The development of self-definition and relatedness in emerging adulthood and their role in the development of depressive symptoms

Daniel C Kopala-Sibley, David C Zuroff, Nicola Hermanto, and Keven Joyal-Desmarais

Abstract
According to Blatt (2004; Blatt & Luyten, 2009) and others (e.g., Beck, Epstein, Harrison, & Emery, 1983), establishing positive self-definition and mature relatedness to others represent core lifespan developmental tasks. In a sample of emerging adults, this study examined the effects of the quality of one close friendship and changes in romantic relationship status on the development of maladaptive personality traits from each domain (self-criticism and neediness and connectedness), and the effects of changes in these personality factors on the development of depressive symptoms. Participants consisted of 82 (13 male) emerging adults (Mage = 19.00, SD = 0.75) and a single corresponding close friend. At baseline, participants and their friends completed measures of the quality of their relationship (i.e., acceptance and autonomy support). At baseline and again 12 months later, participants completed measures of self-criticism, neediness, connectedness, depressive symptoms, and current romantic relationship status. Adjusting for gender and baseline age, structural equation models showed that better friendship quality predicted decreases in self-criticism, which in turn predicted lower levels of depressive symptoms. Entering into a romantic relationship predicted increases in connectedness. Connectedness was unrelated to depression, although increases in neediness over time predicted increases in depressive symptoms. Results highlight the role of one close friend and changes in romantic relationship status in the development of self-definition and relatedness during emerging adulthood, and the role of those personality factors in the development of depression.

Keywords
Personality, depression, friendship qualities, self-criticism, dependency

Establishing positive self-definition and mature relatedness have been identified as core aspects of personality development across the lifespan (Blatt, 2004, 2007; Blatt & Luyten, 2009; Beck et al., 1983). Delays or deficits in the development of self-definition or relatedness give rise to the personality traits of self-criticism or dependency, respectively (Blatt et al., 1974). Although originally proposed as risk factors for depression (Abela, Webb, Wagner, Ho, & Adams, 2006; Blatt & Zuroff, 1992), subsequent research has confirmed the roles of self-criticism and dependency in numerous forms of psychopathology and negative social and interpersonal outcomes including, for instance, bipolar depression (Rosenfarb, Becker, Kahn, & Mintz, 1998), social anxiety (Cox et al., 2000; Kopala-Sibley, Zuroff, Russell, & Moskowitz, 2014b), borderline personality disorder (Kopala-Sibley, Zuroff, Russell, Moskowitz, & Paris, 2012b; Levy, Edell, & McGlashan, 2007), and poorer quality friendships and romantic relationships (Fichman, Koestner, & Zuroff, 1994; Lasri & Shahar, 2012; Zuroff, Koestner, & Powers, 1994).

Given the maladaptive nature of self-criticism and dependency, it is unsurprising that researchers have sought to understand their developmental origins and have generated numerous studies on this topic (e.g., Blatt & Homann, 1992; see Kopala-Sibley & Zuroff, 2014, for a review). Understanding the developmental origins of these personality factors is important as it may help to inform interventions aimed at identifying those at risk for the development of a vulnerable personality style prior to the onset of a diagnosable disorder. However, no research has examined the development of self-criticism and dependency during emerging adulthood, or the period of life between adolescence and full-fledged adulthood (Arnett, 2000), despite this being a key time for the consolidation of self-identity as well as the development of the capacity for intimate relationships with others (Arnett, 2000; Blatt & Luyten, 2009; Montgomery, 2005; Schwartz, Côté, & Arnett, 2005). Moreover, much of the developmental literature pertaining to self-criticism and dependency has focused exclusively on the influence of parents, to the exclusion of other relationships such as those with peers and romantic partners. Accordingly, the first goal of this study was to examine longitudinally the role of a close friendship, using two sources of data, as well as changes in romantic relationship status in the development of self-definition and relatedness during emerging adulthood. The second goal was to confirm the independent roles of changes in self-criticism and dependency in the occurrence of depressive symptoms during this period.
The development of self-definition and relatedness

Blatt and colleagues (e.g., Blass & Blatt, 1996; Blatt & Schichman, 1983, 2004; Blatt & Luyten, 2009) expanded upon Erikson’s (1950) stage model of development and outlined a two-polarities model of psychosocial development according to which self-definition and relatedness are core aspects of lifespan personality development. The successful development of these capacities is argued to be integral to healthy psychosocial functioning and the avoidance of psychopathology. According to Blatt (e.g., Blatt, 2004; Blatt & Luyten, 2009), relatedness involves the development of increasingly mature, intimate, mutually satisfying, reciprocal, interpersonal relationships from infancy through adulthood. However, delays or deficits in the development of a healthy sense of relatedness may lead to high levels of a personality style labeled dependency. Such delays stem from developmental experiences of uncaring relationships or of care being contingent on the expression of affection towards others. These experiences engender a dependent personality style characterized by high levels of insecurity regarding close others and a sense of self-worth that is contingent upon the care and support of others (Blatt, 1974; Blatt & Homann, 1992).

Drawing on evidence that dependency appears to have both maladaptive and adaptive characteristics, researchers have identified subscales within dependency. In their factor analysis of the dependency subscale of the Depressive Experiences Questionnaire (DEQ, Blatt, D’Afflitti, & Quinlan, 1976), Rude and Burnham (1995) identified two factors. The first, labeled neediness, taps intense concerns about abandonment, loss, and rejection. The second, labeled connectedness, instead taps an awareness of one’s impact on others as well as a valuing of interpersonal relationships. Subsequent research has replicated a two-factor model of DEQ-dependency (e.g., Blatt, Zohar, Quinlan, Zuroff, & Mongrain, 1995; Dunkley, Blankstein, Zuroff, Lecce, & Hui, 2006; Zuroff et al., 1999). Research has generally found neediness to be a stronger risk factor for depression than connectedness, whereas connectedness is generally associated with more positive interpersonal outcomes (see Kopala-Sibley, Rappaport, Sutton, Moskowitz, & Zuroff, 2013a for a review). However, only one study to date has examined the developmental origins of neediness and connectedness rather than dependency as a unitary construct (Kopala-Sibley, Zuroff, Leybman, & Hope, 2012a).

In contrast to relatedness, self-definition requires the development of a sense of self that is differentiated across situations and relationships but still integrated into a cohesive whole and that is realistic and essentially positive (Blatt & Luyten, 2009). However, delays or deficits in the development of self-definition are argued to lead to high levels of a personality style labeled self-criticism. These delays are hypothesized to originate in experiences of over-control, suppression of autonomy, and a lack of acceptance from important others. The individual experiences approval and acceptance as being contingent upon meeting the standards set by others and develops a highly self-critical personality style in which there are excessive concerns about status relative to others and a belief that failures should be feared as they may lead to a loss of status and value in the eyes of important others (Blatt, 1974; Blatt & Homann, 1992). We should note that in the current study, acceptance is taken to mean acceptance rather than rejection of the other’s personal qualities and traits, attitudes, beliefs, and behaviors. Autonomy support (see Deci & Ryan, 2000) is conceptualized as support for the individual’s behaving in ways that are experienced as volitional and concordant with the individual’s sense of self.

Evidence regarding the development of self-definition and relatedness

A sizeable body of literature has provided initial, correlational support for Blatt’s theories. Numerous studies have confirmed an association between recollections of negative parenting behaviors, including a lack of acceptance, high levels of control, and maltreatment, with current levels of both self-criticism and dependency (e.g., Soenens, Vansteenkiste, & Luyten, 2010; see Kopala-Sibley & Zuroff, 2014 for a review). Moreover, cross-sectional studies have found that current levels of self-criticism or dependency mediate the effects of developmental experiences on outcomes such as depressive symptoms, self-harm, and suicidality (Baetens et al., 2013; Campos, Besser, & Blatt, 2010; Soenens et al., 2008).

Many studies in this literature suffer from multiple methodological limitations. They have predominantly relied on cross-sectional, single-informant, retrospective data to test developmental questions, with one exception (Koestner, Zuroff, & Powers, 1991). Only three studies have examined this topic longitudinally. Koestner et al. (1991) showed that maternal reports of restrictive and rejecting parenting behavior assessed at age 5 were related to levels of self-criticism in the child at age 12. More recently, Thompson, Zuroff, and Hindi (2012) showed that, from age 14 to 16, lower levels of instrumental and emotional support from parents predicted increases in dependency and self-criticism. Finally, Kopala-Sibley, Zuroff, Hankin, and Abela (2014a) provided evidence that, over a 2-year period, negative events pertaining to self-definition (i.e., events that threatened one’s sense of self) uniquely predicted increases in self-criticism, whereas negative events pertaining to relatedness (i.e., events that threatened close relationships) uniquely predicted increases in dependency.

However, Koestner et al. (1991) did not assess self-criticism at baseline and therefore could not examine change or the development of self-criticism, although it is unclear how self-criticism would manifest at age 5. While Thompson et al. (2012) and Kopala-Sibley et al. (2014b) examined change over time, only self-report measures of developmental experiences were obtained. The use of single-informant designs may artificially inflate the associations between variables due to shared method variance. We therefore examined predictors of change in self-criticism, neediness, and connectedness longitudinally using two sources of informant data.

Peer relationships and the development of self-definition and relatedness

Very little of the literature examining Blatt’s developmental hypotheses has examined influences beyond relationships with parents. For instance, Kopala-Sibley, Zuroff, Leybman, and Hope (2012a, 2013b) found that better quality recalled peer relationships during adolescence were related to lower levels of neediness and self-criticism and higher levels of connectedness, beyond the effects of recalled parental care and control. Although these studies are limited by their cross-sectional retrospective design, they are suggestive of an effect of peers on the development of self-definition and relatedness.

Indeed, these retrospective results are consistent with other evidence showing that peer relationships contribute to aspects of psychosocial adjustment that are associated with self-criticism (Blatt, 2004), including the onset of depression, social anxiety, loneliness,
and low self-esteem (for a review, see Hawker & Boulton, 2000). Some researchers have even argued that peers have a greater effect than parents on psychosocial development (Harris, 1995). The effect of autonomy support in close relationships on psychosocial outcomes is highlighted by Self-Determination Theory (SDT; e.g., Deci & Ryan, 2000), which posits autonomy, or “the organismic desire to self-organize experience and behavior and to have activity be concordant with one’s integrated sense of self” (Deci & Ryan, 2000, p. 231), as a fundamental psychological need, the satisfaction of which is necessary for healthy psychological functioning. Individuals’ autonomy-need satisfaction may be fostered or thwarted by autonomy support or a lack thereof from others. For instance, autonomy support from friends predicts better relationship quality with those friends and better psychological health overall (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006) as well as the attainment of important personal goals (Koestner, 2008; Powers, Koestner, & Gorin, 2008).

From the perspective of Blatt’s theories, the period around emerging adulthood is likely a key period for the development of a sense of self and a sense of relatedness to others. During this period, relationships with peers take on increased importance as the young adult spends less time with their parents and more with peers (Furman & Buhrmester, 1992; Markiewicz, Lawford, Doyle, & Haggart, 2006). Therefore, a relationship with one close friend that is accepting and autonomy supportive may indicate to the young adult that he or she is a fundamentally good person who is worthy of the acceptance and support of others, regardless of whether their views or behaviors differ from those of their close friends. Over time, the internalization of this positive regard as well as care and support may facilitate the development of a more positive sense of self as well as a more positive sense of relatedness to others. Accordingly, based on prior theory (e.g., Blatt, D’Afflitti, & Quinlan, 1976; Blatt & Homann, 1992) and evidence (e.g., Koestner et al., 1991; Kopala-Sibley et al., 2012a, 2013b; McCranie & Bass, 1984) of the effects of parental acceptance and autonomy support, we examined the effects of these variables in the context of a close friendship on the development of self-criticism and dependency.

Romantic relationships and the development of relatedness

There is also a lack of research examining the effects of changes in romantic relationship status on dependency (or neediness or connectedness). This is also surprising, given SDT’s emphasis on relatedness as another fundamental psychological need (Deci & Ryan, 2000). According to SDT theorists, relatedness is the universal need to interact, connect with, and care for and be cared for by others (Deci & Ryan, 2000). From their perspective, the satisfaction of this need over time should lead to personal growth and enhanced well-being. From the perspective of Blatt’s theory, young adults’ romantic relationships are likely important for the development of their sense of relatedness to others. This idea is consistent with Erikson’s (1950) identification of the developmental stage of intimacy versus isolation as characterizing young adulthood. In the context of Blatt’s theories and the current study, it is possible that increases in romantic relationship status will lead to more satisfaction of the need for relatedness, and a concomitant increase in connectedness and decrease in neediness. This possibility is further suggested by a sizeable body of evidence linking romantic relationship formation and the quality of romantic relationships to both positive and negative psychosocial outcomes (e.g., Collins, 2003; Furman & Shaffer, 2003; Neyer & Asendorpf, 2001) as well as evidence that romantic relationships are associated with improved romantic self-concept (Connolly & Konarski, 1994; Kuttler, LaGreca, & Prinstein, 1999).

In the context of Blatt’s theory, this suggests a possible effect of changes in romantic relationship involvement on both neediness and connectedness. Given that emerging adulthood is characterized as a period in which youth are still developing a sense of relatedness to others, beginning a romantic relationship may facilitate an improved sense of relatedness and, therefore, lower levels of neediness and higher levels of connectedness as the young adult learns he or she is cared for, loved, and supported. This possibility is also consistent with attachment (e.g., Bowlby, 1980) as well as interpersonal theory (e.g., Sullivan, 1947). Both of these theories propose that close attachment or interpersonal experiences form the basis for the development of internal mental working models of relationships with others. Both Bowlby (1980) and Sullivan (1947) argue that positive interpersonal relationships during development form the basis for the individual’s expectations regarding how others will likely act towards them. If beginning a new romantic relationship may be taken as a proxy for positive experiences of close attachment to others, Blatt’s theory, as well as others’ theories (Bowlby, 1980; Sullivan, 1947), suggest that increases in relationship status may predict increases in connectedness and decreases in relatedness. We note that while romantic relationship quality may explain the effects of relationship status, we did not examine romantic relationship quality, as this would preclude testing the effects of remaining single over the study interval (i.e., no change in relationship status), and would require the entire sample to be in a romantic relationship at a minimum of one time point.

Overview and hypotheses

Our overarching goals were to test the roles of one close friendship and changes in romantic relationship status in the development of self-criticism and subtypes of dependency, namely, neediness and connectedness, during emerging adulthood, and subsequently to provide further evidence for the effects of these personality traits on the development of depressive symptoms during this period. We expected that a lower quality friendship would predict increases in self-criticism and neediness, and decreases in connectedness, which would in turn mediate the effects of friendship quality on depressive symptoms (Baetens et al., 2013; Campos et al., 2010; Soenens et al., 2008). We further expected that increases in romantic relationship status would predict decreases in neediness and increases in connectedness. We then expected higher levels of neediness to predict higher levels of depressive symptoms, although we expected connectedness to be unrelated to depression.

Methods

Participants

A total of 143 participants initially responded to online advertisements and provided the name of a friend who was willing to participate. Of those, 115 participants completed measures at baseline. Of these 115, 23 came from a university subject pool, while 92 were paid, having been recruited either via Craigslist or university classified advertisements. Of the 115 participants, 82 of their friends...
completed baseline measures as requested. Thus, these 82 were considered our effective sample size at baseline.

Of the 115 who agreed to participate, those whose friend completed measures were compared to those who agreed to participate but whose friend did not complete measures. A series of independent sample t-tests showed that there were no significant differences across these two groups on any measure at baseline (all p-values > .30).

Of the 82 participants whose friend completed measures at baseline, there were varying rates of completion of measures at time 2. Specifically, 55 participants (67%) completed time 2 measures of dependency and self-criticism, 48 (58.5%) completed measures of depressive symptoms, and 74 (90.2%) reported their romantic relationship status.

The 82 participants whose friends participated at baseline were then coded as having either no missing data or any missing data. A series of independent sample t-tests then examined whether having missing data on any time 2 variable was related to any variable at either baseline or follow-up. Results showed that missingness was unrelated to age, gender, baseline, or follow-up self-criticism, neediness or connectedness, relationship status, depressive symptoms, and friend- and participant-rated acceptance and autonomy support (all p-values > .40). Data were thus viewed as missing at random for analyses. Full Information Maximum Likelihood (FIML) procedures in AMOS 5.0 were used to estimate the means and intercepts in the presence of missing data. This approach to missing data is generally acknowledged to be preferable to other methods for dealing with missing data, such as listwise deletion or data imputation, as these latter approaches are more likely to yield severely biased estimates, whereas estimates based on FIML are less biased relative to these other procedures (Little & Rubin, 1987; Schafer, 1997).

The final sample consisted of 82 (13 males) English-speaking, Canadian emerging adults between the ages of 18 and 20 years ($M = 19.00$, $SD = 0.75$) at baseline; 60.8% of participants described themselves as Caucasian. Participants were compensated with either $15 per time point or two credit points towards their course. Participants were instructed to ask the "friend you feel closest to" to participate with them. There were no inclusion or exclusion criteria for this individual, other than that the person should not be a romantic partner. It should be noted that we were interested in the effects of a relationship that the participant perceived to be an important friendship. We therefore did not assess whether this friendship was reciprocated by the person the participants recruited. Participants and their friends were asked to complete measures independently from each other. Friends of participants were entered into a raffle to win an iPod.

**Procedures**

All procedures received ethics approval by the university institutional review board. At time 1, participants provided informed consent and completed measures of neediness, connectedness, and self-criticism (DEQ; Blatt et al., 1976), depressive symptoms (Beck Depression Inventory-II, BDI-II; Beck, Steer, & Brown, 1996), and of the quality of the relationship (Relational Support Inventory, RSI; van Lieshout, Cillessen, & Haselager, 1999) with the friend participating. The friend of the participant also completed the RSI at baseline. One year later, participants again completed the DEQ and BDI-II. All measures were completed online.

**Measures**

**Self-criticism, neediness, and connectedness.** Self-criticism, neediness, and connectedness were assessed with the DEQ (Blatt et al., 1976). The self-criticism scale has shown retest reliability of between .75 and .80 at 3 and 12 months, respectively (Zuroff, Moskowitz, Wielgus, Powers, and Franko, 1983; Zuroff, Igreja, & Mongrain, 1990). It also shows good internal consistency and construct validity (Blatt et al., 1976; Mongrain & Zuroff, 1989; Zuroff & Mongrain, 1987) and has been widely used as a measure of personality vulnerability to depression and psychopathology (e.g., Abela et al., 2006; for reviews, see Blatt, 2004, and Blatt & Zuroff, 1992). Scores for neediness and connectedness were calculated by applying the same factor scoring procedure as Zuroff et al. (1999). Higher scores indicate higher levels of neediness or connectedness. An example of an item with a high loading on the Neediness scale is "I become frightened when I feel alone," whereas an example of a high-loading Connectedness item is, "After a fight with a friend, I must make amends as soon as possible." Validity and reliability evidence for these subscales is well documented (e.g., McBride et al., 2006; Rude & Burnham, 1995; Zuroff et al., 1999). In the current study, self-criticism showed a Cronbach’s alpha of .81 and .82 at times 1 and 2, respectively. Neediness showed alphas of .69 and .65 at times 1 and 2, respectively, whereas connectedness showed alphas of .71 and .70 at times 1 and 2, respectively. Inspection of normality statistics (Shapiro–Wilk and Kolmogorov–Smirnov values) as well as histograms and scatterplots indicated that neediness and connectedness at baseline and follow-up were normally distributed (all p-values > .15). It is important to note that these subscales are not meant to categorize individuals as self-critical or dependent. Rather, they are seen as continuous, nearly orthogonal dimensions of individual differences (Zuroff, Mongrain, & Santor, 2004).

**Depressive symptoms.** Depressive symptoms were assessed with the BDI-II (Beck et al., 1996). The BDI-II is a widely used 21-item measure of the severity of depressive symptoms in late adolescents and adults. Items are rated on a three-point scale (0 = not present to 3 = severe symptom manifestation). The BDI-II has strong psychometric properties (Beck et al., 1996; Steer, Ball, Ranieri, & Beck, 1997). In the current study, Cronbach’s alpha was .90 and .94 at times 1 and 2, respectively. As is common in community samples, BDI scores at both time points were positively skewed, based on Shapiro–Wilk and Kolmogorov–Smirnov values (i.e., most participants showed relatively low levels of depressive symptoms, all p-values < .01). BDI-II scores were successfully normalized with a square root transformation (all p-values of Shapiro–Wilk and Kolmogorov–Smirnov values > .15), and these are used in our main analyses.

**Friendship relationship quality.** The quality of the relationship with a close friend was measured as a latent variable composed of the Autonomy Support and Acceptance subscales of the Relational Support Inventory (Van Lieshout et al., 1999). The RSI specifies that “best friend” refers to “a best friend, who, in turn, would nominate you as one of his or her best friends.” In this measure, acceptance refers to acceptance rather than rejection of the other’s personal qualities and traits, attitudes, beliefs, and behaviors (e.g., “X accepts me the way I am”). Autonomy support refers to the extent to which one respects another’s autonomy as opposed to setting limits on their behavior (e.g., “X encourages me to make
decisions as much as possible for myself”). Participants are asked to respond to each statement on a 5-point scale ranging from very true (5) to very untrue (1) with sometimes true, sometimes untrue (3) in between. In prior research, these scales showed good internal consistency when assessing the quality of individual friendships and show good construct validity in that they relate to psychological well-being, delinquency, substance use, and peer-group functioning (van Lieshout et al., 1999; Scholte, Van Lieshout, & Van Aken, 2001). In the current study, participants were asked to indicate how their friend acts towards them, whereas friends were asked to indicate how they act towards the participant. At baseline, alphas for participants’ reports of acceptance and autonomy support were .83 and .79, respectively. For friends of participants, alphas for participants’ reports of acceptance and autonomy support were .80 and .76, .83 and .79, respectively. For friends of participants, alphas for acceptance and autonomy support at baseline were .80 and .76, respectively. Shapiro–Wilk and Kolmogorov–Smirnov values indicated that all four participant- and friend-rated acceptance and autonomy support scores were negatively skewed (i.e., most reported relatively high levels of both variables), with all p-values < .01. Square root, log, and log base 10 transformations only mildly improved the normality of our friendship quality variables. Furthermore, when we used these transformed friendship variables in our path analyses as observed indicators of a latent friendship quality variable, models did not converge. Thus, we use the untransformed variables in our model.

**Romantic relationship status.** Participants were asked to indicate the status of their romantic relationship. Options included (1) single, (2) in a casual dating relationship, (3) in a long-term relationship but living apart, (4) living with long-term romantic partner, and (5) married. At baseline, 47 (60.26%) participants were single, 7 (8.97%) were in a casual dating relationship, 20 (25.64%) were in a long-term relationship but living apart, 4 (5.13%) were living with their long-term romantic partner, and none were married. At follow-up, 44 (54.32%) participants were single, 8 (9.88%) were in a casual dating relationship, 22 (27.16%) were in a long-term relationship but living apart, 7 (8.64%) were living with their long-term romantic partner, and none were married. Participants were then coded as having experienced a breakup (i.e., changed from being in any relationship to being single), having no change in status (i.e., were still single or still in a relationship at both times), or entered into a new relationship (i.e., changed from being single to being in any relationship). Change in relationship status was treated as a continuous variable in our primary analyses, but examined as a categorical variable in ancillary analyses.

**Data analyses**

An initial path model was tested in order to determine whether there were any direct effects of variables measured at baseline on depression at time 2, adjusting for baseline depression scores. Covarying all baseline variables and adjusting for the effects of each on depression at time 2, there were no significant main effects of any variable. Thus, subsequent path analyses are best seen as examining whether there are indirect effects of friendship quality and relationship status on change in depressive symptoms via change in personality factors. As Rucker, Preacher, Tormala, and Petty (2011) have shown, the absence of a main effect does not preclude the existence of significant indirect effects.

Primary data analyses were cross-lagged structural equation panel models (Figure 1). By controlling the effect of time 1 scores (e.g., self-criticism) on time 2 scores of the same variable, predictors (e.g., friendship quality) of that time 2 score are then predicting the residual, or change, in that score from time 1 to time 2. Thus, our model examines the effects of relationship quality with one close friend assessed at baseline as well as change in romantic relationship status on the development of self-criticism, neediness, and connectedness, and whether changes in these personality factors predict increases in depressive symptoms. By change we refer to the effects of these variables at time 2 on time 2 depressive symptoms while adjusting for the effects of these variables at time 1 on depression at time 2. This path model also allowed us to examine the indirect effects of friendship quality and change in romantic relationship status on change in depressive symptoms via change in our personality factors of interest. Thus, paths were included from friendship quality and relationship status at both time 1 and 2 to neediness and connectedness at time 2. An effect of friendship quality on self-criticism at time 2 was included, although we did not include an effect of relationship status on self-criticism at time 2 as we did not predict this effect. Paths from self-criticism, neediness, and connectedness at time 2 to depressive symptoms at time 2 were included, while controlling for the effects of baseline depressive symptoms, self-criticism, and dependency. Our initial model also included the effects of gender as well as baseline age on change in self-criticism, neediness, connectedness, and depressive symptoms. In this initial model, gender and age were both covaried with all variables assessed at baseline in order to account for any potential associations. However, gender was unrelated to change in any downstream variable. Gender was also unrelated to any variable at baseline. We also repeated analyses after excluding males from our model. All effects remained significant at levels reported below, and so gender was dropped from the final model. Multi-group models would be preferable for examining gender differences in our models; however, our small sample of males precluded this option.

Analyses were conducted using AMOS 5.0 (Arbuckle, 2003). Neediness, connectedness, self-criticism, and depressive symptoms were modeled as observed variables. In order to assess overall friendship quality, a latent variable was created based on the observed scales of autonomy support and acceptance as rated by each participant and their friend. As measures of goodness of fit, we present chi-square, ratio of chi-square to degrees of freedom (χ²/df), comparative fit index (CFI), root mean square error of approximation (RMSEA), and Akaike Information Criteria (AIC) as a measure of comparative fit. Generally, CFI values > .90 (Hoyle & Panter, 1995), a χ²/df < 2 (Carmines & McIver, 1981), and an RMSEA < .08 (Kline, 1998) indicate acceptable fit. Although bootstrapping would be preferable for examining the significance of indirect effects of friendship quality and relationship status on depression via self-criticism, neediness, and connectedness, missing data in the current sample precluded this option. Instead, we used the Monte Carlo Method for Assessing Mediation (MCMAM; MacKinnon, Lockwood, & Williams, 2004). In this approach, random draws from distributions of the two indirect effects are simulated and the product of these values is computed. This procedure is repeated a very large number of times and the resulting distribution of the indirect effect is used to estimate a confidence interval (CI) around the observed value of the indirect effect. Although bootstrapped CIs are still preferable, MCMAM performs better than the Sobel test (MacKinnon et al., 2004). In the current study, we computed a 95% CI with 20,000 repetitions; 95% CIs are presented for each significant regression path.
1.35/C0 revealed no significant differences in self-criticism, dependency, relationship status, and depressive symptoms pairing baseline and follow-up mean scores for self-criticism, 31.

Effect terms of those variables. N = 82. Ranges and anchors: Self-Criticism, Neediness, Connectedness (1 = Strongly disagree, 7 = Strongly agree); Acceptance and Autonomy Support (1 = Very untrue of me, 5 = Very true of me); Depressive symptoms (0 = Not present, 3 = Severe symptom manifestation); Relationship Change (−1 = Breakup, 0 = No change, 1 = Entered a relationship).

Results

Descriptive statistics and bivariate correlations

Descriptive statistics and bivariate correlations are presented in Table 1. To summarize, nearly all expected associations were significant and in the expected direction. Paired sample t-tests comparing baseline and follow-up mean scores for self-criticism, dependency, relationship status, and depressive symptoms revealed no significant differences in self-criticism, t(81) = −1.35, p = .18, connectedness, t(81) = −.69, p = .49, or change in relationship status, t(81) = −1.49, p = .14, although there was a trend towards an increase in depressive symptoms, t(81) = −1.82, p = .07 and an increase in neediness, t(81) = −2.26, p = .02. As such, there are no significant mean level changes in most of our dependent variables, with the exception of neediness. In the context of little overall change, the current analyses examine predictors of between-subject differences in changes in these variables over time.

Effects of friendship quality and romantic relationships

The initial model (Figure 1) predicting changes in self-criticism, neediness, connectedness, and depressive symptoms yielded the following excellent fit indices: χ²(42, N = 82) = 45.13, p = .16, χ²/df = 1.08, CFI = .990, RMSEA = .030, AIC = 199.131. Standardized loadings on our latent friendship quality variables ranged from .38 to .81 and all were significant (p < .01). Next, on the basis of Wald tests (see Fox, 1997), non-significant paths were removed one at a time, and the model was re-estimated. Chi-square difference tests were computed after each deletion to ensure that the fit of the model did not decrease significantly. Listing fit statistics following every deleted path would consume considerable space, and so will not be detailed here, but results for each model are available upon request. All non-significant covariances between baseline variables were also trimmed one at a time, with models re-evaluated as above after each deletion. A non-significant covariance between participant-rated autonomy support and acceptance was also trimmed. The final model (Figure 2) showed the following fit statistics: χ²(69, N = 82) = 80.10, p = .17, χ²/df = 1.16, CFI = .963, RMSEA = .045, AIC = 180.04, suggesting an excellent fit to the data. A chi-square difference test comparing this model to the initial model with all paths included showed that the final model did not fit the data worse after non-significant paths were trimmed, Δχ² = 34.97 (27), p > .05. The more parsimonious model was therefore preferred. It is also important to note that there were no substantive changes to our significant effects after deleting non-significant paths.

Figure 2 presents the standardized parameters for the final model. First, older age at baseline was associated with lower levels of depression at follow-up, 95% CI [−.41, −.01]. The model is then best understood by starting with time 1 self-criticism, neediness, and connectedness. At baseline, these personality factors were unrelated to both friendship quality and romantic relationship status. However, and in support of our hypotheses, higher levels of friendship quality predicted decreases in self-criticism, 95% CI [−0.38, −0.02]. Partially consistent with our hypotheses, increases in romantic relationship status predicted increases in connectedness, 95% CI [0.08, 0.67], but were unrelated to changes in neediness. In turn, increases in self-criticism, 95% CI [0.29, 1.02], and in

![Figure 1. Initial structural equation model.](image-url)
neediness, 95% CI [0.25, 1.15], both uniquely predicted increases in depressive symptoms. The indirect effect of friendship quality on depressive symptoms through self-criticism at time 2 was significant and suggests that better friend quality predicted lower levels of depressive symptoms via decreases in self-criticism, MCMAM 95% CI [−0.43, −0.002]. Although there was a significant negative effect of time 1 self-criticism and neediness on time 2 depression, this is likely due to suppression effects, given that the zero-order correlations (Table 1) between these variables were non-significant or positive. That is, self-criticism and neediness at time 2 are likely suppressing the effects associated with time 1 self-criticism and neediness to the point that the association of these variables at time 1 with depression at time 2 becomes negative. According to Cohen and Cohen (1983), when the sign of the regression effect of an independent variable on a dependent variable is in the opposite direction of its zero-order correlation with that dependent variable, a net suppression effect is likely present (Cohen & Cohen, 1983, pp. 84-91).

Ancillary analyses clarifying the effects of romantic relationship status

In order to further understand the effects of change in romantic relationship status on change in neediness and connectedness, we computed one-way analyses of covariance with time 2 neediness and connectedness as dependent variables, change in relationship status as a categorical independent variable, and time 1 neediness and connectedness scores as covariates. These analyses were limited to the 74 participants who indicated their relationship status at baseline and again at follow-up. Consistent with our structural equation model (SEM) results, there was no effect of change in status on neediness, F(3, 70) = 0.49, p = .61. However, there was a main effect of change in status on connectedness, F(3, 70) = 3.64, p = .03. A series of planned contrasts then compared these three different groups. Significant differences in connectedness at time 2 were found between those who experienced a breakup (Least Squares Mean = −.97, SE = .34) and those who entered a new relationship (Least Squares Mean = .11, SE = .24), t(70) = 6.70, p = .01, and between those who experienced no change (Least Squares Mean = −.40, SE = .08) and those who entered a new relationship, t(70) = 4.13, p = .045. Moreover, there was a trend towards higher levels of connectedness in those who experienced no change in status and those who experienced a breakup, t(70) = 2.60, p = .10. Finally, levels of connectedness in these three groups showed a significant, positive linear trend, b = 1.08, t(70) = 2.59, p = .01. Taken together, results suggest that entering into a new romantic relationship is related to increases in connectedness, but not neediness, while experiencing a breakup is associated with decreases in connectedness relative to those who entered a new relationship, with a trend towards decreases in connectedness in those who experienced a breakup versus those whose status did not change.

Discussion

This study examined the role of the quality of one close friendship and changes in romantic relationship status during emerging adulthood on changes in the personality traits of self-criticism, neediness, and connectedness, and whether these changes in turn predicted the occurrence of depressive symptoms. This is the first study to test longitudinally, and using two informants, the effects of one friendship, rather than parents, on the development of self-criticism and dependency. Results are consistent with recent evidence (Kopala-Sibley et al., 2014b) of the effects of a variety of self-definitional and relatedness-oriented experiences on the development of self-criticism and dependency in early adolescence. In the current study, better friendship quality specifically predicted decreases in self-criticism over a 1-year period, controlling for baseline levels. Lower levels of self-criticism in turn predicted decreases in depressive symptoms. Entering into a new romantic relationship, on the other hand, predicted increases in connectedness, but not neediness, although only increases in neediness predicted increases in depressive symptoms. These effects of the development of self-criticism and neediness on depressive symptoms provide further support for their role as independent risk factors for depression, as well as further evidence for the less maladaptive aspects of connectedness. Interestingly, personality variables were unrelated to friendship quality and romantic

Table 1. Means of and bivariate correlations between independent and dependent variables.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Criticism time 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Self-Criticism time 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neediness time 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Neediness time 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Participant-rated acceptance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Participant-rated autonomy support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Connectedness time 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Connectedness time 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Depression symptoms 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Depression symptoms 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Relationship status 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Relationship status 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Acceptance and Autonomy Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Acceptance and Autonomy Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. **p < .01; * p < .05; + p < .10. N = 82. Ranges and anchors: Self-Criticism, Neediness, Connectedness (1 = Strongly disagree, 7 = Strongly agree); Acceptance and Autonomy Support (1 = Very untrue of me, 5 = Very true of me); Depression symptoms (0 = Not present, 3 = Severe symptom manifestation); Relationship status (1 = Single, 2 = In a casual dating relationship, 3 = In a long-term relationship but living apart, 4 = Living with long-term romantic partner, 5 = Married.)
relationship status, suggesting that effects are not due to these personality traits increasing the likelihood of entering into poorer quality friendships or pursuing more committed romantic relationships.

The development of self-definition during emerging adulthood

Findings support prior retrospective research that has suggested a role for relationships with friends in the development of self-criticism (Kopala-Sibley et al., 2012a, 2013b; Rosenfarb, Becker, & Mintz, 1994), and extend this literature by providing evidence that the beneficial effects of one close friendship on depressive symptoms may be mediated by a decrease in self-criticism. They are also consistent with evidence that events across a variety of areas of life predict the development of self-criticism (Kopala-Sibley et al., 2014a). Results also support Blatt’s propositions that self-criticism stems from chronic experiences of others being non-accepting or autonomy suppressing. Theorists (e.g., Erikson, 1950; Sullivan, 1947) have also argued that emerging adulthood is a key period for the consolidation of a self-identity, and this identity is likely to be influenced by the quality of close relationships with others such as friends (Arnett, 2000; Blatt & Luyten, 2009; Montgomery, 2005; Schwartz et al., 2005). Our results may suggest that over time (i.e., 1 year), during emerging adulthood, the quality of the relationship with one close friend affects the development of one’s sense of self. It is possible that the accepting and autonomy-supportive nature of this friendship shows the young adult that important others view them as a fundamentally worthy, good person. Over time, they may internalize the belief that, because an important other is accepting and does not make their friendship contingent on the individuals’ acting in any particular way, their worth as a person is not dependent on the views of others, resulting in a sense of self-worth that is not contingent upon others’ respect or admiration or one’s perceived status relative to others (Blatt, 1974, 2004).

The development of relatedness during emerging adulthood

In addition to emerging adulthood being characterized by the development of self-identity, it is also a key time for the development of the capacity for intimate romantic relationships (Arnett, 2000; Erikson, 1950; Sullivan, 1947; Schwartz et al., 2005). According to Blatt’s model, relatedness is defined by the development of the capacity for stable, mature, and reciprocal close relationships with others. Recent evidence has found that threats to a wide range of interpersonal relationships predict the development of dependency (Kopala-Sibley et al., 2014b). Our results extend this literature by focusing on the role of changes in romantic relationship status and suggest that, at least during emerging adulthood, entering into a new romantic relationship may facilitate the developmental process of relatedness. Our interpretation of these findings is tentative given

**Figure 2.** Final model.

Note. **p < .01, *p < .05.**

Error terms on endogenous variables are not depicted for visual clarity. Double-headed arrows between endogenous variables refer to covariances between error terms of those variables. Values between error terms of time 2 personality variables are not depicted for visual clarity, although they were positive and significant. 95% CIs are presented in text. N = 82. Values on regression lines represent standardized estimates. Values depicted on covariances are correlations. Ranges and anchors: Self-Criticism, Neediness, Connectedness (1 = Strongly disagree, 7 = Strongly agree); Acceptance and Autonomy Support (1 = Very untrue of me, 5 = Very true of me); Depressive symptoms (0 = Not present, 3 = Severe symptom manifestation); Relationship Change (−1 = Breakup, 0 = No change, 1 = Entered a relationship).
that we did not measure romantic relationship quality. However, entering into a new romantic relationship may promote interper-sonal attunement, sensitivity to close others, an awareness of one’s impact on others, and a sense of self-worth that is less contingent upon receiving care from others.

Interestingly, there was no effect of friendship quality on change in either neediness or connectedness. This may suggest that friendship quality, at least as measured in terms of acceptance and autonomy support, is a unique factor in the development of self-definition but not relatedness during emerging adulthood. This may be consistent with the fact that self-criticism is characterized by concerns about respect and admiration from others, as well as status relative to others, whereas individuals with relatedness-oriented concerns are primarily preoccupied with attachment, love, and support from close others. Thus, friendship quality in the current study may have been unrelated to dependency, as it primarily assessed experiences of acceptance, rather than love, care, and attachment. This, however, is admittedly speculative. It is possible that the quality of the attachment between participants and friends, or the participants’ sense of being cared for by their friends, would in fact predict changes in neediness or connectedness. Alternatively, giving our modest sample size, our study may have been underpowered to detect any effects of friendship quality on dependency.

The development of depression during emerging adulthood

The results also suggest unique pathways for the development of depressive symptoms during emerging adulthood. Although there is a well-established association between peer and romantic relationships and depressive symptoms in adolescence (e.g., Hawker & Boulton, 2000; La Greca & Harrison, 2005; Monroe, Rohde, Seeley, & Lewinsohn, 1999; Prinstein et al., 2005), studies often examine the acute or direct effects of these relationships on depression. Consistent with prior theory (e.g., Zuroff, 1992; Zuroff et al., 2004), our results suggest that, over time, the quality of a relationship with one close other may affect the development of self-definition, which in turn may heighten risk for or protect against the development of depression. However, we should acknowledge that, pertaining to these indirect effects, personality and depressive symptoms at follow-up were assessed concurrently. Ideally, depressive symptoms would be assessed at a later time, in order to better establish the temporal relationship between personality and depression.

Results from this study may also have clinical or practical implications. They support the use of clinical interventions with youth at risk for the development of a self-critical or needy personality style. For instance, young adults may benefit from interventions designed to directly reduce levels of neediness or self-criticism, such as self-compassion-focused exercises (e.g., Kelly, Zuroff, Foa, & Gilbert, 2010). Alternatively, rather than targeting youths’ personality directly, teaching them instead to recognize and avoid close friendships that are either non-accepting or autonomy suppressive may facilitate the development of their sense of self in a more positive direction, thereby lowering their risk for the development of a vulnerable personality style and, by extension, increases in depressive symptoms.

Limitations and future directions

Several limitations should be acknowledged. The exclusive use of self-report measures to assess depressive symptoms may have led to over-reporting by participants with higher levels of self-criticism or neediness. Self-reports of depressive symptoms may also not generalize to diagnoses of major depression. Similarly, interview-based ratings of friendship quality from both participants and their friends would add a valuable source of information over and above self-reported ratings. Self-reports of these variables were also not normally distributed, which violates some of the assumptions underlying the use of SEM. Related to this is that our relationship change variable had only three levels, and may have violated assumptions underlying SEM, as well. Another concern is the predominantly female sample, which precluded the use of multi-group models to examine gender differences in the effects found. As such, our results may not generalize to males. Moreover, because of the difficulties of obtaining both participant and friend reports, our effective sample size was relatively modest. Because of this, the study may have been underpowered to detect other possible effects, and significant effects found here may be stronger or weaker in a larger sample size. Our estimates may also be biased due to our small sample size.

We were also able to assess friendship quality only at baseline. Ideally, participants and their friends would be reassessed at follow-up in order to minimize issues of retrospective recall and so that changes in personality could be predicted from changes in friendship quality; however, it proved difficult to retain our sample of participants’ friends over a 1-year period. Related to this is the fact that our mediators at time 2 were measured concurrently with depressive symptoms. Ideally, to show mediation, depression would be measured at some time point subsequent to the measurement of self-criticism, neediness, and connectedness. Finally, we assessed romantic relationship status, but not the quality of relationships of those involved in relationships, thereby limiting our ability to understand why or when relationship status affected connectedness. In sum, future research would benefit from multiple, frequent assessments over the study interval that combine both self- and other-reports of symptoms, friendship quality, and romantic relationship quality in a larger sample with a greater proportion of males.

Conclusion

Despite these limitations, this study provides several novel findings regarding the development of self-criticism, neediness, connectedness, and depression. In a sample of emerging adults, a better quality close friendship predicted decreases in self-criticism, which in turn predicted lower levels of depressive symptoms. Increases in relationship status predicted increases in connectedness, but not neediness. Increases in neediness, however, predicted increases in depressive symptoms, over and above the effects of self-criticism. These results further our understanding of both personality development during emerging adulthood and the role of personality development in psychopathology, and suggest avenues for early interventions with young adults.

Funding

This research was funded by the Social Sciences and Humanities Research Council of Canada (SSHRC: 410-2008-1003).

References


