants were dropped from further analysis. The final sample consisted of 370 students from a large metropolitan university (287 women and 83 men). Participants ranged in age from 18 to 58 ($M = 22.31$, $SD = 5.24$). The sample was ethnically diverse, with 26% Hispanic, 25% Asian/Pacific Islander, 24% Caucasian, 15% African American/Black, 4% Middle Eastern, and 7% reporting being multi-racial or other. We also collected information about relationship status, and found that 51% were single/casually dating, 36% were in serious relationships, 4% were en-

1. We wish to clarify here that when we say exploratory, we mean that the data was not collected to test this specific idea, and thus is not confirmatory. The idea for these analyses was developed upon reading the literature post-data-collection. Given the current issues with replicability, we wish to be upfront about the sequence of idea generation and data collection.

2. We chose to only include people who completed all four check questions correctly, as we felt this represented the most clean and valid data. We did examine whether those that were included differed from those who were not included on demographics and study variables. We found that they did not differ on demographics, but that those who were omitted scored higher on attachment anxiety and avoidance, burdensomeness, and both depression scores, than those who were included. Conversely, those that were included scored higher on belonging than those who were omitted. It is important to note that these tests may not represent true differences in samples, as the lack of correct completion of attention check questions suggests that participants may not have answered the questions accurately.

gaged, 8% were married, and 1% were divorced or widowed. With respect to sexual orientation, the majority (93%) reported being heterosexual, with 4% being homosexual, and 3% being bisexual.

Participants were recruited from an online research management system (SONA). Participants logged in, signed up for the study, and were provided access to the survey link. They were able to complete the survey at their leisure in a location of their choosing. Upon completion of the study, participants were awarded extra credit to be used toward course credit.

Measures

Attachment. Anxious and avoidant attachment orientations were assessed with the Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, & Brennan, 2000). The scale consists of 36 items that measure general attachment orientations in close relationships. Items were completed on a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). Example items for the anxious attachment orientation include “I worry a lot about my relationships” and “I worry that I won’t measure up to other people” (18 items; $\alpha = .941$). Example items for the avoidant attachment orientation include: “I find it difficult to allow myself to depend on romantic partners” and “I prefer not to be too close to romantic partners” (18 items; $\alpha = .976$). After appropriate reverse scoring, items were averaged to create separate mean scores for anxious and avoidance attachment.

Self-Compassion. Self-compassion was measured using the Self-Compassion Scale—short form (Raes, Pommier, Neff, & Van Gucht, 2011). The scale consisted of 12 items that were completed using a 5-point Likert-type scale from 1 (not at all like me) to 5 (very much like me). Self-compassion is conceptualized as self-directed empathy wherein people understand their own pain and subsequently attempt to not judge themselves harshly when confronted with their own flaws and inadequacies (Neff, 2003). They realize that failure is something everyone experiences, and they work to not be overwhelmed by self-critical thoughts and negative emotions (Neff, 2003). Thus, example items include: “When I fail at something important to me I become consumed

by feelings of inadequacy” and “I’m intolerant and impatient towards those aspects of my personality I don’t like” ($\alpha = .822$). After appropriate reverse scoring, we averaged the items to create a mean score for self-compassion.

Perceived Belonging and Burdensomeness. Perceived belonging and burdensomeness was assessed using the Interpersonal Needs Questionnaire (INQ; Van Orden, 2009; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). Research suggest that these are two distinct, but related, factors (Van Orden et al., 2010; Van Orden, Cukrowicz, Witte, & Joiner, 2012); perceived belonging refers to a painful mental state of feeling that the need to belong (Baumeister & Leary, 1995) has not been met, and that one is not part of a social groups (e.g., family, friends), but rather, is alone (Van Orden et al., 2010; Van Orden et al., 2012). Burdensomeness is a mental state characterized by perceptions that those around you would be better off if you were gone (Van Orden et al., 2010; Van Orden et al., 2012), and that one is so flawed as to be a liability to others. Perceived burdensomeness is different from belonging, in that one may feel some sense of belonging, but may believe that one is a bother to others (whereas belonging is about feeling that one does not have anyone to rely on). Please see Van Orden and colleagues (2010) for a full explication of belonging and burdensomeness.

The original INQ consists of 25 items, however, for the purposes of the current study, the participants completed a shortened version consisting of 12 items, which has also been used in previous research (Van Orden et al., 2008). Five items assess perceptions of belonging, which refers to a perceived unmet need to belong and beliefs of not being cared about. Example items include “these days, I feel that there are people I can turn to in times of need” and “these days, other people care about me” ($\alpha = .852$); we scored the scale in the direction of feeling belonging as opposed to in the direction of thwarted belonging). Perceived burdensomeness refers to a person’s sense that he or she does not contribute to those around him or her and, rather, is a burden to others. This was measured with seven items, with example items such as “these days, the people in my life would be better off if I were gone” and “These days I feel like a burden on the people in my life” ($\alpha = .917$). Items were rated on a 5-point Likert

type scale from 1 (not at all true for me) to 5 (very true for me). For both scales, the items were averaged to create a mean score.

Depressive Symptoms. Depressive symptoms were assessed with two measures in order to demonstrate convergence of results (i.e., that results were not due to one specific measure). The participants completed the Beck Depression Inventory (BDI; Beck, Steer, Ball, & Ranieri, 1996). The BDI consists of 21 items; each item has a stem from 4 response options. As an example, one stem is Sadness, for which the four response options were: "I do not feel sad" (coded 0), "I feel sad much of the time" (coded 1), "I feel sad all the time" (coded 2), and "I am so sad or unhappy that I can't stand it" (coded 3; $\alpha = .950$). Items were averaged to create a mean score representing level of depressive symptoms.

The participants also completed the Major Depression Inventory (MDI; Bech, Rasmussen, Olsen, Noerholm, & Abildgaard, 2001). The scale consists of 12 items which are rated on a 6-point Likert-type scale from 0 (at no time) to 5 (all the time). Example items include: "Have you felt low in spirits or sad?" and "Have you felt that life wasn't worth living?" ($\alpha = .915$). In scoring this scale, all items were utilized and a mean score was created.

We chose to include two measures of depression for a variety of reasons. For one, we wanted to demonstrate that findings were not measure-specific. We decided to include the BDI because of its long-standing use in research on depression. Moreover, we chose to include the MDI primarily because it was a short measure, however some research suggests that it is superior to the BDI as a measure of depression symptoms in the general population (Konstantinidis, Martiny, Bech, & Kasper, 2011; Naughton & Wiklund, 1993).

PLAN OF ANALYSIS

To examine our hypotheses, we conducted a path analysis using Mplus, version 7.4.

Figure 1 presents a conceptual depiction of the mediational analysis; we also estimated direct paths from the attachment predictors to the outcomes, though these are not depicted in Figure 1 to ease visual interpretation. As both the attachment predic-

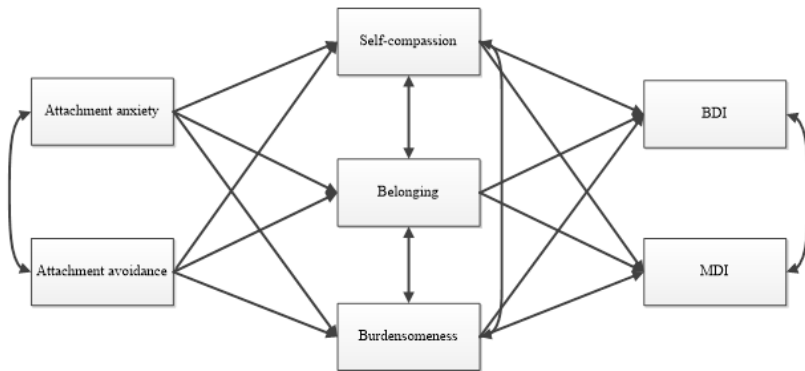


FIGURE 1. Conceptual figure of the mediational analyses for the main model.

Note. The direct paths from attachment anxiety and avoidance to the outcome variables were estimated, but are not depicted for ease of visual display.

tors, and the two outcome depression scores, were likely highly correlated, we decided to include covariation between these in the path model. Moreover, we decided to include covariations between the mediators, as we also expected these to be correlated; excluding important covariation among predictors could artificially inflate path estimates. Mediation was assessed using the $a*b$ product term approach (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), as well as bootstrapped bias-corrected 95% asymmetric confidence intervals around the indirect effect of ab (Hayes, 2013; MacKinnon et al., 2002).

RESULTS

Descriptive Statistics

Table 1 provides the correlations among the study variables as well as means and standard deviations. Anxious attachment was positively related to avoidant attachment, and both anxious and avoidant attachment were positively associated with the two measures of depressive symptoms. Self-compassion was positively associated with belonging but negatively related to anxious and avoidant attachment, burdensomeness, and the two measures of depressive symptoms. Belonging was nega-

TABLE 1. Correlations, Along with Means and Standard Deviations, for Variables of Interest

	1	2	3	4	5	6	7
1 Attachment anxiety	—						
2 Attachment avoidance	0.70***	—					
3 Self-compassion	-0.51***	-0.34***	—				
4 Belongingness	-0.54***	-0.48***	0.46***	—			
5 Burdensomeness	0.51***	0.36***	-0.54***	-0.63***	—		
6 BDI	0.50***	0.36***	-0.58***	-0.56***	0.67***	—	
7 MDI	0.46***	0.32***	-0.50***	-0.52***	0.58***	0.81***	—
Mean	3.12	2.90	3.08	4.36	1.99	0.58	1.39
Standard deviation	1.29	1.41	0.64	0.90	0.84	0.54	0.98

Notes. Anxiety = anxious attachment; avoidance = avoidant attachment; BDI = Beck Depression Inventory; MDI = Major Depression Inventory. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

TABLE 2. Main Model: Coefficients from Path Analysis

Path Estimates					
Predictor	Outcome	Estimate	p-value	95% CI (lower)	95% CI (upper)
Anxiety	BDI	0.042	0.092	-0.005	0.093
	MDI	0.094	0.089	-0.019	0.199
	Self-compassion	-0.264	<0.001	-0.325	-0.202
	Burdensomeness	0.331	<0.001	0.246	0.418
	Belonging	-0.275	<0.001	-0.363	-0.184
Avoidance	BDI	0.000	0.994	-0.043	0.042
	MDI	-0.024	0.640	-0.121	0.078
	Self-compassion	0.013	0.644	-0.043	0.068
	Burdensomeness	0.003	0.934	-0.072	0.085
	Belonging	-0.131	0.003	-0.219	-0.047
Self-compassion	BDI	-0.207	<0.001	-0.283	-0.133
	MDI	-0.299	<0.001	-0.453	-0.160
Burdensomeness	BDI	0.255	<0.001	0.174	0.336
	MDI	0.352	<0.001	0.213	0.482
Belonging	BDI	-0.087	0.009	-0.152	-0.025
	MDI	-0.208	0.003	-0.345	-0.072
Covariance Estimates					
Variable 1	Variable 2	Estimate	p-value	95% CI (lower)	95% CI (upper)
Anxiety	Avoidance	1.261	<0.001	1.091	1.446
Self-compassion	Burdensomeness	-0.150	<0.001	-0.199	-0.107
Self-compassion	Belonging	0.109	<0.001	0.069	0.151
Burdensomeness	Belonging	-0.266	<0.001	-0.337	-0.205
BDI	MDI	0.179	<0.001	0.149	0.218

Notes. Anxiety = anxious attachment; avoidance = avoidant attachment; BDI = Beck Depression Inventory; MDI = Major Depression Inventory. Coefficients represent unstandardized estimates.

tively associated with both attachment anxiety and avoidance, both measures of depressive symptoms, and burdensomeness. And lastly, burdensomeness was positively associated with both attachment anxiety and avoidance and depressive symptoms. However, burdensomeness was negatively associated with self-compassion and belonging. Overall, people reported fairly low levels of depressive symptoms ($M_{BDI} = 0.58$ and $M_{MDI} = 1.39$ on 4- and 5-point scales, respectively). Using cut-off scores for the BDI, the majority of the sample reported minimal levels of depression (64%), while 14% reported mild levels, 12% reported moderate levels, and 10% reported severe levels of depression.

Using cut-off scores for the MDI (Bech, Timmerby, Lunde, & Søndergaard, 2015), the majority of participants reported no depression to mild levels of depression (86%), while 7% reported moderate levels and 7% reported severe levels of depression.

Main Analyses³

Figure 1 provides a graphical depiction of the conceptual model, and Table 2 displays the estimates for the path analysis. Analyses revealed that attachment anxiety was marginally and positively related to depressive symptoms, while attachment avoidance was unrelated to BDI, but marginally and negatively associated with MDI. Attachment anxiety was significantly and negatively associated with self-compassion and belonging and significantly and positively associated with burdensomeness, but attachment avoidance was only significantly and negatively associated with belonging. Self-compassion and belonging were significantly and negatively associated with depressive symptoms, and burdensomeness was significantly and positively associated with depressive symptoms.

Table 3 displays the results of the tests of the indirect effects. The results showed that self-compassion, belonging, and burdensomeness all simultaneously mediated the association between attachment anxiety and depressive symptoms. For the association between attachment avoidance and depressive symptoms, only belonging served as a significant mediator.

Alternative Model⁴

We also tested an alternative model, in which the mediators and outcomes were switched; that is, we tested an alternative model, in which attachment anxiety and avoidance predicted depression symptoms, which in turn predicted self-compassion and feelings of burdensomeness and belonging (see Figure 2).

3. We also examined the associations controlling for gender. These included gender as a covariate and did not change the pattern of findings.

4. Of note, because the main model and the alternative model both included covariances between predictors, mediators, and outcome variables, the models were just-identified, and fit indices were identical (and perfect) for the two competing models.

TABLE 3. Main Model: Tests for Mediated Paths with Boot-Strapped Confidence Intervals

Mediation pathway							
	Predictor	Mediator	Outcome	<i>a*b</i>	se	95% CI (lower)	95% CI (upper)
1	Anxiety	Self-compassion	BDI	0.055	0.012	0.034	0.081
	Anxiety	Belonging	BDI	0.024	0.010	0.007	0.047
	Anxiety	Burdensomeness	BDI	0.084	0.019	0.052	0.125
	Avoidance	Self-compassion	BDI	-0.003	0.006	-0.014	0.009
	Avoidance	Belonging	BDI	0.011	0.006	0.003	0.027
	Avoidance	Burdensomeness	BDI	0.001	0.010	-0.019	0.023
2	Anxiety	Self-compassion	MDI	0.079	0.021	0.043	0.126
	Anxiety	Belonging	MDI	0.057	0.021	0.022	0.105
	Anxiety	Burdensomeness	MDI	0.117	0.029	0.065	0.179
	Avoidance	Self-compassion	MDI	-0.004	0.008	-0.021	0.013
	Avoidance	Belonging	MDI	0.027	0.014	0.008	0.063
	Avoidance	Burdensomeness	MDI	0.001	0.015	-0.026	0.033

Note. Bold indicates significant effects. The indirect effect is provided in unstandardized form.

The path estimates can be found in Table 4, with the tests of indirect effects in Table 5. The analyses revealed that attachment anxiety significantly and positive predicted both depression scores (as mediators), while attachment avoidance was unrelated to the depression scores. BDI was significantly and positively associated with burdensomeness, and significantly and negatively associated with self-compassion and belonging. MDI was significantly and negatively associated with belonging, but unrelated to self-compassion and burdensomeness. Attachment anxiety was directly and positively associated with burdensomeness and negatively with self-compassion and belonging; attachment avoidance was directly and negatively associated with belonging, but unrelated to self-compassion and burdensomeness.

Test of indirect effects revealed that BDI served as a significant mediator of the association between attachment anxiety and self-compassion, belonging, and burdensomeness; BDI did not mediate the association between attachment avoidance and the three outcome variables. With respect to MDI, there were no significant mediations, expect for one: MDI served as a mediator of the association between attachment anxiety and belonging.

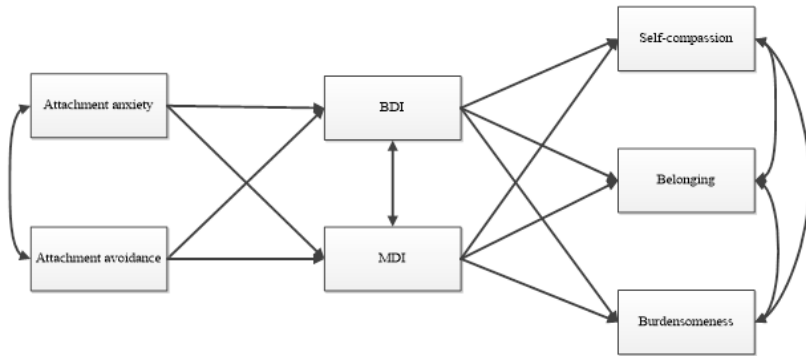


FIGURE 2. Conceptual figure of the mediational analyses for the alternative model.

Note. The direct paths from attachment anxiety and avoidance to the outcome variables were estimated, but are not depicted for ease of visual display.

DISCUSSION

The current study explored the association between attachment style and depressive symptoms as well as investigated the role of self-compassion, perceived belonging, and perceived burdensomeness as potential mediators. While past research has examined the association between attachment and depression (e.g., Roberts et al., 1996; Wei, Mallinckrodt et al., 2005), little research has examined self-compassion, belonging, and burdensomeness as mediators of that association. Indeed, the current study is the first to explicitly examine belonging and burdensomeness in relation to attachment avoidance and anxiety, the most common conceptualization of attachment; Venta and colleagues (2014) used a measure of maternal attachment security, and thus, were unable to examine attachment anxiety and avoidance separately. Moreover, the current study is among the first to examine belonging and burdensomeness, as conceptualized by the interpersonal theory of suicide, in relation to depression as the outcome in a non-clinical sample; these constructs have primarily been examined in relation to suicide among clinical samples. And finally, the current manuscript adds to the existing literature by

TABLE 4. Alternative Model: Coefficients from Path Analysis

Path Estimates					
Predictor	Outcome	Estimate	p-value	95% CI (lower)	95% CI (upper)
Anxiety	BDI	0.205	<0.001	0.144	0.267
	MDI	0.346	<0.001	0.227	0.458
	Self-compassion	-0.159	<0.001	-0.215	-0.104
	Burdensomeness	0.152	<0.001	0.078	0.234
	Belonging	-0.137	0.001	-0.218	-0.052
Avoidance	BDI	0.009	0.737	-0.044	0.065
	MDI	0.001	0.985	-0.107	0.118
	Self-compassion	0.017	0.450	-0.025	0.063
	Burdensomeness	-0.004	0.911	-0.69	0.066
	Belonging	-0.127	0.002	-0.211	-0.050
BDI	Self-compassion	-0.449	<0.001	-0.617	-0.281
	Burdensomeness	0.756	<0.001	0.552	0.968
	Belonging	-0.421	<0.001	-0.653	-0.186
MDI	Self-compassion	-0.038	0.378	-0.126	0.043
	Burdensomeness	0.071	0.184	-0.034	0.177
	Belonging	-0.150	0.024	-0.281	-0.023
Covariance Estimates					
Variable 1	Variable 2	Estimate	p-value	95% CI (lower)	95% CI (upper)
Anxiety	Avoidance	1.261	<0.001	1.091	1.446
Self-compassion	Burdensomeness	-0.055	<0.001	-0.086	-0.028
Self-compassion	Belonging	0.037	0.019	0.006	0.068
Burdensomeness	Belonging	-0.144	<0.001	-0.194	-0.102
BDI	MDI	0.309	<0.001	0.255	0.369

Note. Anxiety = anxious attachment; avoidance = avoidant attachment; BDI = Beck Depression Inventory; MDI = Major Depression Inventory. Coefficients represent unstandardized estimates.

assessing all variables within a single, unified, analysis framework and by assessing two different measures of depression.

We found that greater attachment anxiety was associated with greater depressive symptoms, while attachment avoidance was unrelated to depressive symptoms. These findings somewhat echo past research which suggest that attachment anxiety may be more strongly associated with depressive symptoms than is attachment avoidance (see Cantazaro & Wei, 2010). One reason why attachment anxiety may be more strongly and/or more consistently associated with depressive symptoms may be the more pronounced negative self-schema which is characteristic

TABLE 5. Alternative Model: Tests for Mediated Paths with Boot-Strapped Confidence Intervals

		Mediation pathway					
	Predictor	Mediator	Outcome	a*b	se	95% CI (lower)	95% CI (upper)
1	Anxiety	BDI	Self-compassion	-0.092	0.022	-0.143	-0.054
	Anxiety	BDI	Belonging	-0.086	0.027	-0.145	-0.039
	Anxiety	BDI	Burdensomeness	0.155	0.033	0.099	0.229
	Avoidance	BDI	Self-compassion	-0.004	0.013	-0.031	0.020
	Avoidance	BDI	Belonging	-0.004	0.012	-0.031	0.018
	Avoidance	BDI	Burdensomeness	0.007	0.022	-0.033	0.051
2	Anxiety	MDI	Self-compassion	-0.013	0.015	-0.045	0.014
	Anxiety	MDI	Belonging	-0.052	0.025	-0.112	-0.011
	Anxiety	MDI	Burdensomeness	0.025	0.020	-0.009	0.070
	Avoidance	MDI	Self-compassion	0.000	0.003	-0.008	0.006
	Avoidance	MDI	Belonging	0.000	0.010	-0.021	0.019
	Avoidance	MDI	Burdensomeness	0.000	0.005	-0.011	0.012

Note. Bold indicates significant effects. The indirect effect is provided in unstandardized form.

of attachment anxiety. As attachment anxiety is associated with greater self-criticism, feelings of unworthiness of love, and hypervigilance of cues of disapproval from others (Feeney, Noller, & Hanrahan, 1994), such cognitions may lay the foundation for excessive negative affect and depressive symptoms. Indeed, in the main analyses, we found that self-compassion, perceived belonging, and perceived burdensomeness all mediated the association between attachment anxiety and depressive symptoms. As a consequence of their self-criticism, those with greater attachment anxiety may be less likely to be compassionate toward themselves (Joeng & Turner, 2015), and as a consequence of their hypervigilance of disapproval and rejection and their tendency to perceive more negative feelings and behaviors on the part of others (e.g., Collins, 1996; Collins et al., 2006; Murray et al., 2001), people with greater attachment anxiety may be more likely to perceive that they do not have people who care about them and that they are a burden to others.

With respect to attachment avoidance, there were no significant direct effects on depressive symptoms. As some past research has found an association, we can only speculate as to why

we did not. For one, it may be that those with greater attachment avoidance had a negative model of other, rather than a negative model of the self. Thus, if they held relatively more positive beliefs about themselves, they may not have experienced the negative cognitions that may lay the foundation for excessive negative affect and depressive symptoms. Secondly, it may be that at lower levels of depressive symptoms (as in our sample), this direct effect of attachment avoidance on depressive symptoms is not yet significant; instead, it may be that this association will become evident at higher levels of depression symptoms (i.e., at moderate to severe levels of depressive symptoms).

Interestingly, perceived belonging served as a mediator of the association in the main analyses. That is, people with greater attachment avoidance reported perceiving less belonging, and experienced greater depressive symptoms. As we did not expect this finding, any interpretations are of course speculative. However, one reason for this finding may be that, due to their desire for independence, people with greater attachment avoidance may withdraw and isolate themselves from others, reducing their social network and limiting their ability to seek social support when needed (Venta et al., 2014). Thus, both objectively and subjectively, this withdrawal may translate into a reduced sense of belonging that may then predispose them to increased depressive symptoms, as they have fewer people to turn to in times of distress. Relatedly, people high in attachment avoidance may have learned that others are not reliably there for them and thus seek independence as a form of protection; however, these individuals may still feel depressed as their need to belong is not being met. This idea is supported by past work which found that individuals high in avoidant attachment feel better about themselves, and in general, after positive social feedback, including being accepted by others (Carvallo & Gabriel, 2006; MacDonald & Borsook, 2010).

We also tested an alternative model, in which attachment predicted depression, which in turn predicted self-compassion, belonging, and burdensomeness. Somewhat similar to the main analysis, there were significant mediations for attachment anxiety, such that depression (though primarily the BDI score) served as a mediator of the association between attachment anxiety and

self-compassion, belonging, and burdensomeness. We speculate that the reason that BDI, but not MDI, served as the primary mediator is due to the high correlation between the two. In essence, these findings suggest that rather than negative attachment-related cognitions leading to depression, depression may lead to negative attachment-related cognitions. We find this alternative model to be less convincing, as we believe it is more likely that feelings of belonging, burdensomeness, and self-compassion stem more directly from models of the self and other that are formed during attachment experiences. Moreover, we do urge strong caution in using alternative models to determine the supposed direction of effects in cross-sectional data (as is sometimes done). Recent simulation work indicates that testing of alternative models does not allow for a determination of which model is the correct model. That is, finding significant mediations for one ordering of variables, and not another, does not mean that the model with (more) significant mediations is the correct model (Fiedler, Schott, & Meiser, 2011; Lemmer & Gollwitzer, 2017; Thoemmes, 2015). One reason for this is that alternative models are within the same equivalence class (i.e., models that have the sample implied covariance matrix; Thoemmes, 2015). Essentially, a determination of the direction of effects should not be based on test statistics like the presence and significance of indirect effects; rather, it should be based on available theory and literature. Thus, we are inclined to hypothesize that the direction of effects follow that of the main model, as this model is most consistent with theory and past research findings. We do wish to acknowledge, however, that the proposed mediators may be epiphenomenal effects of depression, rather than true mediators. More research is needed to determine whether that is the case.

LIMITATIONS AND FUTURE DIRECTIONS

The current study is among the first to look at self-compassion, perceived belonging, and perceived burdensomeness as important factors to consider in understanding the association between depressive symptoms and attachment anxiety and avoidance. Although the current manuscript has many strengths, including

considering attachment anxiety and avoidance separately and finding similar results with two measures of depressive symptoms, the results should be considered in light of the limitations.

For one, although our sample was large, it consisted primarily of women. As women tend to report higher rates of depression (Piccinelli & Wilkinson, 2000), future research may seek to consider gender in understanding the association between attachment and depressive symptoms. Moreover, future research may examine whether the mediated effect of self-compassion, perceived belonging, and perceived burdensomeness differ by gender. While we have no theoretical reason to suspect such differences, and we did analyses controlling for gender, with no substantial changes to results, it remains an empirical question to be tested. Piccinelli and Wilkinson (2000) did suggest in their review that adverse early family life experiences may be related to gender differences in depression, but these events were more traumatic in nature (e.g., sexual abuse). Moreover, they were unable to find consistent evidence that social support (related to perceived belonging) contributed to gender differences in depression.

It should be noted that the levels of depressive symptoms were low in the current study; the majority of participants reported minimal to mild levels of depression. Thus, this may somewhat limit the generalizability of the current results. That is, the findings may be most representative of young adult, college-student samples, rather than samples suffering from clinical levels of depression. There is some (limited) indication that the effects found in this study may be evident in clinical samples as well; Venta and colleagues (2014) found that the association between attachment and depression was mediated by belonging using a sample of inpatient adolescent participants. However, we strongly encourage replication of the current findings in clinical samples.

Moreover, the use of self-report measures is a limitation. For instance, subjective (self-report) and objective reports (e.g., assessment by a clinician) of depressive symptoms may differ, with some research suggesting a moderate correlation between the two (Sayer et al., 1993). Future research may seek to replicate the current findings using more objective measures, including clinician's diagnosis. It may also be interesting to examine

whether observers are able to accurately detect the levels of self-compassion and perceived belonging and burdensomeness in depressed individuals. However, as perceptions in general, and perceptions about one's interpersonal connections in particular, are vital in shaping cognitions and emotions (and vice versa; Tacca, 2011), self-report measures of the constructs in this manuscript should provide valuable information about their interrelations and about their usefulness in predicting individuals' experiences of depressive symptoms. Thus, we do not believe that the use of self-report measures detracts substantially from the current findings.

As the current study was cross-sectional in nature, we cannot speak to causality. Future research should consider employing longitudinal study designs, as these may assist in determining direction of effects. Moreover, future research may consider conducting experimental studies to examine whether manipulation of self-compassion, perceived belonging, and perceived burdensomeness leads to changes in depressive symptoms. Such research might illuminate potential intervention foci that could seek to lessen depressive symptoms. Past research has suggested that self-compassion-based interventions may be useful in reducing self-judgment and depressive symptoms, weight-related and body-image negative affect, and in increasing optimism and self-efficacy (Donovan et al., 2016; Palmeira, Pinto-Gouveia, & Cunha, 2017; Przewdziecki & Sherman, 2016; Smeets, Neff, Alberts, & Peters, 2014; Yang, Liu, Shao, Ma & Tian, 2015). Interventions aimed at increasing feelings of belonging and reducing perceptions of burdensomeness may have similar efficacy in lessening depression and other negative outcomes, as well as increasing positive outcomes. Indeed, although some research suggests that attachment security may be experimentally manipulated (Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Mikulincer, Gillath, & Shaver, 2002), it is less clear if interventions can be developed for adults with attachment insecurity. Thus, it may be beneficial, or more efficient, for treatment to address intermediate mechanisms, such as self-compassion and perceptions of burdensomeness and belonging directly when treating depression (Venta et al., 2014).

CONCLUSION

In sum, our research suggests that individuals who are high in attachment anxiety tend to experience higher levels of depressive symptoms in part due to their feelings of being a burden to others, their perception that they do not belong and others do not care for them, and their decreased likelihood of being self-compassionate. In addition, although self-compassion and burdensomeness did not help explain the relationship between attachment avoidance and depressive symptoms, belonging did, suggesting that the need to belong is important even in individuals who have developed negative expectations of others. These findings are important as they pave the road for future research, which may develop interventions aimed at alleviating depressive symptoms first by identifying an individual's attachment style and then targeting feelings of self-compassion, belonging, or burdensomeness.

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