Understanding Social Connection and a Possible Developmental Underpinning

by

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Social connection is an important aspect of well-being and health, yet there is confusion about its definition and development. Study 1 examines common conceptualizations of social connection, namely quantity and closeness of relationships, and loneliness to determine how they interact to form a larger social connection construct. Data from 125 participants were analyzed using structural equation modelling (SEM), the results of which indicated that loneliness and relationship closeness best comprise the model. Study 2 replicated these findings with a larger, independent sample ($N = 159$), and examined a model of the possible development of social connection using Brown’s (2010a, 2012) notion that increased self-compassion, authenticity, and vulnerability lead to improved social connection. Parental (in)validation of negative emotions was added to provide developmental context. Results indicated that the concepts proposed by Brown relate to one’s level of social connection. Specifically, the data were consistent with the possibility that recalled parental emotional invalidation leads to decreased self-compassion, and increased ambivalence over emotional expression. Individuals with increased ambivalence over emotional expression, in turn, reported lower levels of authenticity, which may lead to less adaptive social connection, defined as closeness in relationships and loneliness. Overall, these findings have implications for the childhood development of emotional expression, and the far-reaching effects of parenting.
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**Understanding Social Connection and a Possible Developmental Underpinning**

In 2010, Dr. Brené Brown, a social worker, presented the fourth most viewed TED talk, *The Power of Vulnerability* (Brown, 2010a). As of March, 2018, it has been viewed over 33 million times. According to Brown (2010a), individuals develop more satisfying and intimate relationships when they are able to be vulnerable, and authentic in those relationships.

Furthermore, when one displays authenticity, self-compassion, vulnerability and a lack of shame, one is said to be living in a “wholehearted” manner (Brown, 2006). The popularity of Brown’s (2010a) TED talk suggests that these ideas have resonated with viewers. Indeed, the importance of authenticity has long been touted in Western culture. As an illustration of this, one need only look to William Shakespeare’s Hamlet and the words spoken by Polonius to his son, Laertes:

“This above all: to thine own self be true, / And it must follow, as the night the day, / Thou canst not then be false to any man” (Shakespeare, 1.3.564-566). Unfortunately, while Brown emphasizes the importance social connection and factors leading to social connection, she does not articulate a clear description of what constitutes social connection. Furthermore, to the best of our knowledge, Brown’s (2010a) claims about the interconnection between social connection and the various aspects of wholehearted living have not been specified in the psychological literature, or tested using quantitative methods. Therefore, this dissertation has two goals: to provide definitional clarity to the concept of social connection as experienced by emerging adults; and to test a model of social connection using Brown’s (2006; 2010a; 2010b; 2012) social connection framework as a springboard for a more specific model examining the relationship between proposed variables and their potential roots in child development.
Study 1: A Model of Social Connection

The Context of Social Connection in Emerging Adults

Although a great deal of research has examined aspects of social connection in various age demographics, very little explores social connection in emerging adults, a life stage when important developmental transitions are being made and identity continues to form. Arnett (2000) suggested that the period from 18 to 25 years be called “emerging adulthood,” and described it as a distinct developmental phase. Emerging adulthood was noted as having specific demographic qualities such as area of residence, subjective experiences, and life situations (Arnett, 2000). This developmental phase differs from adolescence in that it describes an age period beyond 18 years during which individuals have typically left their childhood home and are facing new life situations. Young adulthood has often been used to capture this demographic, but generally extends into one’s thirties, where greater stability has generally been established. Additionally, Arnett points out that the term, emerging adulthood, emphasizes the fluidity of this transitional stage, and the fact that less than half of individuals at this stage consider themselves to be adults. A factor that differentiates emerging adulthood is the transitory nature of living arrangements, illustrated by the finding that emerging adults have the highest rate of residential changes of any age group (Arnett, 2000).

Emerging adulthood has been identified as an important developmental stage during which individuals may be at risk for mental health difficulties, depending on their individual risk factors (Newcomb-Anjo, Barker, & Howard, 2017). It is important to examine social relationships during this time period due to the potential protective quality of these connections for an individual’s well-being. For example, Demir (2010) found that emerging adults’ happiness and positive affect increased as parental, friendship, and romantic relationship quality
increased. Loneliness, which can be conceptualized as feeling alone or a lack of social connection, in emerging adults has also been positively associated with academic-related risk-taking behaviours (Hopmeyer & Medovoy, 2017). Given the fluid nature of emerging adulthood as a developmental stage, it is important to examine the circumstances in which individuals are more likely to achieve positive outcomes, namely, being more socially connected (Demir, 2010; Hopmeyer & Medovoy, 2017).

**Social Connection**

In the psychological literature, the importance of being socially connected is well documented. For example, a meta-analysis of 148 studies demonstrated that smaller social networks (odds ratio = 1.45, 95% CI = 1.08, 1.94) and loneliness (odds ratio = 1.45, 95% CI = 1.08, 1.94) in adults (\(M_{age} = 64\) years) were associated with mortality risks to a degree comparable to well-established health risks, such as smoking and alcohol consumption (Holt-Lunstad, Smith, & Layton, 2010). Increased perceived social support, high social integration, and large social network size are some examples of social connection variables that Holt-Lunstad and Smith found to be predictive of decreased mortality risk. Low levels of loneliness have also been shown to be linked with decreased mortality, and more adaptive cognition, behavior, and affect (Hawkley & Cacioppo, 2010; Holt-Lunstad & Smith, 2012; Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). Lonely individuals have also been shown to be of poorer health than their non-lonely counterparts (Hawkley & Cacioppo, 2010). Jose, Ryan, and Pryor (2012) demonstrated that adolescents reporting increased global social connection also reported greater life satisfaction, confidence, and positive affect.

Aspects of social relationships have also been linked to depression and negative affect. In their review of the psychological literature on loneliness, Heinrich and Gullone (2006)
reported that the relationship between loneliness and depression is well documented in adolescents and adults. Although loneliness and depression may have common causes, such as maladaptive social skills, and shyness (Dill & Anderson, 1999), several studies have identified loneliness as a precursor to the later development of depression in emerging adults (Rich & Scovel, 1987) and elderly adults (Green et al., 1992). However, there may be a bi-directional relationship between depression and loneliness, as found in a sample of middle aged and aging adults (Cacioppo et al., 2006). Additionally, Joiner et al. (2009) found that emerging adults who had low feelings of belonging, mattering, and family social support were more likely to experience depression, suggesting further linkages between social relationships and low mood.

From this research, it is clear that being connected to others socially is very important, not just to a person’s psychological well-being, but also to their physical health. However, the variability in constructs and terms used to indicate social connection or facets of that construct, as described above, suggests the need for definitional clarity when discussing social connection. For example, the terms “attachment,” “relatedness,” “connectedness,” and “connection” have at times been used interchangeably to describe qualities of social relationships (Barber & Schluterman, 2008). However, as explored below, these terms all have subtle differences in the contexts in which they have been examined and emphasize different aspects of relationships.

Attachment theory describes one way of conceptualizing social relationships, but more specifically refers to a clearly defined type of connection rooted in the infant-caregiver relationship (Ainsworth & Bowlby, 1991; Bretherton, 1992). As described by Ainsworth and Bowlby (1991), the founders of attachment theory, attachment theory is influenced by an ethological approach to personality development. Although attachment affects one’s social relationships and social connection, it generally refers to a specific type of relationship, rather
than social connection more generally. For example, Ainsworth (1989) distinguished between “relationships” and “attachment,” which she termed as a type of “affectional bond” (p. 711). According to Ainsworth, relationships may be shorter in duration and less meaningful in their impact, whereas attachment implies grief at loss, and feelings of security when in the presence of the attachment figure. Although these feelings can certainly be experienced in relationships, they are not by necessity part of all relationships, and thus describe something more specific than one’s general social connection.

Relatedness is also a term used to describe a quality of the relationship between individuals. Relatedness refers to the feeling of connection between significant others and is generally described as a fundamental psychological need (Barber & Schlutermann, 2008; La Guardia, Ryan, Couchman, & Deci, 2000; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Relatedness is typically rooted in the context of attachment theory, and discussed as it relates to the psychological need for autonomy (Barber & Schlutermann, 2008). Again, although this term has similarities to the concept of connection, this construct has other implications due to the manner in which it has been framed.

Barber, Stolz, and Olsen (2005) differentiate between connection and connectedness, indicating that connectedness has been used to describe not only the relationships between individuals, but also, among others, performance in institutions, sense of belonging in various contexts, and attitudes towards others. In contrast, connection has been used more specifically to describe social relationships between others, and thus appears to most aptly fit the construct studied here.

Social connection can be conceptualized broadly as “a tie between the [individual] and significant other persons…that provides a sense of belonging, an absence of aloneness, a
perceived bond” (Barber, Stolz, & Olsen, 2005; p. 119). It should be noted that, although Barber et al. are describing social connection in the context of childhood, the generality of the definition suggests that it could be applied broadly to different age groups, including emerging adults. Moreover, Barber et al. use the term social connection to describe various types of relationships, including parent-child relationships, romantic relationships, and friendship relationships, which makes it particularly applicable to the current investigation, which will investigate social connection in relationships in a broad social network among emerging adults.

Brown (2010b) defines social connection as “the energy that exists between people when they feel they are seen, heard, and valued; when they can give and receive without judgment; and when they derive sustenance from the relationship” (p. 19). Although this definition is unclear as to the objective components of social connection, it is clear that Brown emphasizes the emotional connection of a relationship, and the concept of being intimate with another person. In addition, it seems that she is writing about dynamics within individual relationships, rather than the general state of one’s social relationships. In the current investigation, we are interested in more specifically examining qualities of one’s overall social relationships, rather than the qualities of particular relationships, in order to test the hypothesis that authenticity and other personality characteristics lead more generally to differences in social connection. However, in examining social connection in the research, it will be important to recognize the emotional connection between individuals, as this is an important component in Brown’s (2010b) work.

The various terms used to describe aspects of social connection or relationships all highlight different ways of conceptualizing social connection, but unfortunately, they are at times used interchangeably (Barber & Schluterman, 2008), and this leads to confusion as to what social connection actually is. Additionally, although Brown’s (2010b) definition of social connection
seems to highlight an emotional connection between individuals, the concept is not clearly defined in such a way that would lead to ease of studying it quantitatively. To clarify and objectify the construct of social connection, one of the goals of this dissertation will be to examine other possible facets as well that may, together, operationally define the overarching construct of social connection. There are many ways to conceptualize social connection, such as network size (Holt-Lunstad et al., 2010; Nangle, Erdley, Newman, Mason, & Carpenter, 2003), emotional closeness (Selfhout, Branje, & Meeus, 2009; Wrzus, Wagner, & Neyer, 2012), and social support (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). In fact, many of these definitions can broadly fit in overarching categories representing emotional bonds or network size. In order to provide an overarching examination of social connection as a construct, this dissertation will examine both, with the construct of relationship closeness representing the emotional connection between individuals, relationship quantity being a measure of network size, and loneliness being a subjective measure of emotional satisfaction, which may be dependent on both relationship closeness and relationship quantity.

**Relationship Closeness**

An important aspect of social connection is the perceived bond experienced between individuals (Barber et al., 2005). One way to understand this bond is through the emotional closeness experienced in the relationship. Relationship closeness refers to the degree of interdependence, and emotional connection in a relationship (Dibble, Levine, & Park, 2012). Closeness is similar to intimacy, but is broader and more encompassing in scope (Parks & Floyd, 1996). For example, college students described closeness in a variety of different relationships, and tended to use intimacy in the context of romantic or sexual relationships (Parks & Floyd, 1996).
Most research examining relationship closeness in emerging adults does so in the context of romantic relationships (Castañeda, Wendel, & Crockett, 2015; Totenhagen, Curran, Serido, & Butler, 2013), and as such there is little to inform us about adult closeness in relationships more generally. In examining research about relationship closeness in adolescents, however, one can see that this construct is linked to aspects of well-being. Adolescents in close friendship relationships have been shown to utilize more constructive problem-solving, endorse greater commitment to a relationship, and perceive their best friend as valuing their individuality more as compared to adolescents in less close, disengaged friendships (Selfhout, Branje, & Meeus, 2009). Females in close friendships reported fewer depressive symptoms than females in disengaged friendships, although males did not report this difference (Selfhout et al., 2009). Similarly, adolescents’ self- and friend-rated intimacy scores were positively associated with sociability and self-esteem, and negatively associated with hostility, interpersonal competence (including self-disclosure, emotional support, conflict management, negative assertion, and initiation of friendships), and combined anxiety and depression (Buhrmester, 1990). Although there is considerably less research on non-romantic relationships of adults than that of children and adolescents, there is some research which indicates that closeness is connected to well-being. For example, adult average closeness to friends has been positively associated with well-being (Wrzus, Wagner, & Neyer, 2012). In another study, young adults who felt emotionally closer to their interaction partner reported greater levels of satisfaction with the interaction, and that level of satisfaction was affected by the degree of effort they were putting into the interaction (Gosnell, Britt, & McKibben, 2011)

Given this research, relationship closeness appears to be associated with increased well-being. It also appears to be conceptually linked to the construct of social connection through its
emphasis on an emotional bond, and provides a useful way to understand part of the construct as defined by Barber et al. (2005). Although much of the research discussed examines relationship closeness outside of the context of emerging adulthood specifically, it is possible that the construct can be understood in a similar manner in this demographic group due to the consistency of findings in surrounding age groups, such as adolescence and young adulthood (Selfhout et al., 2009; Wrzys et al., 2012). However, without studies specifically examining emerging adults, this idea can only be speculated at present.

**Quantity of Relationships**

In addition to perceived closeness, one may consider the number of important relationships reported by individuals as an indicator of the extent of their connection with others. Indeed, quantity of relationships, or network size, has often been used to describe social connection (Holt-Lunstad et al., 2010; Wang, 2016). In contrast to relationship closeness, the study of quantity of relationships has not been limited to romantic relationships simply due to the nature of the variable. As such, there is more research that examines this aspect of general social relationships in emerging adults.

With respect to friendship relationships, the number of friends reported by individuals aged 15 years old and above has been shown to be associated with an individual’s social trust, stress, self-reported health, and social support (van der Horst & Coffé, 2012). In turn, these variables affected subjective well-being, suggesting that the number of friends one has indirectly affects well-being. Among children, quantity of reciprocated friendships was negatively associated with depression and loneliness (Nangle, Erdley, Newman, Mason, & Carpenter, 2003). However, in his review of friendship and mental health, Reisman (1985) concluded that the number of friends claimed by children is not predictive of mental health or social competence
variables. Similarly, one study found that the number of friends was not associated with subjective well-being in adults (Wrzus et al., 2012).

There is research to suggest that relationship quantity, or network size, is associated with personality characteristics. For example, Molho, Roberts, de Vries, and Pollet (2016) examined adults’ ($N = 525$) inner network size and classified groups as “sympathy” or “support” networks. They compared the size of each network to personality traits. Sympathy network size described the number of individuals to whom an individual felt personally close, whereas support network size was the number of individuals a person felt they could turn to for emotional or financial support. Molho et al. found that participants with higher extraversion scores reported a greater number of support relationships, but not sympathy relationships. Similarly, openness to experience and emotionality were positively correlated with support network size, but not sympathy group size. As such, individuals’ personalities may affect how many relationships emerging adults collect, and the nature of those relationships.

Based on this research, the connection between quantity of relationships and well-being is unclear. However, given relationship quantity’s frequent use as an indicator of social connection (Holt-Lunstad et al., 2010), it will be important to further examine this construct in the context of social connection in order to understand how it relates to other social connection variables.

**Loneliness**

In their definition of connection, Barber et al. (2005) assert that the “absence of aloneness” (p. 119) is a critical aspect of social connection, suggesting that an individual’s reported loneliness may be important to understanding social connection. Loneliness has, in fact, been considered a social connection variable in a number of research studies (Holt-Lunstad et al.,
Loneliness is experienced by individuals who are cognizant of an absence in their social relationships (Russell, Cutrona, Rose, & Yurko, 1984) and has been examined extensively in emerging adults (Bernardon, Babb, Hakim-Larson & Gragg, 2011; Heinrich & Gullone, 2006; Rich & Scovel, 1987; Schultz & Moore, 1986). This aversive affective state can be related to the perception of lacking intimacy in social relationships or the absence of a large social network (Russell et al., 1984).

Loneliness has been shown to have an impact on an individual’s well-being. Not surprisingly, lonely individuals often report depressed moods (Besser et al., 2003; Chang et al., 2008; Mounts et al., 2006) and feelings of anxiety (Chang et al., 2008; Mounts et al., 2006). Loneliness clearly has a negative impact on individuals’ emotional well-being and mental health, and may be considered a facet of social connection. In contrast to closeness and quantity of relationships for which higher levels suggest increased social connection, loneliness has an inverse relationship with social connection; the greater the level of loneliness, the less social connection one would expect.

The Current Investigation

In the current investigation, the aim is to better understand how common indicators of social connection relate to each other in order to more clearly operationally define social connection. These hypothesized facets of social connection will be examined in the context of a broad social network of emerging adults’ connections with family members, romantic partners, and friends. Although connection between significant others has been studied quite thoroughly in children and adolescents (Barber et al., 2005), as has friendship (Reisman, 1985; Selfhout et al., 2009), there is less research examining connection more generally in emerging adults, which
is an important developmental period due to its fluidity, and high number of transitions, such as leaving parents’ home, and living in a new social context (Arnett, 2000).

In order to answer these questions, the possible facets of social connection including relationship closeness, relationship quantity, and loneliness will be measured and compared using structural equation modelling to determine how they contribute to social connection. In order to examine the validity of the constructs chosen, namely quantity of relationships, closeness of relationships, and loneliness, these concepts will be analyzed to determine their relationship with potential divergent and convergent validity measures. This will be undertaken to ensure that they relate as expected to well-validated measures. With respect to convergent validity, a social support and sense of belonging measure have been chosen, with the expectation that they will positively correlate with closeness and quantity of relationships, and loneliness. This expectation is based on research by Hagerty & Patusky (1995) and van der Horst & Coffé, (2012) who examined similar relations. It is expected that loneliness, and closeness and quantity of relationships will not correlate with divergent validity measures, which are driving anger, impression management, and belief in a just world. Driving anger, belief in a just world, and impression management, in particular, are thought not to be related theoretically to aspects of social connection. Extraversion, being an attitude toward socialization, could be related to social connection variables, but is not believed to be highly correlated (Molho et al., 2016).

**Structural Model**

In the current model, it is hypothesized that the latent construct, social connection, will relate to its indicators, closeness of relationships, quantity of relationships, and loneliness, as a formative model. That is, these constructs will differ from a traditional measurement model, which is reflective in nature, in that it is proposed that the indicators will “form” the latent
variable, as opposed to the traditional reflective model in which the construct forms the indicators (Diamantopoulos et al., 2008). The rationale for choosing this type of relationship between social connection and its indicators is that the indicators are thought to cumulatively add to the construct, rather than be items that measure the same construct in a slightly different way. Additionally, formative models are often used when indicators are not positively correlated, and thus, the model can better account for the differences between indicators (Diamantopoulos et al., 2008).

In order to satisfy the demands of a formative model, it is important that the final construct in the model not be endogenous. That is, in order to be considered identified, the model cannot end with a formative latent variable (Diamantopoulos et al., 2008). As such, the variables of negative affect, and depression were chosen as variables to use within the model not only to satisfy this demand, but also due to their theoretical relationship to social connection. As noted above, aspects of social connection have often been related to negative affect and depression (Heinrich & Gullone, 2006). However, although this does add an important element to the model and should be considered when interpreting it, it is not central to the hypotheses of the current study. It should also be noted that, although some research suggests that loneliness predicts depression (Rich & Scovel, 1987), other research has found the relationship between depression and loneliness to be bi-directional (Cacioppo et al., 2006).

Method

Participants

Participants were recruited from the Psychology participant pool at the University of Guelph. They (males = 12, females = 113) ranged in age from 18 to 25 years, with the mean age being 19.52 years ($SD = 1.19$ years). The sample was largely White/European ($n = 99, 79.2\%$),
with other participants self-identifying as Black (n = 1, 0.8%), Southeast Asian (n = 6, 4.8%), South Asian (n = 5, 4.0%), Latin American (n = 1, 0.8%), West Asian (n = 1, 0.8%), multi-racial (n = 9, 7.2%) or part of another ethnic group (n = 3, 2.4%). Most participants indicated that they were not currently in a romantic relationship (n = 77, 61.6%). Over three quarters of participants were in first year university (n = 96, 76.8%), with the rest being enrolled in second (n = 18, 14.4%), third (n = 6, 4.8%), fourth (n = 4), and fifth year (n = 1, 0.8%).

With respect to their living situation, most participants reported that they lived in Guelph, Ontario (n = 84, 67.2%), and that they lived on campus (n = 84, 67.2%). Most participants lived with more than one roommate (n = 40, 32%), although many also lived with just one roommate (n = 38, 18.4%) or alone (n = 30, 24%). Of the participants sampled, a smaller proportion lived with family (n = 14, 11.2%), with a romantic partner (n = 1, 0.8%), or a romantic partner and other roommate(s) (n = 1, 0.8%).

**Measures**

**Demographic information.** A short demographic survey was given to all participants. Age, sex, ethnicity, relationship status, and level of education were collected. Additionally, the social nature of the study made it important to learn the living situation of each participant as it could affect social connection. Specifically, information was gathered as to whether individuals lived on campus, commuted to university, and with whom they lived.

**Loneliness.** The third version of the University of California, Los Angeles Loneliness Scale (UCLA Loneliness Scale; Russell, 1996) scale was used to evaluate loneliness in university students. This scale, ranging from 0 (never) to 3 (often), consists of 20 questions (e.g., “I feel that there are people I can talk to.”) concerning the frequency of felt loneliness in different social situations. The UCLA Loneliness Scale evaluates trait loneliness without using the word
loneliness. This scale has been reported to have adequate test-retest reliability, and construct validity (Russell, 1996). All items on this version of the UCLA Loneliness Scale map onto one global, bipolar factor (Russell, 1996). For the current sample, this scale had strong internal consistent \( (\alpha = .92) \).

**Relationship closeness and quantity.** To assess relationship closeness and quantity, the procedure suggested by Binder et al. (2012) was followed; in particular, core and significant ties were assessed. To assess core relationships, participants were asked to list all the “people you would seek advice, support, or help from in times of emotional or financial crisis”. For each individual listed, they were asked to rate their emotional closeness to the person on a 10-point Likert scale from 1 (not at all close) to 10 (as close as possible). Whether each person listed was a family member or not was also asked.

The same procedure was used for significant relationships. Participants were asked to nominate, in addition to the core relationships, “people for whom the complete loss of relationship would leave you personally devastated”, and rate their emotional closeness to the person on a 10-point Likert scale from 1 (not at all close) to 10 (as close as possible). Again, participants were asked to indicate whether a nominated individual was a family member or not.

Relationship quantity was represented in the analyses by using both the sum of core and significant relationships listed by participants. Relationship closeness was calculated by calculating the average closeness rating (i.e., summing total closeness and dividing by number of relationships reported) for core and significant relationships reported by participants.

**Depressive symptoms.** The nine-item Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) was used to screen for depressive symptoms. The PHQ-9 asks individuals to report on the frequency of depressive symptomology in the previous two weeks
using a four-point Likert scale from 0 (*not at all*) to 3 (*nearly every day*) (e.g., “little pleasure or interest in doing things.”). The PHQ-9 has been shown to be valid (Gilbody, Richards, Brealey, & Hewitt, 2007; Kroenke et al., 2001; Kroenke, Spitzer, Williams, & Löwe, 2010; Wittkampf, Naeije, Schene, Huysery, & van Weert, 2007). In the current study, this scale exhibited good internal consistency ($\alpha = .89$).

**Positive and negative affect.** The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to assess participants’ positive and negative state emotions at the time of completing the questionnaire in order to determine whether mood was related to participant responses. The PANAS lists ten positive (e.g., strong, proud) and ten negative (e.g., distressed, irritable) emotions and participants indicate the degree to which they are currently experiencing the emotion on a 5-point Likert scale from 1 (*very slightly or not at all*) to 5 (*extremely*). The PANAS has been shown to have appropriate discriminant and convergent validity (Watson et al., 1988). The internal consistency for both positive and negative affect were excellent ($\alpha = .91$ and $\alpha = .93$, respectively) in the current study.

**Convergent validity measures.** The following scales were used to assess convergent validity of the social connection measure.

**Social support.** The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) was used to measure social support. The MSPSS has three 4-item subscales (friends, family, and significant other subscales), and each item is answered on a Likert scale (e.g., “My family really tries to help me.”). In the current study, the MSPSS exhibited excellent internal consistency ($\alpha = .93$).

**Sense of belonging.** Sense of belonging was measured by the Sense of Belonging Instrument – Psychological Subscale (SOBI-P; Hagerty & Patusky, 1995). This measure
examines the degree to which an individual perceives oneself as fitting in with a social group and in social situations. Participants indicate their degree of agreement with each of the 18 statements (e.g., “I feel left out of things.”) on 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree). The SOBI-P has been shown to be a valid measure of one’s sense of belonging (Hagerty & Patusky, 1995). In the current study, the SOBI-P has excellent internal consistency ($\alpha = .95$).

**Divergent validity measures.** The following scales were used to assess the discriminant validity of the social connection measure.

**Extraversion.** The Extraversion Scale from the International Personality Item Pool (IPIP; Goldberg et al., 2006) was used as measure of extraversion. The IPIP Extraversion Scale is a 10-item questionnaire (e.g., “I start conversations.”). Participants indicate the accuracy of each statement on a 5-point Likert scale ranging from 1 (very inaccurate) to 5 (very accurate). The internal consistency of the IPIT Extraversion Scale was very good ($\alpha = .90$) in the current study.

**Driving anger.** The short form of the Driving Anger Scale (Deffenbacher, Oetting, & Lynch, 1994) measured the degree to which participants reported becoming angry while driving in response to brief hypothetical situations (e.g., “Someone is weaving in and out of traffic.”). Participants responded to 14 5-point Likert scale items from 1 (none at all) to 5 (very much). The short form of the Driving Anger Scale has been shown to have appropriate psychometric properties (Deffenbacher et al., 1994). The internal consistency of the Driving Anger Scale was good ($\alpha = .88$) in the current study.

**Belief in a just world.** The General Belief in a Just World Scale (BJW; Dalbert et al., 1987; Dalbert, 2000) examined the degree to which participants believe that the world is a fair and just place. The level of participants’ agreement to each statement was measured through six items on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree) (e.g., “I believe
that, by and large, people get what they deserve.”). The BJW has been shown to have satisfactory psychometric properties (Dalbert, 2000). It had adequate internal consistency ($\alpha = .71$) in the current study.

**Impression management.** The tendency to impression manage was measured using the Impression Management subscale from the Balanced Inventory of Desirable Responding (IM-BIDR; Paulhus, 1991). The IM-BIDR has 20 items for which participants indicate the degree to which each is true on a 7-point scale from 1 (*not true*) to 7 (*very true*) (e.g., “I never swear.”). The IM-BIDR has demonstrated good convergent and discriminant validity (Paulhus, 1991). In the current study, the IM-BIDR has adequate internal consistency ($\alpha = .75$).

**Procedure**

Approval for this study was received from the University of Guelph Research Ethics Board. All participants completed the questionnaires online. After providing consent, they completed demographic information. The remaining questionnaires were then presented in randomized order to minimize order effects. After completing the questionnaires, participants were provided with a letter explaining the purposes of the study.

**Results**

**Missing and Excluded Data**

Data for Study 1 were originally collected from 126 participants. The data from one participant were excluded due to a high volume of missing data (i.e., completion of only one of the questionnaires). For the remaining participants, missing data were handled using mean replacement. Mean replacement has been found to be an effective method of handling datasets where less than three percent of data are missing (Rubin, Witkiewitz, Andre, & Reilly, 2007). Mean replacement maintains the mean of a distribution of scores, and maintains all responses
within the dataset for analysis, as compared to deletion methods (Rubin et al., 2007). For the IM-BIDR, 0.15% of data were missing; 0.12% were missing from the PANAS; 0.04% from the Belonging Scale; 0.12% from the loneliness scale; 0.7% from the Belief in Just World Scale; and 0.06% from the Driving Anger Scale. No data were missing from the extraversion scale, the depression scale, or the social support scale.

**Descriptive Statistics**

Minimums, maximums, means, standard deviations, and skew of study variables were calculated and can be found in Table 1. Several of the study variables (i.e., quantity of relationships and closeness of relationship variables, negative affect, depression, and social support) had an absolute skewness statistic greater than 1, indicating highly asymmetrical distributions for these particular variables according to Bulmer’s (1979) rule of thumb. To correct this, these variables were logarithmically transformed. As can be seen in Table 2, this transformation decreased the skew to below an absolute value of 1.
Table 1.

*Descriptive Statistics for Variables in Study 1.*

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<th>Skew</th>
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Table 2.

*Descriptive Statistics of Transformed Data.*

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**Characteristics of Sample and Correlations Between Variables**

Age, sex, ethnicity, relationship status, and living situation were examined in relation to study variables to determine whether they were significantly related, or if group means differed
based on group membership. Female participants reported significantly more core and significant relationships, $t(123) = -2.48, p = .014$ and $t(123) = -2.92, p = .004$, respectively. Female participants also reported greater levels of significant relationship closeness than males, $t(122) = -2.23, p = .027$. However, it is important to recall that the group sizes for males and females were very different, which affects the degree to which conclusions may be drawn from results for sex differences.

Participants in a romantic relationship gave higher scores on the social support scale, $t(122) = 2.13, p = .035$. Individuals living on the university campus reported significantly higher levels of social support than those who lived off campus, $t(123) = 2.42, p = .017$. Differences based on ethnicity were found in depression, negative affect, and driving anger, $F(7, 117) = 4.82, p < .001$, $F(7, 117) = 2.69, p = .013$, and $F(7, 117) = 2.78, p = .010$, respectively. However, because of the small sample size of some ethnic groups, post-hoc analyses could not be completed to determine the nature of group differences.

As demonstrated by the correlational analyses presented in Table 3, positive affect, negative affect, and depression were found to correlate significantly with a number of study variables, suggesting their role as possible confounding variables. Given the high correlation of these variables with study variables, they were used as covariates in subsequent correlation analyses in order to control for the impact of participants’ mood or affect on their responses to questionnaires. Additionally, sex, ethnicity, romantic relationship status, and living situation were also used as control variables for subsequent correlational analyses in order to minimize the degree to which they impact the nature of the analyses.
Correlations Between Social Connection Composite Variables

As demonstrated in Table 4, when controlling for sex, affect, ethnicity, romantic relationship status, living situation, and depression, loneliness correlated significantly and negatively with relationship closeness variables, and with relationship quantity variables. Loneliness also correlated significantly and negatively with sense of belonging and social support. In contrast, loneliness did not significantly correlate with driving anger, or impression management. Loneliness did significantly and negatively correlate with general belief in a just world and with extraversion. Relationship quantity variables were significantly and positively correlated with each other, but did not correlate with relationship closeness variables, with the exception of a significant negative correlation between significant relationship quantity and significant relationship closeness. Both relationship quantity variables correlated significantly and positively with social support and sense of belonging. Relationship closeness variables were significantly and positively correlated with social support but not to a sense of belonging. No relationship quantity or closeness variable correlated significantly with discriminant validity measures, that is, belief in a just world, extraversion, driving anger, and impression management.
Table 3.

Correlations Between Study Variables.

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*p < .05
**p < .01
***p < .001
Table 4.

Partial Correlations Between Study Variables, Controlling for Negative and Positive Affect, Depression, Ethnicity, Living Situation, Romantic Relationship Status, and Sex.

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*p < .05
**p < .01
***p < .001
Model of Social Connection

Due to the nature of the hypothesized social connection variables and the relations among them, it was believed that the model would more closely fit that of a formative model, as opposed to the more traditional reflective model. Reflective and formative models differ in the direction of the relationship between the construct, or latent variable, and its indicators (Diamantopoulos, Riefler, & Roth, 2008). In a reflective model, the construct is theorized to form the indicators, with the indicators as generally being different ways of measuring an overarching latent variable. In contrast, formative models (also called causal indicator models, Bollen & Davis, 2009) have the indicators forming the latent variable. Formative models generally describe constructs in which the indicators may not be correlated, or may be negatively correlated. In other words, whereas in a reflective model the indicators may be simply different measures of the same construct, the indicators in a formative model may be measurements of unique and possibly unrelated characteristics, which, taken together with other indicators, form an overarching construct (Diamantopoulos, 2008). In the current model, negative affect and depression were added as endogenous variables due to the likely effect of social connection on those variables as described above, and to satisfy the “two + pathway” rule needed to create identified formative models (e.g., Bollen & Davis, 2009; Diamantopoulos, 2008). The “two + pathway” rule states that, in order for formative models to be identified and thus testable, the formative construct must lead to two additional endogenous variables. Models were tested using SPSS Amos 24, and all pathways reported in models are the standardized coefficients.

1 Although some literature suggests that there is a bi-directional relation between depression and social connection (Cacioppo et al., 2006), in the current research it was hypothesized that social connection would lead to depression and negative affect as the direction of this relation has been supported by several studies (Green et al., 1992; Rich & Scovel, 1987). A unidirectional relation was also hypothesized in order to create a measurement model focusing on social connection, a potential precursor to depression.
A one-factor measurement model with all indicators of social connection (i.e., relationship quantity, relationship closeness, and loneliness) leading to the latent variable of social connection was tested. As demonstrated in Figure 1, this one-factor model was of poor fit, $\chi^2 (35) = 577.83, p < .001; \text{RMSEA} .354 (\text{CI} = .329 \text{ to } .379); \text{CFI} = .104; \text{TLI} = -.151; \text{IFI} = .119$.

![Figure 1. One factor formative model of social connection.](image)

Next, a three-factor model (Figure 2) was tested in order to account for the conceptual difference between loneliness, relationship closeness, and relationship quantity. However, this model was also of poor fit, $\chi^2 (29) = 66.15, p < .001; \text{RMSEA} .093 (\text{CI at 90%} = .059 \text{ to } .126); \text{CFI} = .949; \text{TLI} = .920; \text{IFI} = .950$. 

...
Finally, Figure 3 demonstrates a model in which quantity of relationships was removed from the measurement model in response to the poor fit of the model. Quantity of relationships was selected to be removed due to theoretical concerns that it may be a substantially different construct than loneliness and closeness of relationships, particularly given research that indicates that it does not consistently relate to well-being (Reisman, 1985; Wrzus et al., 2012). The possibility that quantity of relationships is also not the same as the other social relationship variables is highlighted by its weak correlations with them.

The generated model can be seen in Figure 3, and is of good fit, $\chi^2 (17) = 19.69, p = .290$; RMSEA = .036 (CI at 90% = .000 to .092); CFI = .995; TLI = .991; IFI = .995.
Figure 3. Two-factor formative model with loneliness and closeness of relationships forming social connection.

In order to confirm that the improvement of fit in Figure 3 was not simply due to the removal of a variable and therefore, increased parsimony, a two-factor model with only quantity of relationships and loneliness was tested. The resulting model, Figure 4, was of poor fit, $\chi^2 (17) = 42.791, p < .001; \text{RMSEA} = .111 \text{ (CI at 90\% = .070 to .152); CFI} = .954; \text{TLI} = .924; \text{IFI} = .955$. Therefore, the resultant improvement in fit for the two-factor model is likely not the result of the removal of variables, and therefore, increased parsimony, but instead the relationship between the variables themselves. In examining the paths between variables, it can be seen that, although quantity of relationships’ regression weight with social connection (see Figure 4) is larger than that of closeness of relationships with social connection (see Figure 3), closeness of
relationships is more strongly correlated with loneliness. As such, it is possible that this is the reason for improved fit in the closeness of relationships model.

Figure 4. Two-factor formative model with loneliness and quantity of relationships as forming social connection.

Description of Social Connection Model

The social connection model determined to best fit the data is presented in Figure 3. This model demonstrates that, in the current study, loneliness and relationship closeness best comprise social connection. Loneliness and relationship closeness negatively covaried and led separately to social connection. Based on the model, loneliness more strongly loads onto social connection than relationship closeness. In fact, the direct link between closeness and social connection was not significant in the test of this model, suggesting that relationship closeness did not directly load onto social connection when taking loneliness into account. Instead, the effect of closeness seems to be through its relationship with loneliness.
Discussion

The purpose of Study 1 was to provide a clear operational definition of social connection in emerging adults that represented different components of social connection while remaining cohesive. Social connection was hypothesized to contain several factors, specifically loneliness, relationship closeness, and possibly relationship quantity. Previous research is mixed as to whether quantity of social relationships relates to the more emotional aspects of social connection, particularly closeness of relationships and feelings of loneliness (e.g., Binder et al., 2012; Molho et al., 2016). As such, this study was designed to explore the relationship between relationship closeness, relationship quantity, and loneliness.

Appropriate convergent and divergent validity was found for most social connection variables. However, it is important to note that convergent and divergent validity were not examined in the context of the latent variable of social connection, which will be discussed further in the limitations section. Average closeness of relationships did not relate to sense of belonging. Although unexpected, this does make some sense as items in the sense of belonging measure capture multiple qualities of belonging, such as feeling like one fits in, having a large social network, and being valued by others. As such, individuals with larger social circles may feel more of a sense of belonging, rather than individuals who feel very close to only a select few others. Additionally, individuals who are more extraverted reported less loneliness. This finding is consistent with Cheng and Furnham (2002) and Stokes (1985) who both found that loneliness negatively correlated with extraversion.

Correlational analyses suggested that quantity of relationships generally did not relate to the perceived closeness of those relationships. In other words, the presence of many social relationships was not an indicator of whether those relationships would be any more or less
emotionally close. As would be expected, individuals who had fewer relationships felt lonelier, as did those who had relationships that were less close. As such, initial analyses suggested that the variables proposed as factors of social connection did not necessarily relate to each other and may not generate an overall composite of social connection. This supports the idea that quantity of relationships did not fit with the other two variables.

The measurement models created in Study 1 also lend support to the notion that quantity and closeness of relationships do not directly relate to each other. A model of loneliness and closeness of relationships best described the construct of social connection, which led to negative affect and depression in the model (see Figure 3). In this model, loneliness was more strongly associated with social connection than relationship closeness such that relationship closeness was linked to social connection through loneliness, rather than having a direct effect. As such, the social connection variable within this model is largely comprised of loneliness, and indirect effects of relationship closeness through loneliness.

Although the relationship between mood and social connection was not a primary topic of interest in the current study, the final measurement model describes how feelings of loneliness and lack of closeness in relationships constitute a form of low emotional social connection, which relate strongly to one’s negative mood and feelings of depression. In other words, when described in the context of mood in the current study, low social connection is best measured by how close one feels in one’s relationships and how lonely one is, which are related constructs. Indeed, the links between loneliness and depressed mood (Besser et al., 2003; Chang et al., 2008; Mounts et al., 2006) and emotional closeness and depressed mood (Buhrmester, 1990; Flores & Berenbaum, 2014) are well documented in the literature. The selection of depression and negative affect as parts of this model was based upon this understanding of the strong
relationship between mood and social connection. However, the model’s fit and the relationship between outcome variables and social connection may have been different had variables reflecting the positive aspects of experience been selected for the model, such as life satisfaction (Seligman, & Csikszentmihalyi, 2000). Indeed, the absence of psychopathology, or depression, is not the same as well-being or feeling that one is flourishing, and thus this model does not truly represent the relationships between connection and well-being (Seligman, & Csikszentmihalyi, 2000).

**Study 1 Implications and Limitations**

The implications of this research are that emerging adults’ loneliness and emotional closeness levels more strongly describe a model of social connection than network size, when examining them as leading to depression and negative affect. Additionally, a model including quantity of relationships did not fit the data as well, suggesting that it relates to the constructs studied in a different manner. In other words, the presence of a greater number of relationships is less highly correlated with loneliness than closeness of relationships, suggesting that feeling close to others is more important than having many relationships in protecting against feelings of loneliness, and low mood. As emerging adulthood is a time of transition and potential exacerbation of mental health difficulties (Arnett, 2000), it is important to have gained a better understanding of social connection, and specifically, how aspects of social connection interact. This research can help inform our understanding of what social connection is in emerging adulthood, and thus, lead to more targeted interventions and ways of supporting the development of adaptive social relationships. For example, quantity of relationships and closeness of relationships were not reliably associated with each other, suggesting that interventions should not target one to increase the other. In other words, if aiming to increase closeness within
relationships more generally, promoting additional relationships likely will not impact this. Of course, further research is needed to expand on the relationship between closeness and quantity of relationships, and determine whether there is any causal link.

Although efforts were made to minimize limitations to the current study, there are several limitations which must be considered. In particular, this study only examined a measurement model for three possible social connection variables. There are other variables that could have been examined, such as attachment, which may have altered the way in which the social connection variables related to each other. Additionally, the way that participants interpreted the instructions for listing significant and core relationships may have changed their score for relationship closeness and quantity. Some individuals may have chosen to only list close others, whereas others may have listed others more indiscriminately.

Additionally, the small and limited sample size makes it difficult to know the generalizability of the model. The lack of diversity of the sample may limit the degree to which the study’s findings can be generalized to other populations. Although a goal of the study was to examine social connection in emerging adults, this limits the degree to which the findings can be generalized to other age groups. Additionally, the sample was limited to undergraduate psychology students, which is likely not characteristic of the population of emerging adults as a whole. The sample was also primarily female and White/European, decreasing the study’s generalizability to males and other ethnic groups.

Another potential limitation of Study 1 is the method of data collection. The data were collected at one time through self-report questionnaires. As such, the disadvantages of self-report measures apply, such as response biases, subjectivity, and external validity. Furthermore,
common method variance may inflate correlations, including those between loneliness, negative affect, and depression, and reduce the overall fit of the structural equation model.

With respect to convergent and divergent validity of the social connection variable, this was only demonstrated for indicator variables and not the construct as a whole. Research by Wang, French, and Clay (2015) outlines a potential method for testing this form of validity. However, their method could not be used for the current study due to the need for a large number of conceptually similar variables to test validity. Edwards (2011) suggests that testing construct validity for a formative model is not recommended due to the heterogeneous nature of formative models.

There continues to be debate within the literature regarding the usefulness and appropriateness of using formative measurement models as opposed to reflective models. Although a comprehensive review of the criticisms and support for formative models is beyond the scope of this study, it is worth noting that some research cautions against the use of formative, or causal, models (Edwards, 2011), whereas other research supports its use when appropriate (Bollen & Diamantopoulos, 2017). When interpreting the results of structural equation modelling in this study, one should recall that the model differs from traditional models in that the social connection latent variable is essentially a composite of loneliness and closeness of relationships, rather than the measurement of a single social connection concept, as would be the case in reflective models (Bollen & Diamantopoulos, 2017).
Study 2: A Possible Developmental Underpinning of Social Connection

Brown’s (2010a, 2012) qualitative research on social connection and wholehearted living, which form the basis of her popular TED Talk (Brown, 2010a), suggests that to be connected to others, individuals must allow themselves to be vulnerable, authentic, and self-compassionate. The ideas from Brown’s (2010a) TED Talk are expanded upon in her subsequent writings (Brown, 2012). Brown (2012) defines vulnerability as “being all in…rather than sitting on the sidelines and hurling judgment and advice, we must dare to show up and let ourselves be seen” (p. 2), and describes authenticity as “the daily practice of letting go of who we think we’re supposed to be and embracing who we are” (Brown, 2012, p. 50). Brown (2010a) borrows Neff’s (2003b) definition of self-compassion, which is a person’s kind and compassionate response to one’s own pain and failure. Taken together, Brown (2010a, 2012) suggests that one needs to be self-compassionate to develop vulnerability and authenticity, which ultimately lead to improved social connection.

Brown’s (2010a, 2010b) theory of the importance of vulnerability, authenticity, and self-compassion in the development of social connection is compelling, resonates with common wisdom, and makes intuitive sense. However, as of yet, there has been no quantitative research which has examined the validity of this model, or specified the way in which the constructs she discusses are related. In her books, Brown (2010b, 2012) refers to her qualitative research as being the inspiration for her theories. Therefore, the goal of the current study is to investigate social connection in emerging adults as it relates to the constructs described by Brown.

Additionally, as childhood parenting experiences are important in the development of adult personality and well-being (Barber & Schluterman, 2008; Irons, Gilbert, Ballwin, Baccus, & Palmer, 2006; Johnson et al., 2001; Sauer and Baer, 2009, 2010), we assert that in order to
more fully understand the development of social connection, it is important to examine how these personality characteristics are situated in the context of childhood experiences with parents. Using Brown’s (2010a, 2010b, 2012) theory of social connection as a theoretical spring-board, this study will investigate how recollections of parenting in emerging adults relate to social connection by examining self-compassion, authenticity, and vulnerability as potential mediating mechanisms.

**The Role of Parental Invalidation of Negative Emotions**

Decades of research underscore that parenting has far-reaching effects on child development (Caspi et al., 2004; Erozkan, 2009; Johnson et al., 2001). For example, Caspi et al., (2004) examined the relationship between expressed maternal emotions on children’s antisocial behavior from ages 5 to 7 years. Caspi et al. studied 622 pairs of monozygotic twins living in the same household. Data were collected from homes regarding the number of positive and negative comments made by mothers to their children, and an overall negativity and warmth rating was assigned regarding the degree of each emotion expressed toward the children. Results of their twin analysis indicated that the twin receiving the most negativity at age 5 years had significantly higher ratings of antisocial behaviours at age 7 years. The inverse was also true: the degree of warmth directed toward a twin was related to lower levels of antisocial behavior. These results demonstrate that maternal warmth and negatively are predictive of later antisocial behavior in young children.

An adult’s recollections of parents’ maladaptive styles of parenting are systematically associated with specific characteristics of maladjustment, such as self-criticism, depression (Irons et al., 2006), and rejection sensitivity (Erozkan, 2009). Parenting behaviours are also related to later social competence (Barber & Schluterman, 2008). Similarly, parental discord and
family conflict have been positively associated with loneliness (Johnson et al., 2001). Specifically, older adolescents ($N = 124$, ages 17 to 21 years) who felt lonely also reported less cohesive family environments, and more conflict with others. Decreased family cohesion and increased conflict between parents were also related to increased social anxiety. The impact of parental psychological control has been related to stress in a sample of emerging adults ($N = 161$; Abaied & Emond, 2013). In this context, psychological control refers to attempts by parents to control children’s emotional states or beliefs. Psychological control can take many forms, including induction of guilt or shame, or withdrawal of affection and love (Abaied & Emond, 2013). Emerging adults who recalled a greater degree of psychological control from their parents reported more maladaptive responses to stressful situations, such as ruminating and avoidance, and less frequent use of adaptive responses to stress, such as feeling comfortable in new social situations. These studies indicate that parenting affects development and personality in a number of ways, including aspects of social relationships.

One component of parenting that can have a pronounced impact on the development of personality and emotion coping strategies is emotional (in)validation. In this context, invalidation refers to the process in which negative emotions of children are unsupported due to their parents’ punishment, minimization, or personal distress in response to their children’s displays of negative emotion (Sauer 2009, 2010). In contrast, validating environments encourage and support the expression of negative emotions in children.

It appears that children whose parents invalidated their negative emotions became adults with maladaptive attitudes toward negative emotions (Krause, Mendelson, & Lynch, 2003; Sauer & Baer, 2009, 2010). Sauer and Baer (2009, 2010) have demonstrated positive correlations between emotional invalidation, thought suppression, and fear of emotions in young adults. In
contrast, adults with parents who validated their negative emotions through comfort, distraction, and problem-solving were less likely to fear their emotions and suppress their thoughts (Sauer & Baer, 2009, 2010). From this, it seems that recalled parental invalidation of childhood negative emotions is related to less adaptive emotion coping, and particularly attempts to avoid experiencing negative emotions.

In their study of a non-clinical sample of young adults, Krause et al. (2003) demonstrated a specific link between parental invalidation and emotional inhibition, which they defined as a broad construct encompassing both lack of emotional expression and suppression of emotion-related experiences such as thoughts, feelings, urges, and sensations. More specifically, Krause et al. demonstrated that participants who recalled an invalidating childhood environment were more likely to endorse the emotional inhibition strategy of thought suppression and felt ambivalence over expressing their emotions. It is worth noting that a similar result was found for the invalidation of positive emotions (Yap, Allen, & Ladouceur, 2008). This research suggests that parental invalidation may have far-reaching effects on emotion regulation and may be related to forms of emotional inhibition in adulthood, such as ambivalence over emotional expression, a construct that is conceptually similar to Brown’s “vulnerability.” Parent modelling of emotions is a primary method through which children learn to express emotions, and as such, parental (in)validation was deemed to most aptly capture the richness of the experience of development of emotional expression. As demonstrated by Sauer and Baer (2010), parental invalidation of negative emotions is related to an individual’s expression of emotions, and is a risk factor for the development of future psychopathology. The presence of an invalidating childhood environment is a central feature of Linehan’s (1993) biosocial theory of borderline personality disorder (Crowell, Beauchaine, & Linehan, 2009). Given the importance of this
characteristic to the development of adaptive expression of emotion as well psychopathology, parental (in)validation of negative emotion is hypothesized to be an important contributor to the beginning of trajectories leading to the expression of psychopathology.

**Parenting and ambivalence over emotional expression.** Vulnerability plays an important role in Brown’s (2010a, 2012) theory of wholehearted living. However, there is a paucity of research on “vulnerability” in the psychological literature, which makes the explicit quantitative study of this construct difficult. Although not identical, one construct that captures much of the flavor of Brown’s conceptualization of “vulnerability” is ambivalence over emotional expression. Ambivalence over emotional expression can be categorized as a form of emotional inhibition (Krause et al., 2003) and refers to the conflict experienced by individuals who desire simultaneously to express and to withhold their emotions (King & Emmons, 1990). As such, for the purposes of the current research, the construct ambivalence over emotional expression will be examined in an attempt to capture vulnerability. In keeping with Brown’s (2010a, 2010b, 2012) perspective, ambivalence over emotional expression is understood here as a feeling of reluctance or fear of being vulnerable in the expression of emotions.

King and Emmons (1990) explain that an individual’s ambivalence over emotional expression reflects the cultural “belief that emotion should be honestly expressed but also that expression implies vulnerability” (p. 865). In this context, ambivalence can be categorized into three forms: (1) refraining from the expression of emotion despite one’s wish to be emotional (for example, wanting to confess love but being too nervous to do so), (2) expressing emotion and regretting it afterwards (e.g., confessing love impulsively, and later regretting it), and (3) expressing emotion and not particularly wanting to have done so (e.g., reluctantly confessing love despite misgivings about doing so); King & Emmons, 1990). Although related to other
emotional inhibition constructs such as alexithymia, which is the difficulty of identifying and describing emotions, ambivalence over emotional expression is a separate construct (Müller, Bühner, Ziegler, & Şahin, 2008).

Ambivalence over emotional expression has been associated with maladaptive personality traits and emotional difficulties. Adults who are highly ambivalent tend to be less open to experience, less agreeable, and less extraverted, but more neurotic (Laghai, & Joseph, 2000). Emotional ambivalence has been positively correlated with guilt (Bruno, Lutwak, & Agin, 2009), depression (Chen, Chen, & Tsai, 2012; Emmons & Colby, 1995), anxiety (Emmons & Colby, 1995; Spokas, Luterek, & Heimberg, 2009), and general negative affect (Emmons & Colby, 1995; King, 1998) in undergraduate students. Ambivalence over emotional expression is also negatively correlated with happiness (Chen et al., 2012; Emmons & Colby, 1995), subjective well-being, and positive affect (Emmons & Colby, 1995) in undergraduate students. Moreover, ambivalent undergraduate students were likely to feel lonely (Bruno, Lutwak, & Agin, 2009; Chen et al., 2012).

Research by Krause et al. (2003) and Sauer and Baer (2009, 2010) suggest that parental invalidation of emotional expression impacts an individual’s approach or avoidance of negative emotions, including ambivalence over emotional expression. As such, it is reasonable to assume that individuals with more invalidating parental environments may experience greater levels of ambivalence over emotional expression, and this study will attempt to investigate this potential link. See Figure 5 for a visual representation of the proposed link in the context of the full model to be studied in Study 2.

**Parenting and self-compassion.** In addition to its relation to ineffective emotion coping strategies, the presence of an invalidating childhood environment may discourage the
development of self-compassion, which could have later implications for social connection (Brown 2010a). Self-compassion is a multifaceted construct comprised of self-kindness, mindfulness, and common humanity (Neff, 2003b). Respectively, these are defined as being kind and compassionate to the self during instances of pain and suffering, being aware of one’s pain without over-identifying with it, and recognizing that everyone experiences failure and pain. High levels of self-compassion have been linked to adaptive traits and characteristics. Raes (2010) demonstrated that individuals with high self-compassion endorse fewer depressive and anxiety symptoms. High self-compassion has also been associated with increased life satisfaction, positive affect, and happiness (Wei, Liao, Ku, & Phaffer, 2011). In a series of studies of undergraduate psychology students (sample sizes ranging from \(N = 66\) to \(N = 123\)), Leary, Tate, Adams, Allen, and Hancock (2007) provided evidence that self-compassionate individuals feel less negative emotion following real and imagined negative events, and after receiving ambivalent feedback on a recorded presentation about themselves. Additionally, self-compassionate people were more likely to blame themselves following a personal failure but did not feel the negative emotions typically associated with self-blame that less self-compassionate people felt (Leary et al., 2007). As such, it is clear that individuals who report being more compassionate to the self also report other positive characteristics.

Although very little research has examined self-compassion in the context of social relationships and parenting more specifically, some evidence has demonstrated that a link among parenting, attachment, and self-compassion may exist. Specifically, self-compassion has been negatively associated with insecure attachment styles (Neff & Beretvas, 2013; Neff & McGehee, 2010; Wei et al., 2011) and positively associated with secure attachment styles (Neff & Beretvas, 2013; Neff & McGehee, 2010). Similarly, self-compassionate individuals were more likely to
report greater maternal support and healthy family functioning (Neff & McGehee, 2013). Having a history of childhood abuse and neglect has also been associated with lower self-compassion (Tanaka, Wekerle, Schmuck, Paglia-Boak, & the MAP Research Team, 2011; Vettese, Dyer, Li, & Wekerle, 2011). Taken together, this evidence suggests that maladaptive parenting may relate to lower self-compassion.

In their study of adolescents ($N = 235$) and emerging adults ($N = 287$), Neff and McGehee (2010) demonstrated that more adaptive family functioning (i.e., less arguing, treating each other well) was positively related to increases in self-compassion, as was secure attachment. This seems to suggest that more adaptive family environments help foster one’s compassionate stance toward the self. Individuals with high degrees of self-compassion may have acquired this characteristic through modelling by parents who validate their children’s negative displays of emotion by comforting them, distracting them, or problem solving with them (Sauer & Baer, 2010). In other words, by treating their children compassionately, as well as validating their emotional displays, parents may be encouraging the development of children who approach their pain and negative emotions with compassion, rather than avoidance and criticism. In contrast, Neff and McGehee’s (2010) study suggests that individuals who grow up in environments characterized by high levels of dysfunction may be more self-critical. As an extension of this, one might infer that invalidating childhood environments discourage the development of self-compassion, as punishment and minimization of emotional displays may be sending the message that these emotions are wrong or unimportant, a perspective which the children may adopt. As such, it seems plausible that the degree of parental (in)validation experienced would affect the development of self-compassion in children.
In summary, based on the abovementioned research and Brown’s (2010a, 2012) theory of connection, it may be that parental invalidation leads directly to greater ambivalence over emotional expression and lower self-compassion. In contrast, we would expect to see the opposite trend for parental validation: high degrees of parental validation may lead to lower ambivalence over emotional expression and increased self-compassion. The current study will examine this link explicitly, as outlined in Figure 5.

The Pathway to Authenticity

Authenticity has been defined as a multi-faceted variable which examines the consistency between individuals’ internal experiences, their awareness of these experiences, and their outward behavior (Wood, Linley, Maltby, Baliousis, & Joseph, 2008). High degrees of authenticity have been associated with increased life satisfaction (English & John, 2013; Goldman & Kernis, 2002), higher self-esteem, and less negative affect (Goldman & Kernis, 2002). English and John (2013) reported that undergraduate students with higher levels of authenticity were less likely to suppress their emotions, and more likely to express positive emotions. This suggests that perceived authenticity is an adaptive characteristic related to regulation of emotions and overall well-being.

There is some evidence to suggest that authentic individuals enjoy more adaptive social relationships (English & John, 2013) and increased feelings of closeness and intimacy with others (Heppner et al., 2008). In the context of heterosexual romantic relationships, authentic men and women report more adaptive functioning and increased well-being (Brunell et al., 2010). Similarly, authenticity in romantic relationships has been related to greater relationship satisfaction and lower depression (Lopez & Rice, 2006). Taken together, this research is beginning to suggest that authenticity may be associated with positive social relationships and
social connection. In keeping with Brown’s (2010a, 2012) work, a goal of the current research is to explicitly examine authenticity as it relates to social connection, as well as to situate it within the context of an individual’s recalled experiences, and their approach to emotional expression.

In Brown’s (2010a, 2012) model of wholehearted living, she proposes that authenticity develops through increased “vulnerability,” or ambivalence over emotional expression as examined here, as well as self-compassion. As such, ambivalence over emotional expression, self-compassion, and their relations with authenticity will be examined in this study (see Figure 5).

The development of authenticity through emotional expression. Ambivalence over emotional expression has been directly linked to loneliness (Bruno et al., 2009), a facet of social connection. However, this association may be the result of ambivalent individuals feeling uncomfortable expressing themselves, and therefore, perceiving themselves as less authentic in their relationships. Despite this potential relation, to the best of our knowledge, authenticity and ambivalence over emotional expression have not been explicitly studied together in the psychological literature. However, research examining related constructs suggests a conceptual link. For example, ambivalence over emotional expression has been associated with multiple aspects of emotion expression (Barr, Kahn & Schneider, 2008). Specifically, individuals who are highly ambivalent also tend to express emotion and disclose distressing information less frequently, and highly ambivalent students were more likely to conceal personally distressing information (Barr et al.). Ambivalent individuals have also been shown to feel more alienated from themselves and to self-disclose less frequently than their non-ambivalent peers (Bruno et al., 2009). Based on this research, it is theorized that ambivalence over emotional expression is associated with authenticity, in that high ambivalence is related to low authenticity.
The development of authenticity through self-compassion. With the exception of a study by Yarnell and Neff (2013), researchers have yet to directly examine the relationship between self-compassion and authenticity. An individual who is non-judgmental toward oneself may find it easier to behave in a way that is true and authentic to the self than a person who is harshly critical of oneself. Yarnell and Neff (2013) demonstrated that undergraduate students with high self-compassion were more likely to solve conflicts with their mothers, fathers and romantic partners authentically, that is, in a way that was true to themselves. In other words, a self-compassionate person may be more accepting of the self, and behave in a way that is more congruent with their thoughts and feelings.

Brown (2010a) discusses the essentiality of self-compassion in the development of authenticity and social connection. The inclusion of self-compassion as a possible precursor to authenticity and connection in a valuable component of the model based on the rationale described above. Additionally, although self-compassion has been shown to be a largely adaptive characteristic (Neff, 2003b), its impact has just begun to be explored in the context of social relationships. Examining self-compassion as a possible precursor to social connection will provide an empirical test of the idea that self-compassion is related to authenticity, and indirectly to social connection.

The Current Investigation

The current investigation has several goals. Before testing a model of pathways leading to social connection, the model of social connection developed in Study 1 must be replicated to ensure its stability with a new sample. As such, an initial goal of this study is to replicate the social connection model from Study 1, in order to further test its stability.
The second, and primary, goal of study two is to use Brown’s (2010a, 2012) work on social connection as a springboard to the quantification and specification of several of the constructs she discusses and to test whether they predict social connection. As discussed above, there is evidence that indicates that, as suggested by Brown (2010a, 2012), reluctance to be self-compassionate, vulnerable (i.e., ambivalence over emotional expression), and authentic may be important in the development of social connection. There is also reason to believe that these characteristics may be contextually rooted in children’s experiences with parents.

As shown in Figure 5, it is hypothesized that a pathway from parental validation to self-compassion, ambivalence over emotional expression, and authenticity. Although no research to date has directly examined self-compassion and ambivalence over emotional expression in a model such as this, Brown’s (2010a, 2012) writings suggest that self-compassion is essential to being vulnerable and authentic. As such, it is hypothesized that a more self-compassion is directly related to less ambivalence over emotional expression. It is also proposed that less ambivalence over emotional expression will lead to more authenticity, which will lead to greater social connection. More self-compassion is predicted to lead to social connection both directly and through authenticity. Finally, more authenticity is hypothesized to lead to more social connection. It is predicted that the same relationships will be observed with parental invalidation, except that the valence of the construct’s relationship with self-compassion and ambivalence will be reversed such that invalidation will be negatively associated with self-compassion and positively associated with ambivalence.
Method

Participants

In Study 2, data from 25 males and 134 females were analyzed. Participants were recruited from an undergraduate psychology research pool and given course credit for their participation. On average, participants were 18.55 years old ($SD = 1.36$), with a range from 17 to 27 years old. Most participants identified as White/European ($n = 123, 77.4\%$). The remainder of the sample was composed of individuals who self-identified as Southeast Asian ($n = 11, 6.9\%$), South Asian ($n = 8, 5\%$), multiracial ($n = 7, 4.4\%$), Black ($n = 4, 2.5\%$), Latin American ($n = 4, 2.5\%$), West Asian ($n = 1, 0.6\%$), and other ($n = 1, 0.6\%$).

Most participants did not report being in a romantic relationship ($n = 104, 65.4\%$), and were in first year university ($n = 119, 74.8\%$). Most participants lived in Guelph ($n = 109, 68.6\%$) and lived on-campus ($n = 101, 63.5\%$). There was some variability in living companions for participants, in that many lived with more than one roommate ($n = 65, 40.9\%$), or one roommate ($n = 45, 28.3\%$). A number of participants reported living alone ($n = 30, 18.9\%$), or with family ($n = 16, 10.1\%$), and few lived with a romantic partner ($n = 2, 1.2\%$).
Measures

**Demographic information.** A short demographic survey was given to all participants in order to determine their age, sex, ethnicity, relationship status, and university year. As with Study 1, information about an individual’s living situation (i.e., location and whether an individual lives alone or with others) was collected.

**Instruction manipulation check.** Interspersed throughout the study questionnaires were nine items to determine whether participants were paying attention, which were scored on the Likert scale of the questionnaire within which they were embedded. The questions were designed to have an obvious response (e.g., “please select “very likely” as your response to this question,” or “I ride a llama to school”) in order to determine which participants were reading questions as opposed to randomly selecting responses. This technique was used by Oppenheimer, Meyvis, and Davidenko (2009) for the same purpose. Oppenheimer et al. determined that it was effective in detecting participants who were not reading instructions, and that these participants did not differ from other participants in meaningful ways, suggesting that removing their responses would not significantly bias the results of the study.

**Parental validation.** Parental validation of children’s displays of negative emotions was assessed using the Socialization of Emotion Scale (SES; Sauer and Baer, 2010; Krause, Mendelson, & Lynch, 2003), adapted from the Coping with Children’s Negative Emotions Scale (Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002). The SES asks adults to retrospectively report what would have been their parents’ most typical responses to their negative displays of emotion as children. This adaptation of the SES consists of six scenarios in which the participant imagines being upset at typical childhood events (e.g., losing a prized possession, or not being able to sleep after a scary television show) and endorses the degree to which the parent would
have responded in different ways, for a total of 33 items. All items are answered on a 7-point Likert scale ranging from 0 (very unlikely) to 7 (very likely) and measure the typicality of specific parent reactions. The SES is administered twice per participant to examine mother and father (in)validation separately.

Factor analysis supports the presence of two subscales within the SES, comprised of parental validation and parental invalidation (Sauer & Baer, 2010). Parental validation includes parenting reactions which support their children’s negative emotions by expressing encouragement, soothing and distracting, and demonstrating problem-solving. In contrast, parents who invalidate their children’s negative emotions become personally distressed, punish the child, or minimize their child’s emotions. The SES has been shown to have good convergent and divergent validity (Sauer & Baer, 2010). In the current study, internal consistency was excellent for maternal invalidation ($\alpha = .91$), paternal invalidation ($\alpha = .95$), maternal validation ($\alpha = .94$), and paternal validation ($\alpha = .95$).

**Authenticity.** Authenticity was measured using the Authenticity Scale (Wood et al., 2008). The Authenticity Scale is comprised of 12 Likert items ranging from 1 (does not describe me at all) to 7 (describes me very well) (e.g., “I always stand by what I believe in.”). Factor analysis of the Authenticity Scale suggests the presence of three factors, which have been grouped into theoretically-guided subscales: self-alienation, accepting external influence, and authentic living (Wood et al., 2008). The self-alienation scale assesses the degree to which an individual does not know oneself and one’s feelings. The accepting external influence subscale assesses the degree to which an individual behaves in accordance with the needs and desires of external forces and individuals. Finally, authentic living refers to the degree to which an
individual acts in accordance with one’s emotions, beliefs, and personality. The scale has acceptable test-retest reliability, and convergent and divergent validity (Wood et al., 2008).

At Time 1 of the current study, internal consistency for the authentic living subscale was adequate ($\alpha = .73$), and the internal consistencies for the self-alienation and accepting external influences subscales were good ($\alpha = .87$ and $\alpha = .84$, respectively). At Time 2, internal consistency for the authentic living subscale was barely adequate ($\alpha = .69$), and the internal consistencies for the self-alienation and accepting external influences subscales were good ($\alpha = .89$ and $\alpha = .87$, respectively). Due to the poor internal consistency of the authentic living subscale at Time 2, one item was removed (i.e., “I think it is better to be yourself than to be popular”), which improved the internal consistency ($\alpha = .75$). This corrected subscale will be used for subsequent analyses.

**Ambivalence over emotional expression.** The Ambivalence Over Emotional Expression Questionnaire (AEQ; King & Emmons, 1990) is a 28-item questionnaire that examines the degree to which individuals are conflicted about the expression of their emotions. Participants respond to items using a 5-point Likert scale ranging from 1 (never) to 5 (frequently) (e.g., “I think about acting when I am angry but I try not to.”). This unidimensional scale has adequate test-retest reliability and construct validity (King & Emmons, 1990). Internal consistency was excellent at both Time 1 ($\alpha = .90$), and Time 2 ($\alpha = .92$) of the current study.

**Self-compassion.** The Self-Compassion Scale – Short From (SCS-SF; Raes et al., 2011) was used to measure participants’ self-compassion. The SCS-SF is comprised of 12 items and uses a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). Factor analysis supports a higher-order self-compassion factor and six subscales (Raes et al., 2011). With two items per subscale, each subscale reflects aspects of high or low self-compassion: self-kindness
(e.g., “I try to be understanding and patient towards those aspects of my personality I don’t like.”), self-judgment (e.g., “I’m disapproving and judgmental about my own flaws and inadequacies”), common humanity (e.g., “I try to see my failings as part of the human condition”), isolation (e.g., “When I fail at something that’s important to me, I tend to feel alone in my failure.”), mindfulness (e.g., “When something upsets me I try to keep my emotions in balance.”), and over-identification (e.g., “When I’m feeling down I tend to obsess and fixate on everything that’s wrong.”). Total SCS-SF scores correlate very strongly with long-form Self-Compassion Scale total scores, and each subscale correlates strongly with corresponding scales in the long-form (from $r = .89$ to $r = .91$; Raes et al., 2011). The SCS-SF also demonstrates good internal consistency for total score but is more variable for the subscales (Raes et al., 2011). In the current study, the SCS-SF exhibited good internal consistency at Time 1 ($\alpha = .82$) and Time 2 ($\alpha = .84$).

**Social connection variables.** Based on the measurement model in Study 1, relationship closeness and loneliness were used to measure social connection variables.

**Relationship closeness.** As with Study 1, relationship closeness was measured through the method described by Binder et al. (2012). Although only relationship quantity is not being used in the hypothesized model for Study 2, Binder’s (2012) method of assessing relationship closeness requires the measurement of relationship quantity to calculate the average relationship closeness. As such, both relationship closeness and quantity were measured using the same method as in Study 1, but only relationship closeness was analyzed.

**Loneliness.** As with Study 1, the UCLA Loneliness Scale (Russell, 1996) was used to measure loneliness. The UCLA Loneliness Scale had excellent internal consistency at Time 1 ($\alpha = .92$) and Time 2 ($\alpha = .95$) of the current study.
Depressive symptoms. As in Study 1, the nine-item PHQ-9 (Kroenke et al., 2001) was used to screen for depressive symptoms and used as a possible control variable. Internal consistency for Time 1 was adequate ($\alpha = .76$), and good for Time 2 ($\alpha = .84$) in the current study.

Positive and negative affect. As in Study 1, the PANAS (Watson et al., 1988) assessed participants’ positive and negative state emotions to determine whether mood was associated with participant responses. In the current study internal consistency for the positive affect subscale was good at Time 1 ($\alpha = .87$), and excellent at Time 2 ($\alpha = .91$). For the negative affect subscale, internal consistency was good at Time 1 and Time 2 ($\alpha = .85$, and $\alpha = .86$, respectively).

Procedure

Approval for this study was received from the University of Guelph Research Ethics Board. Data were collected at two time points (referred hereafter as Time 1 and Time 2) in order to minimize common method variance. Data from Time 1 were collected in person, in small groups from 10 to 15 individuals. Participants first provided written consent, then completed demographic questions, followed by the remainder of study questionnaires in a random order to minimize order effects. Two weeks later, Time 2 data collection occurred online. Participants received a link via email to complete the study. At Time 2, participants completed the Authenticity Scale (Wood et al., 2008), the SCS-SF (Raes et al., 2011), the AEQ (King & Emmons, 1990), Social Connection measures, the PANAS (Watson et al., 1988), and the PHQ-9 (Kroenke et al., 2001). During structural equation modelling, demographic information and the results of the Socialization of Emotion Scale (Sauer & Baer, 2010) from Time 1 were used, as
were the Authenticity Scale, SCS-SF, AEQ, PANAS, PHQ-9, and Social Connection measures from Time 2. This was done in order to attempt to minimize common method variance.

Results

Missing Data and Excluded Data

Data from 27 participants were excluded due to failure to accurately complete at least 7 out of 9 attentional check items. There were no identifiable demographic ways in which individuals who passed the attentional checks differed from those who did not. Finally, of those that remained seven participants completed only Time 1, thus requiring the removal of their data. The data of 11 participants were removed as they had not completed the SES for both parents. As such, the final sample consisted of 159 individuals, as outlined in the Methods section.

In the remaining sample, there were some missing data, which ranged from 0 to 2.5% across participants for individual items within questionnaires. As with Study 1, missing data was treated with mean replacement.

Descriptive Statistics

Descriptive statistics for study variables are presented in Table 5. As can be seen, several variables had a skew statistic with an absolute value greater than 1.0. As such, maternal invalidation, negative affect at both time points, and quantity and closeness of relationships at both time points were transformed using a logarithmic transformation. New values are presented in Table 6. Notably, even after being transformed, quantity of core relationship at Time 2 remained highly skewed.
Table 5.  
*Descriptive Statistics for Study 2 Variables.*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
<th>Skew</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time 1</strong></td>
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<tr>
<td>Validation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Validation</td>
<td>21</td>
<td>126</td>
<td>91.29</td>
<td>21.46</td>
<td>-0.650</td>
</tr>
<tr>
<td>Paternal Validation</td>
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<td>79.90</td>
<td>25.51</td>
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<tr>
<td>Invalidation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Invalidation</td>
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<td>93</td>
<td>34.72</td>
<td>16.33</td>
<td>1.214</td>
</tr>
<tr>
<td>Paternal Invalidation</td>
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<td>92</td>
<td>39.26</td>
<td>20.20</td>
<td>0.855</td>
</tr>
<tr>
<td>Self-Compassion</td>
<td>18</td>
<td>52</td>
<td>33.34</td>
<td>7.44</td>
<td>0.136</td>
</tr>
<tr>
<td>Ambivalence</td>
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<td>128</td>
<td>89.32</td>
<td>17.85</td>
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</tr>
<tr>
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<td>58.43</td>
<td>11.01</td>
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</tr>
<tr>
<td>Loneliness</td>
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<td>77</td>
<td>38.35</td>
<td>11.56</td>
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<td>1.351</td>
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</tr>
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<td>Significant</td>
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<td>10</td>
<td>8.27</td>
<td>1.32</td>
<td>-2.451</td>
</tr>
<tr>
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<td>7.99</td>
<td>1.351</td>
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<tr>
<td>Core</td>
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<td>7.99</td>
<td>1.351</td>
<td>-2.095</td>
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<tr>
<td>Significant</td>
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<td>10</td>
<td>8.27</td>
<td>1.32</td>
<td>-2.451</td>
</tr>
<tr>
<td>Positive Affect</td>
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<td>27.52</td>
<td>7.61</td>
<td>0.176</td>
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<tr>
<td>Negative Affect</td>
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<td>36</td>
<td>16.42</td>
<td>6.23</td>
<td>1.196</td>
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<td>Depression</td>
<td>9</td>
<td>33</td>
<td>17.89</td>
<td>4.52</td>
<td>0.528</td>
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<td><strong>Time 2</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Self-Compassion</td>
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<td>Ambivalence</td>
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<td>140</td>
<td>86.13</td>
<td>17.70</td>
<td>-0.202</td>
</tr>
<tr>
<td>Authenticity</td>
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<td>84</td>
<td>58.43</td>
<td>10.46</td>
<td>-0.104</td>
</tr>
<tr>
<td>Loneliness</td>
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<td>73</td>
<td>39.70</td>
<td>12.06</td>
<td>0.574</td>
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<tr>
<td>Positive Affect</td>
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<td>50</td>
<td>24.95</td>
<td>8.51</td>
<td>0.475</td>
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<tr>
<td>Depression</td>
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<td>33</td>
<td>17.15</td>
<td>5.11</td>
<td>0.786</td>
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<tr>
<td>Relationship Quantity</td>
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<td>27</td>
<td>8.31</td>
<td>4.66</td>
<td>1.121</td>
</tr>
<tr>
<td>Core</td>
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<td>27</td>
<td>8.31</td>
<td>4.66</td>
<td>1.121</td>
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<td>Significant</td>
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<td>8.40</td>
<td>4.86</td>
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<td>Relationship Closeness</td>
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<tr>
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<td>8.32</td>
<td>1.53</td>
<td>-2.528</td>
</tr>
<tr>
<td>Significant</td>
<td>0</td>
<td>10</td>
<td>8.32</td>
<td>1.53</td>
<td>-2.528</td>
</tr>
</tbody>
</table>
Table 6.

**Transformed Study 2 Variables.**

<table>
<thead>
<tr>
<th>Time 1 Variables</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
<th>Skew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Quantity</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core</td>
<td>0</td>
<td>1.49</td>
<td>0.97</td>
<td>0.21</td>
<td>-0.911</td>
</tr>
<tr>
<td>Significant</td>
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<td>1.49</td>
<td>0.95</td>
<td>0.22</td>
<td>-0.321</td>
</tr>
<tr>
<td>Relationship Closeness</td>
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<td></td>
</tr>
<tr>
<td>Core</td>
<td>1</td>
<td>2.04</td>
<td>1.60</td>
<td>0.18</td>
<td>-0.021</td>
</tr>
<tr>
<td>Significant</td>
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<td>2.04</td>
<td>1.64</td>
<td>0.19</td>
<td>0.122</td>
</tr>
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<td>1.56</td>
<td>1.19</td>
<td>0.15</td>
<td>0.649</td>
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<tr>
<td>Maternal Invalidation</td>
<td>1.18</td>
<td>1.97</td>
<td>1.50</td>
<td>0.19</td>
<td>0.222</td>
</tr>
<tr>
<td>Time 2 Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Quantity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core</td>
<td>0</td>
<td>1.45</td>
<td>0.91</td>
<td>0.24</td>
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</tr>
<tr>
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<td>1.49</td>
<td>0.92</td>
<td>0.22</td>
<td>-0.458</td>
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<td>Relationship Closeness</td>
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<td></td>
</tr>
<tr>
<td>Core</td>
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<td>2.04</td>
<td>1.62</td>
<td>0.21</td>
<td>0.127</td>
</tr>
<tr>
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<td>Negative Affect</td>
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<td>1.56</td>
<td>1.21</td>
<td>0.16</td>
<td>0.415</td>
</tr>
</tbody>
</table>

**Group Differences**

In order to determine the relationship between demographic information and participant responses, group means were compared. There were a number of differences based on participant sex, which are presented in Table 7. Specifically, male participants reported higher average levels of paternal invalidation, and positive affect than their female counterparts, whereas female participants reported a greater number of significant relationships at Time 2, and higher levels of depression at both time points. Participants in a romantic relationship had lower levels of maternal invalidation and less ambivalence over emotional expression, $t(156) = -2.35, p = .02$, and $t(156) = -2.28, p = .02$, respectively. Individuals living in Guelph as opposed to those not in Guelph reported greater levels of depression at Time 1, $t(157) = 2.13, p = .04$, but not at Time 2. Those living on campus listed a greater number of significant relationships at Time 2 than those not on campus, $t(157) =$
2.06, \( p = .04 \). Differences in scores based on ethnicity were found in maternal validation and maternal invalidation, \( F(7, 151) = 3.35, p = .002 \), and \( F(7, 151) = 2.95, p = .006 \), respectively. Post-hoc analyses could not be completed to determine the nature of those differences due to small samples of some ethnic groups. No group differences existed, based on university year or the person with whom one lives. As such, when computing correlations, sex, relationship status, living situation, and ethnicity will be used as control variables, in addition to negative affect, positive affect, and depression.

Table 7.

*Significant Mean Differences based on Participant Sex.*

<table>
<thead>
<tr>
<th>Time 1</th>
<th>( t ) value</th>
<th>df</th>
<th>( p ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paternal Invalidation</td>
<td>3.27</td>
<td>157</td>
<td>0.001</td>
</tr>
<tr>
<td>Depression</td>
<td>-2.41</td>
<td>157</td>
<td>0.017</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>2.32</td>
<td>157</td>
<td>0.022</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time 2</th>
<th>( t ) value</th>
<th>df</th>
<th>( p ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Relationship Quantity</td>
<td>-2.25</td>
<td>157</td>
<td>0.026</td>
</tr>
<tr>
<td>Depression</td>
<td>-2.41</td>
<td>157</td>
<td>0.017</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>2.97</td>
<td>157</td>
<td>0.003</td>
</tr>
</tbody>
</table>

**Correlations Between Study Variables**

Partial correlations between study variables are presented in Table 8. Many of the study variables remain significantly correlated even after controlling for demographic information (i.e., sex, ethnicity, living in Guelph, living on campus) and negative affect, positive affect, and depression. Maternal and paternal validation correlated significantly and positively, and both validation measures correlated significantly and negatively with maternal invalidation. Maternal validation was not significantly correlated with paternal invalidation, but maternal invalidation did correlate positively and significantly with paternal invalidation. Of the (in)validation measures, only maternal validation correlated significantly with relationship quantity measures.
In contrast, both validation measures correlated significantly and negatively with relationship closeness measures, but only maternal invalidation related to a relationship closeness variable, namely core closeness. Self-compassion correlated negatively with ambivalence over emotional expression, and positively with authenticity. Of the social connection variables, self-compassion was only significantly correlated with loneliness. Ambivalence over emotional expression correlated negatively with authenticity, and positively with loneliness, but was not significantly related to the other social connection variables. Authenticity was negatively associated with loneliness, and relationship closeness variables. Core and significant relationship quantity variables correlated with each other, as did core and significant relationship closeness variables with each other. However, quantity and closeness variables did not correlate significantly, with one exception; significant relationship closeness did correlate with significant relationship quantity. In other words, with one exception, there was no significant relationship between quantity of relationships and closeness of relationships.
Table 8.

Partial Correlations Between Study Variables, Controlling for Sex, Living Situation, Ethnicity, Positive and Negative Affect, and Depression.

<table>
<thead>
<tr>
<th>Variables</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>
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<th>10</th>
<th>11</th>
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<tbody>
<tr>
<td><strong>Time 1</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Maternal</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2. Paternal</td>
<td>.54***</td>
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<tr>
<td>3. Maternal</td>
<td>-.50***</td>
<td>-.25*</td>
<td>–</td>
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<td>4. Paternal</td>
<td>-.04</td>
<td>-.50***</td>
<td>.43***</td>
<td>–</td>
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<td>5. Self-Compassion</td>
<td>.00</td>
<td>.10</td>
<td>-.07</td>
<td>-.09</td>
<td>–</td>
<td></td>
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<td>6. Ambivalence</td>
<td>-.11</td>
<td>.01</td>
<td>.18*</td>
<td>.01</td>
<td>-.24**</td>
<td>–</td>
<td></td>
<td></td>
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<tr>
<td>7. Authenticity</td>
<td>.19*</td>
<td>.12</td>
<td>-.25**</td>
<td>-.14</td>
<td>.30***</td>
<td>-.31***</td>
<td>–</td>
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<td>8. Loneliness</td>
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<td>-.19*</td>
<td>.17*</td>
<td>.00</td>
<td>-.20*</td>
<td>.20*</td>
<td>-.26**</td>
<td>–</td>
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<tr>
<td><strong>Relationship Quantity</strong></td>
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<tr>
<td>9. Core</td>
<td>.16*</td>
<td>.09</td>
<td>-.10</td>
<td>-.09</td>
<td>-.02</td>
<td>.01</td>
<td>-.04</td>
<td>-.19</td>
<td>–</td>
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<td>.09</td>
<td>.07</td>
<td>.09</td>
<td>.06</td>
<td>-.02</td>
<td>.08</td>
<td>-.05</td>
<td>-.24**</td>
<td>.64***</td>
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<td><strong>Relationship Closeness</strong></td>
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<td>11. Core</td>
<td>-.27***</td>
<td>-.17*</td>
<td>.18*</td>
<td>.09</td>
<td>.00</td>
<td>.16</td>
<td>-.28**</td>
<td>.32***</td>
<td>.05</td>
<td>.01</td>
<td>–</td>
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<tr>
<td>12. Significant</td>
<td>-.27**</td>
<td>-.22**</td>
<td>.11</td>
<td>.06</td>
<td>.01</td>
<td>.16</td>
<td>-.22**</td>
<td>.24**</td>
<td>.07</td>
<td>.21</td>
<td>.61***</td>
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*p < .05
**p < .01
***p < .001
Replication of Social Connection Model

As with Study 1, models were tested using SPSS Amos 24, and all pathways reported in models are the standardized coefficients. In order to provide further support for the social connection model generated in Study 1, this model was re-tested using data from Time 1 and Time 2 of Study 2. The two-factor loneliness and relationship closeness model was of good fit when tested at both time points. Figure 12 demonstrates that the replication at Time 1 was of excellent fit, $\chi^2 (17) = 15.202, p = .581; \text{RMSEA} < .001 \text{ (CI at 90\% = .000 to .065); CFI = 1.000; TLI = 1.005; IFI = 1.005.}$ At Time 2, the model (Figure 13) was also of adequate fit, $\chi^2 (17) = 24.721, p = .101; \text{RMSEA} = .054 \text{ (CI at 90\% = .000 to .097); CFI = .989; TLI = .982; IFI = .989.}$ These data indicate that the social connection model tested in Study 1 was able to be replicated, adding further support to its structure as a measurement model.

To determine whether the other models from Study 1 fit the data less well than the model above, they were replicated using data from Time 1 and 2. As can be seen in Table 9, the one and the three factor models were of poor fit at both Time 1 and Time 2. Although the fit for the two factor models which include quantity of relationships rather than closeness are within the acceptable range, they demonstrate that the fit of the model including closeness of relationships has slightly improved fit indices.
Table 9.

*Fit Statistics for Alternate Model Conceptualizations.*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2 (df)$</th>
<th>RMSEA</th>
<th>CI low</th>
<th>CI high</th>
<th>CFI</th>
<th>TLI</th>
<th>IFI</th>
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<tr>
<td>One factor model</td>
<td>653.170* (35)</td>
<td>.334</td>
<td>.312</td>
<td>.357</td>
<td>.078</td>
<td>-.186</td>
<td>.091</td>
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<tr>
<td>Three factor model</td>
<td>63.734** (29)</td>
<td>.087</td>
<td>.058</td>
<td>.116</td>
<td>.948</td>
<td>.920</td>
<td>.949</td>
</tr>
<tr>
<td>Two factor with quantity</td>
<td>22.392 (17)</td>
<td>.045</td>
<td>&lt; .001</td>
<td>.090</td>
<td>.989</td>
<td>.982</td>
<td>.990</td>
</tr>
<tr>
<td><strong>Time 2</strong></td>
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</tr>
<tr>
<td>One factor</td>
<td>794.380** (35)</td>
<td>.371</td>
<td>.348</td>
<td>.393</td>
<td>.080</td>
<td>-.182</td>
<td>.091</td>
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<tr>
<td>Three factor</td>
<td>59.996* (29)</td>
<td>.082</td>
<td>.052</td>
<td>.112</td>
<td>.962</td>
<td>.942</td>
<td>.963</td>
</tr>
<tr>
<td>Two factor with quantity</td>
<td>27.709 (17)</td>
<td>.063</td>
<td>.005</td>
<td>.104</td>
<td>.985</td>
<td>.975</td>
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</tr>
</tbody>
</table>

*p < .01
**p < .001
Figure 6. Replication of one factor model at Time 1.

Figure 7. Replication of one factor model at Time 2.
Figure 8. Replication of three factor model at Time 1.

Figure 9. Replication of three factor model at Time 2.
Figure 10. Replication of two factor model at Time 1 with quantity of relationships and loneliness.

Figure 11. Replication of two factor model at Time 2 with quantity of relationships and loneliness.
Figure 12. Replication of two-factor formative social connection model at Time 1 with closeness of relationships.

Figure 13. Replication of two-factor formative social connection model at Time 2 with closeness of relationships.
Modelling a Possible Developmental Underpinning of Social Connection

Due to the complexity of the hypothesized model, mini “testlets” were created for most scales in order to group similar items, or to represent factors within a multidimensional scale. It is important to recall that, in order to reduce common method variance, demographic information and the results of the Socialization of Emotion Scale (Sauer & Baer, 2009) from Time 1 were used, alongside the Time 2 results from the Authenticity Scale, SCS-SF, AEQ, PANAS, PHQ-9, and Social Connection measures. The hypothesized model of a possible developmental underpinning of social connection (see Figure 14) was tested, and was of adequate fit, $\chi^2$ (312) = 509.51, $p < .001$; RMSEA = .063 (CI at 90% = .053 to .073); CFI = .911; TLI = .892; IFI = .913. Sex was added as a control for social connection, romantic relationship status controlled for ambivalence over emotional expression, and ethnicity controlled for maternal (in)validation. These were determined based on correlational analyses.

Figure 14. Hypothesized model of maternal validation and invalidation leading to social connection.
The same model with paternal (in)validation replacing maternal (in)validation was tested, and can be seen in Figure 15. As with Figure 14, this model was of adequate fit, $\chi^2 (286) = 454.98, p < .001$; RMSEA = .061 (CI at 90% = .050 to .072); CFI = .929; TLI = .912; IFI = .930. Sex was added as a control for social connection and paternal (in)validation, and romantic relationship status controlled for ambivalence over emotional expression. Again, these were determined based on correlational analyses. When interpreting this model, it is important to note that because invalidation loads more strongly than validation onto (in)validation, this latent variable relates to other study latent variables in the same way as invalidation would. Similarly, because loneliness more strongly loads than relationship closeness onto the social connection latent variable, social connection takes on a similar affective quality to loneliness. It can be conceptualized, therefore, as low social connection. Although this finding is as hypothesized, this reversal of direction to and from social connection should be noted when interpreting the model.
**Figure 15.** Hypothesized model of paternal validation and invalidation leading to social connection.

Because models in Figure 14 and Figure 15 were of adequate fit, and there was no a priori rationale to modify the hypothesized model, this was deemed to be the final model for a possible developmental underpinning of social connection. As the magnitude and direction of effects on variables were similar, the model describing maternal and paternal (in)validation will be described as one.

**Direct effects.** In the model, as maternal (in)validation, defined as the combined maternal validation and invalidation variables, increases, self-compassion decreases (standardized coefficient = -.28). With increases in parental (in)validation, there also was an increase in ambivalence over emotional expression (standardized coefficient = .19). Higher self-compassion was related to decreases in ambivalence and emotional expression (standardized coefficient = -.50), as well as increases in authenticity (standardized coefficient = .48) and
decreases in social connection\(^2\) (standardized coefficient = -.40). Finally, ambivalence over emotional expression was inversely related to authenticity (standardized coefficient = -.47), which was inversely related to social connection (standardized coefficient = -.50). Although not central to the hypotheses of this study, it is worth noting that this model terminates with social connection having separate positive effects on negative affect (standardized coefficient = .45) and depression (standardized coefficient = .73). All paths described above are statistically significant.

In the model, increases in paternal (in)validation were related to decreases in self-compassion (standardized coefficient = -.29). Note that, in contrast to the model of maternal (in)validation, paternal (in)validation was not significantly associated with ambivalence over emotional expression (standardized coefficient = .04). Higher self-compassion led to decreases in ambivalence over emotional expression (standardized coefficient = -.54), as well as increases in authenticity (standardized coefficient = .48) and decreases in social connection (standardized coefficient = -.47). Ambivalence over emotional expression was inversely related to authenticity (standardized coefficient = -.46), and authenticity was inversely related to social connection (standardized coefficient = -.49). Social connection had separate positive effects on negative affect (standardized coefficient = .45) and depression (standardized coefficient = .73). All paths described above are statistically significant.

**Discussion**

The primary goal of Study 2 was to generate and test a model that uses the constructs proposed in Brown’s (2010a, 2012) work on social connection, and specifies the relationships

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\(^2\) Recall that relationships described in the model are the reverse of what one would intuitively expect due to the strength with which loneliness loads onto the social connection latent variable, thus resulting in the social connection variable actually representing a “lack” of social connection. However, in interpreting the model, it can be seen that the more authentic a person felt, the more socially connected the person evaluated oneself to be.
between concepts, as well as examines their potential origins in child development. In order to add further support to the structure of the social connection variable that would be used to test Brown’s (2010a, 2012) model, Study 1 was replicated using data from samples at Time 1 and Time 2 of Study 2. The replications at both time points fit the data, and provided additional support for the use of the social connection variable, which consists of loneliness and relationship closeness.

With respect to Brown’s (2010a, 2012) assertions regarding social connection, her qualitative research has posited that individuals enjoy closer and more rewarding social relationships when they are self-compassionate, vulnerable, and authentic (Brown, 2010a, 2010b). Although the current investigation differs from Brown’s (2010a, 2010b) in some ways, notably the addition of parental (in)validation and the substitution of vulnerability for ambivalence over emotional expression, her research and her TED Talk (Brown, 2010a) provided a springboard to test whether being self-compassionate, vulnerable, and authentic are related to social connection, as well as how these characteristics may develop. The parenting component of the model was an addition not directly addressed in Brown’s work. However, the psychological literature recognizes the importance of parenting in shaping a person’s personality and style of approaching social relationships (Barber & Schluterman, 2008; Erozkan, 2009; Irons et al., 2006; Johnson et al., 2001). As such, parental (in)validation was included in the model as a way of specifying a possible explanation for how it is that people may develop a self-compassionate, vulnerable, and authentic self, and to provide a coherent picture of an individual’s approach to relationships.

The specific goal of Study 2 was to determine whether one’s social connection can be explained, at least in part, by parenting variables and the personality characteristics outlined by
Brown (2010a). In particular, it was posited that individuals who have had their negative emotions validated by their parents will develop a greater sense of self-compassion, a greater propensity to express their emotions, and be more authentic with others and themselves. Taken together, it was believed that this would lead to a more adaptive social connection, namely increased feelings of closeness and decreased loneliness. As was seen in Study 1 and again in Study 2, the quantity of relationships did not relate statistically with the closeness felt in those relationships. In other words, individuals with many social connections did not necessarily feel closer to those individuals. This provided further evidence for the social connection model used to study a possible developmental underpinning of this construct.

The hypothesized model was of adequate fit when tested using SEM, which provides some support for a model such as that described by Brown (2010a). Although this model was an extrapolation and extension of her theories based on the existing psychological literature, it provides overall support for the notion that self-compassion and authenticity are related to one’s level of social connection as conceptualized herein. In addition, ambivalence over emotional expression, a proxy for vulnerability, was also significantly related to self-compassion, and authenticity.

Overall, this suggests that the factors described by Brown (2010a, 2010b) do, in fact, relate to one’s level of social connection, in particular how close or connected one feels with one’s social network, and these are associated with recalled childhood experiences of parenting. Specifically, one’s recalled parental emotional (in)validation appears to play a role in the comfort one has with one’s own emotions, the compassion one has for oneself, and the comfort one experiences in being oneself. Individuals who have experienced higher degrees of parental validation, and lower degrees of parental invalidation also report higher levels of self-
compassion and lower levels of ambivalence over emotional expression. This suggests that childhood experiences of expressing emotions impact one’s relationship with emotions as an adult. These findings are consistent with the research by Sauer and Baer (2009, 2010), which found that parental invalidation leads to greater levels of emotional inhibition. Attachment theory also discusses the links between early childhood experiences and adults’ later relationship with their emotions (Shaver, & Mikulincer, 2008). Additionally, this finding replicates Neff and McGehee’s (2010), and Tanaka et al.’s (2011) findings that more turbulent upbringings lead to decreased self-compassion. Taken together, it may be that a person who has been able to express her emotions in a supportive environment as a child tends to be kinder toward the self, and feel less ambivalent in expressing her feelings to others. With parental validation, a model of appropriate responding to emotional experience of self and others is provided. This model may be used to more effectively connect with others via the intervening variables. Additionally, in support of Brown’s assertions, these results seem to suggest that being self-compassionate and vulnerable in the expression of emotions makes one more likely to see oneself as authentic, which makes intuitive sense given that these individuals treat themselves with greater kindness (Neff, 2003b) and feel more comfortable expressing themselves (King & Emmons, 1990). Additionally, individuals who see themselves as authentic report more emotionally close relationships and are less lonely.

However, from a narrative perspective, an alternative understanding of the data emerges. These findings would suggest that since all self-report data were collected at two time points in close proximity rather than longitudinally, the results of the structural model may reflect a narrative of participants’ views of the past parenting, current personality functioning, including self-compassion, ambivalence toward emotional expression, and authenticity, and present social
connection. In other words, the data would suggest that emerging adults have a coherent narrative of their childhood experiences, and current social relationships, which is being represented in their responses to the questionnaires. This narrative flows from childhood to emerging adulthood.

The context of emerging adulthood is important to consider when examining these data. As discussed previously, emerging adulthood is a developmental stage that consists of the transition from adolescence to adulthood, and is defined by its fluidity and transitions (Arnett, 2000). Additionally, these data were taken from a sample of university students, the majority of whom are in their first year of university. Adjustment to university is a complex and multidimensional affair and is a time when the development of positive social relationships and social supports are predictive of wellbeing (Credé & Niehorster, 2012) and mental health outcomes (Mounts, Valentiner, Anderson, & Boswell, 2006). Thus, it is important to understand how satisfying personal relationships may develop in order to optimize psychological wellbeing.

Information regarding demographic factors of participants was collected and analyzed in the course of this study. As this sample was largely White/European and female, the degree to which the results can be generalized to other ethnic groups or males is limited. However, it is worth briefly mentioning several of the demographic factors that were significantly correlated with particular study variables, suggesting that these findings may not be universal across groups, depending on one’s cultural identity, relationship status, and gender. For example, consistent with the depression literature, women had higher levels of depression than did men (Hankin & Abramson, 2001). Differences in maternal invalidation and relationship status were also seen depending on the relationship status of participants. Additionally, there were differences in depression levels and number of relationships depending on where participants
reported living. These differences could potentially reflect that individuals who live closer in
proximity to campus adapt more easily to university, thus reporting lower depression scores.
Additionally, this lowered depression could be related to the development of relationships at
school. However, these hypotheses are simply speculative at this time, and it is unclear whether
these associations would generalize to a larger population, given the small sample size. Future
research could clarify these issues by examining group differences and demographic factors.

In interpreting these results, it is important to keep in mind that the final components of
the model, negative affect and depression, are typically viewed as negative aspects of wellbeing.
As such, this may have oriented the participants away from a more wholehearted living
perspective (Brown 2010a, 2010b). Should the model have ended on a more ostensibly positive
note, such as life satisfaction, this may have affected the way in which social connection
variables related to the final variables of the model (Podsakoff, MacKenzie, Lee, & Podsakoff,
2003). Thus, future research would benefit from expanding this work to a well-being focused
approach to social connection (Seligman, & Csikszentmihalyi, 2000).

Overall, the results of this study highlight the importance of validating childhood
environments for the development of a more self-compassionate approach to the self, more
comfortable expressing emotions, and acting authentically. In emerging adults, these
characteristics may lead to increased feelings of closeness in relationships, and connection to
others, which, as we know, are important for overall well-being (Hawkley & Cacioppo, 2010;

**Limitations of the Current Study**

Although efforts were made to minimize the limitations of the current study, there are
several limitations to consider in the interpretation of the results of Study 2. It is important to
note that parental (in)validation was measured through retrospective self-reports from the child, now an adult, perspective, and therefore likely does not perfectly map onto actual experiences. In examining the correspondence between parent-report and child-report ratings of the Socialization of Emotion Scale, Sauer and Baer (2010) found that the ratings were significantly and moderately related, suggesting some agreement between recalled experiences. In addition, although it is certainly possible that retrospective reports of childhood (in)validation do not accurately represent actual events, the data do, at the least, represent the emerging adult’s recollection of their relationship with their parents. As such, we may interpret the data to mean that the degree to which a participant recalls their negative emotions as having been validated or invalidated by their parents relates to the degree to which they currently feel ambivalence over emotional expression, are self-compassionate, and perceive themselves as authentic.

The current study provides initial data to support Brown’s (2010a) model of social connection. In interpreting these results, however, one must remember that the current data are correlational in nature and thus cannot demonstrate true cause and effect. Moreover, although efforts were made to limit common method variance by collecting data at two time points in Study 2, there was only a two-week lag between time points, which is not sufficient time to capture the actual development of the traits being studied. As such, we cannot know with certainty the chronological order in which individuals develop self-compassion, authenticity, ambivalence over emotional expression, and social connection. As such, the arrangement of variables within the developmental model must be considered an extrapolation based on Brown’s (2010a) theories, and what evidence currently exists in the psychological literature.

As with Study 1, the final sample size was not particularly large. Although data had been collected from quite a few other participants, a number of responses had to be removed due to
missing data, and inappropriate responses to validity items. Recruitment of a greater number of participants may have increased the strength of the analyses and the subsequent fit of the hypothesized model.

Several limitations of Study 1 also apply to Study 2, namely limited sample of male participants, limited ethnic diversity of the sample, and use of self-report measures. As with Study 1, one must be careful interpreting the results of this study in light of these limitations.

**General Discussion**

Emerging adulthood is a time of transitions (Arnett, 2000), and adjustment to university tends to be a time in which emerging adults gain greater degrees of independence from their parents, and relationships become more varied and new (Credé & Niehorster, 2012). Social relationships are important to wellbeing, as low social connection can lead to depression (Heinrich & Gullone, 2006) and anxiety (Chang et al., 2008; Mounts et al., 2006). The results of the current investigation suggest that emerging adults’ social relationships are related to their recalled experiences with parental validation, which is related to their levels of self-compassion, ambivalence over emotional expression, and authenticity. Based on these results, we may cautiously infer several implications.

This research supports and extends Brown’s (2010a) assertions regarding social connection and common wisdom about authenticity and social connection. Specifically, when individuals report behaving more authentically with others, they are more likely to report enjoying closer bonds with others. However, the other parts of the model also suggest that the comfort in being one’s authentic self may begin to emerge in childhood through the development of comfort with emotional expression and self-compassion. In order to promote the development of authenticity in emerging adults, interventions may target parental response to children’s
emotional displays. By teaching parents to respond with validation to negative emotions, and possibly all emotions, this could increase the likelihood of children becoming more comfortable with their emotions, behaving more authentically, and ultimately enjoying more satisfying social relationships as adults.

For emerging adults who may be struggling with social connection, this model may provide possible points of intervention. In other words, interventions may target specific variables in the model, which may ultimately improve social connection. For example, self-compassion may be targeted in order to increase comfort in expressing emotions and authenticity. In the current model, self-compassion had direct connections to ambivalence over emotional expression, authenticity, and social connection. As such, it could be a valuable target in terms of affecting change. Indeed, some research has found that self-compassion can be targeted and increased adults through therapeutic groups (Neff & Germer, 2012; Smeets, Neff, Alberts, & Peters, 2014).

Because this research has not yet been replicated, one should be cautious in generalizing from the results. The impact of parental (in)validation on future social connection cannot be established based on the current investigation, as demonstrating causation calls for longitudinal research. Additionally, use of a larger and more diverse sample would support the generalizability of these findings to various ethnic and gender groups. As such, future research should examine whether these findings can be replicated with men, and non-White/European samples.

**Conclusion**

Social connection is an important aspect of wellbeing due to its linkages with mental and physical health (Holt-Lunstad et al., 2010). Despite this, research has lacked clarity regarding
social connection, and how it develops in emerging adults, a unique developmental stage which has implications for the development of mental illness. The current research has examined this construct in the context of emerging adulthood, and found support for a model akin to that proposed by Brown (2010b). Specifically, individuals who have a history of parental validation are more likely to be self-compassionate, more comfortable expressing their emotions, more authentic, and have more adaptive social connection in the form of increased closeness of relationships and decreased loneliness.
REFERENCES


