Fearful Versus Dismissive Beliefs about Emotion: Divergent Pathways to Non-Acceptance of Emotion

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Fearful Versus Dismissive Beliefs about Emotion: Divergent Pathways to Non-Acceptance of Emotion
by
Natasha H. Bailen

A dissertation presented to
the Graduate School
of Washington University in
partial fulfillment of the
requirements for the degree
of Doctor of Philosophy

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August 2021
ABSTRACT OF THE DISSERTATION

Fearful Versus Dismissive Beliefs about Emotion:
Divergent Pathways to Non-Acceptance of Emotion

by

Natasha H. Bailen

Doctor of Philosophy in Clinical Psychology
Washington University in St. Louis, 2020

Renee J. Thompson, Chair

High non-acceptance of emotion, or the rejection of one’s own emotional experience as bad or unacceptable, is consistently associated with depressive pathology, including elevated depressive symptoms and past and current major depressive (MDD) diagnoses. To progress toward a fuller understanding of non-acceptance and depressive pathology, it is important to identify other associated constructs that could theoretically contribute to this association. Indirect evidence suggests that negative beliefs about emotion—that is, stable underlying negative beliefs about the meaning, value, or consequences of one’s emotions—could be one such factor, as could negative emotion intensity and emotional clarity (or the degree to which one can identify, distinguish, and describe one's emotions). In the present research, we tested the hypotheses that beliefs about emotions (1) could be best represented by a two-factor model; (2) would have indirect positive associations with non-acceptance of emotion through high negative emotion intensity and low emotional clarity; and (3) would have indirect positive associations with depressive symptoms through high non-acceptance of emotion. Further, we expected that these three indirect associations would be moderated by age, such that the associations would weaken as age increased. Finally, we tested whether mean levels and dynamic associations between
variables varied as by depression status. In Study 1, participants included 410 adults (M_{age} = 44.1, SD = 15.6) recruited from the community who completed self-report measures of negative beliefs about emotions, non-acceptance, negative emotion intensity, emotional clarity, and depressive symptomatology. In Study 2, we used an intensive longitudinal design, in which a subset of 215 participants (M_{age} = 44.3, SD = 16.1) from Study 1 reported five times a day for two weeks on their emotional experiences. These participants were clinically interviewed and met diagnostic criteria for one of three groups: current depressed (n = 48), remitted depressed (n = 80), and healthy control (n = 87). In Study 1, we found that a single-factor, not a two-factor, hierarchical model was the best fit to the beliefs about emotions data. In both studies, we found support for a positive indirect effect of beliefs about emotions on non-acceptance of emotion through negative emotion intensity, but not through emotional clarity. In Study 1, but not Study 2, we found support for a positive indirect effect of beliefs about emotions on depressive symptoms through non-acceptance of emotion. As expected, we found in Study 2 that mean levels of negative beliefs about emotions, non-acceptance of emotion, and negative emotion intensity varied across diagnostic groups, but the strengths of pathways did not vary, suggesting that elevated levels of these emotional characteristics are just as maladaptive in healthy controls as they are in individuals with a current or past history of depression. The present study is the first to illuminate the association between beliefs about emotions and non-acceptance of emotion in community and clinical samples. Our findings also build on clinical theory to suggest that intensity of emotion mediates this link, such that high negative emotion helps explain the relation between high negative beliefs about emotion and high non-acceptance of emotion. Our findings from Study 1 also implicate non-acceptance of emotion as a mediator of the association between beliefs about emotions and depressive symptoms; however, given that Study 2 did not confirm
these findings, future (ideally longitudinal) research is needed to further examine these associations.
Chapter 1: Introduction

People vary in the degree to which they accept versus reject their own emotional experiences—i.e., non-acceptance of emotion (e.g., Gratz & Roemer, 2004; Hayes, Follette, & Linehan, 2004). High non-acceptance of emotion, or the rejection of one’s own emotional experience as bad or unacceptable, is consistently associated with both subclinical depressive symptoms and clinically diagnosed depressive disorders (e.g., Bakhshaie et al., 2014; Brockmeyer et al., 2012). In order to understand how non-acceptance fits into the bigger clinical picture of depressive pathology, it is important to identify other constructs that could theoretically contribute to this association. In this two-study dissertation using cross-sectional (Study 1) and intensive longitudinal (Study 2) data, we test a conceptual model in which depression is rooted in two proposed categories of stable underlying beliefs about emotion, and in which these pathways are explained by non-acceptance of emotion.

1.1 Non-Acceptance of Emotion and Depression

Non-acceptance of emotion has strong associations with depressive pathology in both community and clinical samples (Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010; Flynn, Hollenstein, & Mackey, 2010; Gratz & Roemer, 2004; Neumann, van Lier, Gratz, & Koot, 2010; Saxena, Dubey, & Pandey, 2011). In community samples, non-acceptance of emotion is positively associated with depressive symptoms in both adolescents (Flynn et al., 2010) and adults (Bakhshaie et al., 2014; Neumann et al., 2010; Saxena et al., 2011). Similarly, individuals with current MDD (Brockmeyer et al., 2012; Campbell-Sills, Barlow, Brown, & Hofmann, 2006) and remitted MDD (Ehring, Fischer, Schnülle, Bösterling, & Tuschen-Caffier, 2008; Ehring et al., 2010) show higher levels of non-acceptance of emotion (or lower levels of
acceptance of emotion) than do healthy controls. To date, no empirical studies have examined factors that influence the development of non-acceptance of emotion. However, developmental and clinical theory and research provide indirect evidence that beliefs about emotion—that is, stable underlying beliefs about the meaning, value, or consequences of one’s emotions—could be one such factor.

1.2 Beliefs About Emotion and Non-Acceptance of Emotion

Developmental psychologists conceptualize beliefs about emotion as being present from childhood and arising from early experiences, parental modeling, and cultural milieu (e.g., Gottman, Katz, & Hooven, 1996; Parker et al., 2012). The beliefs that parents hold about their children’s emotions and the ways they react to their children’s emotions (i.e., parental meta-emotions) are thought to influence children’s own beliefs about their emotions (Edwards & Wupperman, 2019; Halberstadt, Thompson, Parker, & Dunsmore, 2008). Parental meta-emotions can include beliefs that, for example, the child’s emotions are useless, dangerous, or uncontrollable; alternately, parental meta-emotions can include beliefs that the child’s emotions provide useful information and should be encouraged and expressed (Castro, Halberstadt, Lozada, & Craig, 2015; Halberstadt et al., 2008; Lozada, Halberstadt, Craig, Dennis, & Dunsmore, 2016; Parker et al., 2012; Stelter & Halberstadt, 2011).

Beliefs about emotions are likely influenced by other environmental factors as well. For example, as children grow into adolescents and begin to interact more with their peers than with their parents (Schneiders et al., 2007), peers have a substantial influence on adolescents’ attitudes and beliefs (Steinberg, 2001), possibly including beliefs about emotion. Cultural context is another factor that is thought to shape beliefs about emotion during childhood and into adulthood, as different cultures often place different meanings and values on emotions (Lim,
For instance, East Asian cultures have been shown to value low-arousal positive affective states (e.g., calm) more highly than does American culture (Tsai, 2007); thus, it is possible that an individual growing up in an East Asian household might have more positive beliefs about low-arousal states (e.g., that they are useful or rational) as compared to an individual growing up in an American household. In addition, parental meta-emotions have been shown to vary as a function of ethnic group (Parker et al., 2012), suggesting that the messages parents pass on to children, and the beliefs those children will ultimately hold about their own emotions, also most likely vary by ethnic group.

The developmental literature on meta-emotions has directly informed clinical theory about how beliefs about emotion contribute to non-acceptance of emotion. Dialectical behavior theorists, for instance, suggest that the internalization of negative beliefs about emotion in childhood can promote a non-accepting stance toward one’s own emotions (Linehan, 1993). The emotion-focused therapy literature, similarly, suggests that early beliefs that emotions are uncontrollable, destructive, or shameful can lead to non-acceptance of emotion (Greenberg, 2006; Greenberg & Safran, 1987). Empirical work supports the positive association between negative beliefs about emotion and non-acceptance of emotion in the relation in community adults (Ouimet, Kane, & Tutino, 2016; Trincas, Bilotta, & Mancini, 2016) and outpatient psychotherapy clients (Leahy, 2002).

1.3 Categorizing Beliefs about Emotion

Researchers interested in the various beliefs that individuals hold about their own emotions (as opposed to parental meta-emotions) have operationalized and empirically assessed those beliefs in ways that capture important nuances of these constructs, including belief types, strengths, and valences. However, as Edwards and Wupperman (2019) state, the existing
conceptualizations of beliefs about emotion are varied, idiosyncratic, and potentially overlapping. For instance, how broadly beliefs about emotions are defined often varies across the literature. Some research is limited to subtypes of the belief that emotions are overwhelming and uncontrollable (Veilleux et al., 2015; Rimes & Chalder, 2010; Tamir et al., 2007); thus, categories of beliefs about emotions that are identified by these researchers fall within this umbrella category of uncontrollability, such as beliefs that emotions can hijack self-control, that emotion regulation is not a worthwhile pursuit, and that emotions can constrain behavior (Veilleux et al., 2015). In contrast, Manser et al. (2012) consider beliefs about emotions to be a much broader construct, with the belief that emotions are 1) overwhelming and uncontrollable to be one of six subordinate categories including beliefs that emotions are 2) shameful and irrational, 3) invalid and meaningless, 4) useless, 5) damaging, and 6) contagious. Becerra, Preece, and Gross (2020), with a viewpoint somewhere in the middle, propose that relevant factors can be narrowed down to controllability and usefulness. In some cases, what have been described in this proposal as beliefs about emotion are not even uniformly called beliefs about emotion, but something else entirely: for example, the belief that emotions are uncontrollable has alternately been called a belief about emotion (Manser et al., 2012), a meta-cognition (Cartwright-Hatton & Wells, 1997), and an emotional schema (Leahy, 2002).

In addition to varying definitional breadth, the manner in which categories are determined is also inconsistent across the literature. Conceptualizations about the number and content of existing categories of beliefs about one’s own emotions have frequently been determined by exploratory analyses of items tapping beliefs about emotions, rather than by testing models based on theory (e.g., Manser et al., 2012; Veilleux et al., 2015; Rimes & Chalder, 2010). Results from this work have been divergent, with beliefs about emotions being
represented by a single broad category (Rimes & Chalder, 2010), as well as multiple related but distinct categories (Manser et al., 2012; Veilleux et al., 2015). Research is needed to draw from the rich meta-emotion and clinical literatures to make a priori hypotheses about the structure of beliefs about emotions.

1.4 A Two-Category Theoretical Framework of Beliefs About Emotion

The literature is in need of a theoretical framework for beliefs about emotion that can provide a common language for a diverse literature while still capturing important empirical and conceptual differences between beliefs. We propose that the majority of the beliefs about emotion represented in the literature can be represented using two related but distinct categories characterizing how individuals view their emotions: (1) fearful beliefs about emotion and (2) dismissive beliefs about emotion. The theoretical distinction between beliefs about emotions as entities to be feared versus dismissed has a strong historical basis in the developmental meta-emotion literature (Castro et al., 2015; Goetz, Frenzel, Pekrun, & Hall, 2005; Halberstadt et al., 2008, Lozada et al., 2016; Parker et al., 2012; Stelter & Halberstadt, 2011).

Theories and research about parental meta-emotions have frequently included a category comprising what we term fearful beliefs—most commonly, either beliefs that the child’s emotions are uncontrollable (Goetz et al., 2005; Parker et al., 2012) or beliefs that the child’s emotions are dangerous (Halberstadt et al., 2008, Lozada et al., 2016; Stelter & Halberstadt, 2011). Almost all studies of parental meta-emotions also have some measure of what we term dismissive beliefs—that is, beliefs about a child’s emotions as valueless versus valuable (Castro et al., 2015; Goetz et al., 2005; Halberstadt et al., 2008, Lozada et al., 2016; Parker et al., 2012; Stelter & Halberstadt, 2011). We suggest that the same distinction between fearful and dismissive beliefs about emotions can also be applied to the beliefs people hold about their own
emotions. In the proposed research, we examine four categories of beliefs about emotion—beliefs that emotions are (1) overwhelming and uncontrollable, (2) damaging, (3) shameful and irrational, and (4) useless (Manser et al., 2012). These particular categories were chosen because they are the four most psychometrically sound categories in the commonly used BAEQ measure (Manser et al., 2012), and represent a range of variety in belief content.

We propose that, instead of four categories, they can be represented by two. More specifically, we suggest that those who believe that emotions are overwhelming and uncontrollable or damaging share a fear that their emotions have harmful consequences, leading us to propose a composite fearful beliefs category. We suggest that those who believe their emotions are shameful and irrational or useless share a conviction that emotions have no inherent value, leading us to propose a composite dismissive category. We suggest a two-category structure could serve as a compromise between integrating findings from a diverse literature while still capturing the conceptual granularity of two disparate belief groupings.

1.5 Negative Emotion and Emotional Clarity

In descriptions of the relation between beliefs about emotion and non-acceptance of emotion, two contributing factors frequently arise in the clinical literature: high negative emotion intensity and low clarity of emotion (i.e., the degree to which one can identify, distinguish, and describe one’s emotions; Gohm & Clore, 2000). For instance, according to dialectical behavior theory, the parental invalidation of emotions that shapes beliefs about negative emotion also leads to underdevelopment of key emotion regulation skills, giving rise to a maladaptive pattern of intense negative emotion, low emotional clarity, and subsequent non-acceptance of emotion (Linehan, 1987; Van Dijk, 2013). Further, according to the theory behind emotion regulation therapy, the emotion dysregulation that characterizes mood and anxiety disorders is thought to
arise as a response to atypically intense negative emotion, low emotional clarity, and negative reactivity to emotion, among other dysregulated processes (Clen, Mennin, & Fresco, 2011; Mennin et al., 2007; Mennin & Fresco, 2010).

In concordance with these theories, empirical research has found that non-acceptance of emotion is positively associated with negative emotion intensity (Lavender, Tull, DiLillo, Messman-Moore, & Gratz, 2017; Mayer & Stevens, 1994; Saxena et al., 2011) and negatively associated with emotional clarity (Gratz & Roemer, 2004; Vine & Aldao, 2014). Of note, however, negative emotion intensity and emotional clarity are not associated with each other (Gohm & Clore, 2000; Thompson, Dizén, & Berenbaum, 2009), suggesting divergent paths to non-acceptance of emotion. Despite the theorized role of high negative emotion intensity and low emotional clarity as emotional experiences that arise from beliefs about emotion and lead to non-acceptance of emotion, no study to date has examined whether or the extent to which high negative emotion intensity or low emotional clarity explains the positive association between beliefs about emotion and non-acceptance of emotion, either in community or clinical samples. It would be important to assess both whether this maladaptive pattern of behavior is associated with sub-clinical distress in the general community and to assess how this pattern contributes to clinical levels of psychopathology.

1.6 Beliefs About Emotion and Depression

In general, negative beliefs about emotions are positively associated with psychological distress, including depressive symptoms (e.g., Manser, Cooper, & Trefusis, 2012; Ouimet et al., 2016; Rezaei & Ghazanfari, 2016; Rimes & Chalder, 2010; Sydenham, Beardwood, & Rimes, 2017; Urbanek et al., 2014). Most research examining the relation between specific negative beliefs about emotions and depression has focused on beliefs that emotions are uncontrollable,
and has found this belief to be positively associated with depressive symptoms in community samples both cross-sectionally (De Castella et al., 2013; Ford & Gross, 2018; Manser et al., 2012; Schroder et al., 2015; Tajirishi, Mohammadkhani, & Jadidi, 2011; Veilleux, Salomaa, Shaver, Zielinski, & Pollert, 2015) and longitudinally (Romero et al., 2014; Tamir, John, Srivastava, & Gross, 2007). In addition, the belief that emotions are uncontrollable was positively associated with depressive symptoms in outpatient psychotherapy clients (Leahy, 2002; Leahy, Tirch, & Melwani, 2012), and participants with MDD reported higher beliefs that emotions were uncontrollable as compared to healthy controls (Batmaz et al., 2014). Beliefs that emotions are dangerous or damaging are also positively associated cross-sectionally with depressive symptoms in community samples (Manser et al., 2012; Tajirishi, Mohammadkhani, & Jadidi, 2011) but have not been examined in clinical samples. Evidence also shows that beliefs that emotions are incomprehensible, irrational, shameful, or likely to be invalidated by others are also positively associated with depressive symptoms in outpatient psychotherapy patients (Leahy, 2002; Leahy et al., 2012; Manser et al., 2012). Participants with MDD had higher beliefs that emotions were shameful and that their emotions were likely to be invalidated by others as compared to healthy controls (Batmaz et al., 2014).

1.7 The Proposed Model: Divergent Pathways to Non-Acceptance of Emotion

We propose a conceptual model (Figure 1) in which negative beliefs about emotion, which arise from early childhood experiences and cultural context (Figure 1, part A), are positively associated with non-acceptance of emotion through two dimensions of emotional experiences. More specifically, our conceptual model features two separate paths from fearful and dismissive beliefs to non-acceptance of emotion—one through high negative emotion intensity and one through low emotional clarity, respectively (Figure 1, parts B-D). We suggest
that individuals who hold fearful beliefs about emotion, for example, are more likely to experience stronger negative emotions, resulting in non-acceptance of emotion that are both believed to be, and directly experienced, as overwhelming. Dismissive beliefs about emotion, on the other hand, might discourage individuals from attempting to parse the meaning of their emotions and lead to poor understanding of their emotions, resulting in non-acceptance of emotion that are both believed to be, and directly experienced, as useless. In our model, each of these pathways is associated with depressive symptoms via non-acceptance of emotion, regardless of whether the beliefs about emotion one holds are fearful or dismissive in nature (Figure 1, Part E).

1.8 The Role of Age

A strong body of research shows that older adults have less intense negative emotion as compared to younger adults (e.g., Bruine de Bruin, van Putten, van Emden, & Strough, 2018). Preliminary research also shows older adults have higher emotional clarity (Orgeta, 2009) and are more likely to be accepting of their emotional responses (Schirda, Valentine, Aldao, & Prakash, 2016) than are young adults. Given that older adults also have a lower prevalence of depressive disorders than younger adults (Hasin et al., 2005), it is of interest how age interacts with the network of pathways leading from beliefs about emotions to depressive symptoms. We suggest that age moderates the relation between beliefs about emotions and emotional experience variables, and in this manner, moderates the indirect effect of beliefs about emotion on non-acceptance of emotion. We also suggest that in moderating the relation between beliefs about emotions and non-acceptance of emotion (see Fig. 3 and 5), age also moderates the indirect effect of beliefs about emotions on depressive symptoms (see Fig. 4 and 6). If supported, these findings would provide a logical connection between prior research showing lower negative
emotion intensity, higher clarity, and lower depressive symptoms in older compared to younger adults, allowing us to situate this prior research within a cohesive model of emotion-related pathology in depression.

1.9 The Present Research

The present research is made up of two complementary studies that aim to test parts B through E of our conceptual model (Figure 1). Combined, these two studies provide evidence as to whether, and by what means, beliefs about emotion are associated with non-acceptance of emotions and depressive symptoms in community and clinical samples. If the evidence from these studies support our theory, then this could help elucidate the roles that beliefs about emotions, negative emotion intensity, and emotional clarity play in the experience of non-acceptance of emotion.

In Study 1, we examine beliefs about emotion in relation to emotional experiences and non-acceptance of emotion cross-sectionally, using self-report data reflecting a range of trait emotional experiences and depressive symptoms in a large adult sample recruited from the community. We use a community sample for two key reasons. First, it allows us to increase the generalizability of our findings. Our Study 1 sample is composed of an ethnically and racially diverse group of women and men from across the adult lifespan, from young adulthood to old age. The wide age range, in particular, is conducive to testing age as a moderator of pathways between variables. Second, beliefs about emotion and the other constructs of interest are individual difference variables that present to varying degrees in community samples (e.g., Manser et al., 2012). It is important to test whether the hypothesized pattern of emotion dynamics holds across a wide range of depressive symptomatology.
We first test our proposed two-factor structure of beliefs (i.e., fearful and dismissive; see Figure 2) against a one-factor (i.e., general beliefs about emotion) structure and a four-factor (i.e., overwhelming and uncontrollable, shameful and irrational, useless, and damaging) structure in a large unselected community sample. This will allow us to determine whether, as we theorize, a two-category model of beliefs about emotion is a better fit than models with fewer or greater numbers of categories (Study 1, Hypothesis 1).

We then test the hypothesis that beliefs about emotion will have positive indirect associations with non-acceptance of emotion through high negative emotion intensity and low emotional clarity (Study 1, Hypothesis 2a). This is supported by both empirical literature documenting the positive association between beliefs about emotions and non-acceptance (e.g., Ouimet et al., 2016) as well as theoretical literature describing negative emotion intensity and emotional clarity as contributors to this association (e.g., Mennin, 2007). We expect that these associations will be moderated by age (Study 1, Hypothesis 2b), such that the indirect associations will decrease as age increases. This is based on prior findings that older adults have lower negative emotion intensity (e.g., Bruine de Bruin et al., 2018), higher emotion clarity (Orgeta, 2009), and lower non-acceptance of emotion than younger adults (Schirda et al., 2016).

Finally, we test the hypothesis that beliefs about emotion will have indirect positive associations with depressive symptoms through high non-acceptance of emotion (Study 1, Hypothesis 3a). This is supported by prior evidence of the positive association between beliefs about emotions and depression (e.g., Urbanek et al., 2014) and non-acceptance of emotion and depression (e.g., Ehring et al., 2010), as well as clinical observations about the associations between these variables (e.g., Linehan, 1993). Based on the lower rates of depression in older
adults (Hasin et al., 2005), we expect that these associations will be moderated by age (Study 1, Hypothesis 3b), such that the indirect associations will decrease as age increases.

Chapter 2: Study 1

2.1 Method

2.1.1 Participants

A total of 410 participants were recruited from the greater area of St. Louis, Missouri to participate in a large project on emotion and decision-making. Participants were recruited through advertisements posted online (e.g., Craigslist) and a medical school participant registry. In addition, flyers and brochures for the study were posted at local businesses, hospitals, and clinics. Eligible participants were required to be 18 to 77 years old, speak English as their primary language, and have no visual impairments or severe hearing loss. Efforts were made during recruitment to obtain a sample that was composed of approximately two-thirds women and one-third men for each ten-year age bin of the age range. Our sample was 62.2% women, with a mean age of 44.1 years (SD = 15.6, range = 18-77). The sample was racially/ethnically heterogeneous (66.8% White, 22.2% Black, 3.9% Asian, 2.9% Hispanic or Latinx/o/a, 0.7% Native American, and 3.2% multiracial, with one participant choosing not to report).

2.1.2 Procedure

When interested individuals contacted the lab, they completed a phone screen that was administered by a post-baccalaureate project manager or an undergraduate research assistant to
assess initial eligibility. During the phone screen, individuals were asked their age and gender and whether they had ever experienced at least one of the cardinal symptoms of MDD (low mood and/or loss of interest) most of the day, nearly every day, for at least two weeks in a row. Individuals who endorsed current or past mood symptoms of the sufficient length, or who endorsed no mood symptoms at all, were sent a hyperlink via an email message; this directed participants to an informed consent and an online survey comprised of several self-report measures. Those measures relevant to the present study are described below.

All participants who completed the online survey were invited to complete a laboratory session. Of the 410 participants who completed the survey, 332 attended the laboratory session. To reach adequate statistical power, structural equation modeling (SEM) analyses, such as we used, are recommended to use data from at least 100-200 participants (Boomsma & Hoogland, 2001; Kline, 2005; Muthén and Muthén, 2002). Based on this standard, our sample sizes of 410 (for Hypotheses 1 and 2) and 331 (for Hypothesis 3) were more than adequate. At the laboratory session, participants completed an informed consent form, a depressive symptoms measure (described below), and a diagnostic interview (described in Study 2). The laboratory sessions (with the exception of the diagnostic interviews, which were conducted by graduate students) were led by undergraduate research assistants or a postbaccalaureate project manager. After each laboratory session, participants were compensated for the online survey ($6) and the session ($12 per hour). The research protocol was approved by Washington University in St. Louis’ Institutional Review Board.

1 Of the 332 participants who attended the laboratory session, 63.3% were women. The mean age of the sample was 44.7 years ($SD = 16.1$, range $= 18-77$). Racial/ethnic backgrounds were 69.9% White, 19.0% Black, 4.2% Asian, 2.1% Hispanic or Latinx/o/a, 0.6% Native American, and 3.9% multiracial (one participant did not report). The 332 participants who attended the lab session did not significantly differ in age from the 78 who did not attend the lab session. The percentage of women attendees (63.3%) was marginally higher than the percentage of women non-attendees (57.7%), $p = .09$. The percentage of Black attendees (19.0%) was significantly lower than the percentage of Black non-attendees (35.9%), $p < .01$. 

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2.1.3 Measures Administered via Online Survey

**Negative beliefs about emotion.** Negative beliefs about emotion were assessed using the Beliefs About Emotions Questionnaire (BAEQ; Manser et al., 2012). We administered four subscales to assess overarching beliefs about the controllability, value, and consequences of negative emotions. These included the Overwhelming and Uncontrollable (e.g., "When I'm upset, that feeling takes over completely"); Shameful and Irrational (e.g., "It is never rational for me to feel upset"); Useless (e.g., "Feeling upset is not useful"); and Damaging (e.g., "I can keep safe if I don't let myself feel upset") subscales. Participants rated the extent to which they agreed with each item on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). We did not administer the Invalid and Meaningless subscale or the Contagious subscale because they have been shown to have inadequate internal consistency (Ouimet et al., 2016; Trincas et al., 2016). The items from the four administered subscales retained acceptable to excellent internal consistency in our sample: Overwhelming and Uncontrollable (9 items, $\alpha = .90$), Shameful and Irrational (10 items, $\alpha = .86$), Useless (8 items, $\alpha = .71$), and Damaging (5 items, $\alpha = .72$).

**Negative emotion.** We administered the Negative Affect subscale of the Positive Affect and Negative Affect Scale Extended to assess intensity of negative emotion (PANAS-X; Watson & Clark, 1999). Using a 5-point scale from 1 (*very slightly or not at all*) to 5 (*extremely*), participants were asked to rate the extent to which they "generally feel" or "feel on average" 10 negative emotion items (i.e., afraid, scared, nervous, jittery, guilty, ashamed, irritable, hostile, upset, and distressed). Ratings for the negative emotion items were summed to form a composite
negative emotion intensity score. Internal consistency of the items in the present sample was excellent ($\alpha = .90$).²

**Emotional clarity.** To assess emotional clarity, we administered items as recommended by Palmieri, Boden and Berenbaum (2009) based on their factor analysis of the Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) and the Toronto Alexithymia Scale–20 (Bagby, Parker, & Taylor, 1994). The Clarity scale consists of 13 items rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Items assess how clear participants generally feel about their emotions (e.g., “I am rarely confused about how I feel”). Ratings for the emotional clarity items were summed to form a composite score. The Clarity scale has demonstrated good convergent validity (Palmieri et al., 2009), and the internal consistency of the Clarity items was excellent in this sample ($\alpha = .92$).

**Non-acceptance of emotion.** To assess non-acceptance of emotion, we administered the Accept Without Judgment subscale of the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004). This subscale consists of 9 items that assess how non-accepting or rejecting individuals generally are of their own emotions. Items are rated on a 5-point Likert scale from 1 (never or very rarely true) to 5 (very often or always true), and are phrased so as to capture non-acceptance, rather than acceptance, of emotion (e.g., “I criticize myself for having irrational or inappropriate emotions”). Ratings for the non-acceptance of emotion items were summed to form a composite score. Although the subscale is typically entirely reverse-scored to obtain a measure of acceptance, in the present study, we have left the scores unreversed to obtain a non-acceptance score, such that higher scores indicate higher non-acceptance (i.e., lower acceptance) of emotion. The Accept Without Judgment subscale has demonstrated good

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² Of note, positive affect items were also administered as part of the study, but are not described here since they were not used in the present analyses.
reliability and validity in community samples (Baer et al., 2004), and the internal consistency of the Accept Without Judgment items was excellent in this sample (α = .92).

2.1.4 Measure Administered during Lab Session

**Depressive symptomology.** Severity of depressive symptomology was assessed using the Anhedonic Depression (AD) subscale of the Mood and Anxiety Symptom Questionnaire (MASQ; Watson & Clark, 1991). The MASQ-AD consists of 22 items rated on a 5-point Likert scale from 1 (not at all) to 5 (extremely) that assess the extent to which participants experienced each described symptom over the past week (e.g., "Felt like nothing was very enjoyable"). The MASQ-AD has demonstrated excellent convergent and discriminant validity in community samples (Watson et al., 1995). The internal consistency of the MASQ-AD items was excellent in this sample (α = .96).

2.1.5 Data Analytic Plan

We tested our hypotheses for Study 1 using CFA and SEM. First, we tested variables for deviation from normality based on inspections of skew and kurtosis, using cutoff scores of ±2 for skew and ±7 for kurtosis (West, Finch, & Curran, 1995). Before testing our main hypotheses, we computed zero-order Pearson’s correlations between study variables. We also used correlations and t-tests to examine gender, age, and race/ethnicity as predictors of depressive symptoms and non-acceptance of emotion to determine whether these demographic factors significantly influenced our outcome variables. Of note, only White and Black groups were compared in race/ethnicity analyses, as these groups made up 90.2% of the sample.

We tested a series of models for **Hypotheses 1, 2a/b, and 3a/b.** For each model, we evaluated goodness of fit by inspecting several fit indices. First, we used the χ² fit statistic, where non-significance of these values indicates fit. We also used the following guidelines
recommended by Hu and Bentler (1999): the comparative fit index (CFI) indicates acceptable fit above 0.90 and good fit above 0.95; the root mean squared error of approximation (RMSEA) indicates good fit below 0.06; and the standardized root mean squared residual (SRMR) indicates good fit below 0.08. Next, we compared models and determined which model had the best fit for the data using the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC), theoretic indices on which low values indicate a good trade-off between model fit and complexity. Finally, we also drew from theoretical context to select the best fit.

To test **Hypothesis 1**, that a two-factor structure of beliefs about emotion would be preferable to structures with fewer and greater numbers of factors, we conducted CFAs to estimate and compare three different factor structures of the BAEQ items (Kaplan, 2008; see Figure 2). The four-factor model consisted of four factors aligned with the four previously identified subscales (Overwhelming and Uncontrollable, Damaging, Shameful and Irrational, and Useless beliefs; Manser et al., 2012) (see **Fig. 2, Model A**). We also estimated a single-factor model accounting for all beliefs about emotion (see **Fig. 2, Model B**). Finally, we estimated a two-factor model of fearful and dismissive beliefs about emotion (see **Fig. 2, Model C**).

To test **Hypothesis 2a**, that beliefs about emotion would have indirect positive associations with non-acceptance of emotion via emotional experience variables, we estimated a structural equation model in which beliefs about emotion will be represented as one hierarchical factor, based on the preferred model determined by CFA in testing Hypothesis 1 (see **Fig. 3**). We tested negative emotion intensity and emotional clarity as multiple mediators of the direct positive association between beliefs about emotion and non-acceptance of emotion. To test **Hypothesis 2b**, that these associations would be moderated by age, we included age as a
moderator of the paths between beliefs about emotions and emotional experience variables and examined the moderator's impact on indirect effects.

We then examined path coefficients from beliefs about emotions to (1) negative emotion intensity and (2) emotional clarity as well as the path from negative emotion intensity to non-acceptance of emotion and the path from emotional clarity to non-acceptance of emotion. Next, also using the ML estimation as part of the model fitting, we tested the hypothesis that beliefs about emotion would have significant positive indirect associations with non-acceptance of emotion through high negative emotion intensity and low emotional clarity, and that these pathways would be moderated by age.

To test Hypothesis 3a, that beliefs about emotion would have indirect positive associations with depressive symptoms via non-acceptance of emotion, we estimated a new structural equation model predicting depressive symptoms (see Fig. 4). To test Hypothesis 3b, that these associations would be moderated by age, we included age as a moderator of the path between beliefs about emotions and non-acceptance of emotion. Using the ML estimation as part of the model fitting, we examined the coefficient of the pathway from non-acceptance of emotion to depressive symptoms, which we expected to be positive and significant. Finally, we tested the indirect effects of beliefs about emotion on depressive symptoms through non-acceptance of emotion, and tested age as a moderator of the direct pathway between beliefs about emotion and non-acceptance of emotion and of the indirect effect on depressive symptoms.

We ran all analyses in the program R v3.4.1 (The R Foundation for Statistical Computing for Mac, 2017), using the lavaan package (Rosseel, 2012). For all analyses in lavaan testing moderation, we imputed missing data using predictive mean matching as part of the Hmisc
package (Harrell, 2014). We assumed linearity and tested the data for significant univariate outliers.

2.2 Results

2.2.1 Descriptive and Diagnostic Analyses

The means, standard deviations, minimums, maximums, skew, and kurtosis were calculated for beliefs about emotions, depressive symptoms, negative emotion intensity, non-acceptance of emotion, and emotional clarity (see Table 1). Mean depressive symptoms were similar to those found in other community samples (e.g., Bredemeier et al., 2010). The range of symptoms we observed (22-105) included scores above the clinical cutoff of 76 (Buckby, Yung, Cosgrave, & Killackey, 2007), suggesting our sample included individuals with higher symptom severity; but the sample mean of 59.95 suggests participants experienced subthreshold symptoms on average. None of the data exceeded the cutoffs for skew (all values were between -2 and 2) or kurtosis (all values were between -7 and 7), indicating normal distributions. To check for univariate outliers in our negative emotion intensity, non-acceptance of emotion, and emotional clarity data, a cutoff of \( z > 3.29 \) was applied (Tabachnick & Fidell, 2013). One BAEQ value (from the Shameful and Irrational subscale) slightly exceeded this cutoff \( (z = -3.73) \), but the value was retained, as we decided it represented natural variation in the population.

All zero-order Pearson’s correlations between study variables were under 0.8, suggesting no multicollinearity (Berry & Feldman, 1985; see Table 2). As expected, depressive symptoms were significantly positively associated with negative beliefs about emotions, negative emotion intensity, and non-acceptance of emotion, and significantly negatively associated with emotional clarity. All beliefs about emotion types were associated with other emotion variables, with the
exception of beliefs that emotions are useless, which was not significantly associated with
negative emotion intensity or non-acceptance of emotion.

Mean non-acceptance of emotion did not significantly differ by gender, \( t(332.42) = .41, p = .68 \), or race/ethnicity, \( t(142.34) = 0.63, p = .53 \). Age was significantly inversely associated with
non-acceptance of emotion, \( r = -0.27, p < .001 \), such that with increasing age people are less
non-accepting of emotion. Mean depressive symptoms did not significantly differ by gender,
\( t(242.56) = 1.58, p = .12 \), or race/ethnicity, \( t(97.16) = -1.41, p = .16 \). Increasing age was
associated with lower levels of depressive symptoms, \( r = -.19, p < .001 \). Because there were no
differences across race and ethnicity, we did not include these demographic variables in our
models.

2.2.2 Test of Hypothesis 1: Confirmatory Factor Analysis of Beliefs About Emotions

Three CFA models were fit to the data and compared against one another: Model A, with
four factors; Model B, with a single hierarchical factor; and Model C, with two hierarchical
factors (see Fig. 2). An examination of absolute fit indices indicated that none of the factor
structures of Models A, B, or C was an ideal fit to the data. The chi-square statistics were
significant for Model A \( (\chi^2(458) = 1596.46, p < 0.001) \), Model B \( (\chi^2(460) = 1599.06, p < 0.001) \),
and Model C \( (\chi^2(461) = 1714.01, p < 0.001) \), indicating poor model fit. The CFI values for all
models were below 0.9 (CFI for Models A and B = .79; CFI for Model C = .76), the SRMR
values for all models were above 0.08 (SRMR for Models A and B = .11; CFI for Model C = .14), and the RMSEA values were all above 0.06 (RMSEA for Models A, B, and C = .08), which
all indicate poor model fit. Given that Model B was comparable with Model A and preferable to
Model C on all fit indices, we relied on AIC and BIC to choose between Models A and B. Both
the AIC and BIC were lower for model B (35101.97 and 35499.86, respectively) than for Model
A (35214.93 and 35608.84, respectively), indicating better model fit for Model B. Therefore, we chose a single-factor hierarchical structure of beliefs about emotions, consistent with Model B, to use in the subsequent structural equation models.

2.2.3 Test of Hypotheses 2a and 2b: Indirect Effects on Non-Acceptance of Emotion

A structural equation model was fit to the data such that beliefs about emotions had direct pathways to non-acceptance of emotion and also had indirect pathways through negative emotion intensity and emotional clarity (see Fig. 3). An examination of absolute fit indices indicated that, overall, the model was not a good fit to the data. The chi square value was significant, \( \chi^2(2067) = 5584.16, p < 0.001 \). The CFI value was below 0.9 (CFI = 0.77), and the SRMR value was above 0.08 (SRMR = 0.16), which both indicate poor model fit. The RMSEA value was 0.06, just on the cusp of model adequacy.

All coefficients for this model are presented in Figure 3. All of the predicted path coefficients were significant and in the anticipated direction, except the pathway from emotional clarity to non-acceptance of emotion, which was non-significant. Consistent with hypotheses, the paths from beliefs about emotions to negative emotion intensity and emotional clarity were both significant (positive and negative, respectively), and each was significantly moderated by age. The path from negative emotion intensity to non-acceptance of emotion was also positive and significant. In addition, there was support for the hypothesized positive indirect pathway from beliefs about emotions to non-acceptance of emotion through negative emotion intensity; this indirect effect was significant, \( B = .23, SE(B) = .10, p < .001 \). Consistent with our hypotheses, age significantly moderated this indirect effect, such that there were stronger effects in younger vs. older adults (\( B = 3.7, SE(B) = 0.06, p < .05 \)) and mid-age vs. older adults (\( B = 4.1, SE(B) = 0.07, p < .05 \)). Of note, the total effect of beliefs about emotions on non-acceptance of emotion
was also significant, suggesting that negative emotion intensity partially, but not entirely, explained the association. There was no significant indirect effect of beliefs about emotions on non-acceptance of emotion through emotional clarity, $B = .05, SE(B) = .07, p = .48$.

**2.2.4 Test of Hypotheses 3a and 3b: Indirect Effects on Depression**

A structural equation model was fit to the data such that beliefs about emotions had a direct path to depressive symptoms and an indirect path through non-acceptance of emotion (see Fig. 4). An examination of absolute fit indices indicated that, similar to the previous model, this model was not a good fit to the data. The chi square value was significant, $\chi^2(2007) = 6076.47, p < 0.001$. The CFI value was below 0.9, indicating poor model fit (CFI = 0.77). The SRMR value was above 0.08 (SRMR = .11) and the RMSEA value was above 0.06 (RMSEA = .07), which also indicate poor model fit.

All coefficients for this model are presented in Figure 4. All pathways were significant and in the hypothesized direction, except for age, which did not significantly moderate the association between beliefs about emotions and non-acceptance of emotion. As expected, the indirect effect of beliefs about emotions on depressive symptoms through non-acceptance of emotion was significant and positive, $B = .13, SE(B) = .04, p = .02$. Inconsistent with our hypotheses, age did not significantly moderate this indirect effect, $p = .92$. The total effect of beliefs on depressive symptoms was also significant, $B = .50, SE(B) = .07, p < .001$, suggesting non-acceptance of emotion partially, but not fully, explained the relation between beliefs and depressive symptoms.

**2.3 Study 1 Summary & Interim Discussion**

To fully understand the phenomenology of non-acceptance of emotion and depressive pathology, it is essential to identify other contributors to and mediators of these associations. In
Study 1, we used self-report data to examine the structure of beliefs about emotions in a large adult community sample. We tested a series of direct and indirect effects to explain the relations between beliefs about emotion and non-acceptance of emotion and between beliefs about emotion and depressive symptoms. We also tested whether these effects were moderated by age.

Our examination of the fit indices of CFA models suggests that of the three models compared, a hierarchical model with one overarching global factor subsuming the existing subscales is the best fit to the data. This is inconsistent with Hypothesis 1, in which we predicted that a two-category model of beliefs about emotion would be a better fit than models with fewer or greater numbers of categories. Instead, we found that beliefs about emotions can best be conceptualized as an overarching general belief that emotions are "bad," and can then be further broken down into four separate factors representing beliefs that emotions are 1) overwhelming and uncontrollable, 2) shameful and irrational, 3) useless, and 4) damaging. This structure fit the data better than a simple four-factor model, which reflected the composition of the published measures, or the two-factor hierarchical structure, which was hypothesized to have the best fit.

The idea that these four belief types fall under one factor is somewhat counterintuitive, given the diversity of belief content. The developers of the original measure we used, the BAEQ, did not intend for it to be used as a general scale of negative beliefs, and never developed any method for calculating an overarching composite score to cover multiple belief types (Manser et al., 2012). Even among theorists who studied beliefs about emotion as a unified construct, this unified construct has been much more narrowly defined than our general factor: for instance, beliefs falling under the category of emotions being overwhelming and uncontrollable (Veilleux et al., 2015; Rimes & Chalder, 2010; Tamir et al., 2007). Thus, the support found in our study for an overarching general factor was unexpected.
Of note, none of the models tested was an ideal fit to the data. This could suggest that the self-report measure we used was problematic, and that the existing subscales of the BAEQ did not adequately capture the beliefs about emotions experienced by the sample. Our beliefs about emotions items, which we drew from the BAEQ, specifically asked participants to report beliefs about “upset” feelings. This method of assessing negative beliefs about emotions is not necessarily reflective of all such beliefs; for instance, some participants might believe that allowing oneself to feel positive feelings will court bad luck. Indeed, in the time since the initial conceptualization of our study, another research group developed and validated a new measure of beliefs about both positive and negative emotions (Becerra, Preece, & Gross, 2020) in a representative sample of Australian adults. Using CFA, the authors found that a hierarchical model with three first-order factors tapping controllability, usefulness of negative emotions, and usefulness of positive emotions and a single higher-order factor representing overall maladaptive beliefs about emotions was a good fit to the data. It is worth noting that Becerra et al.'s controllability factor roughly parallels the "Fearful" factor of our originally hypothesized two-factor hierarchical model, and that the authors' usefulness of negative emotion factor roughly parallels our hypothesized "Dismissive" factor. Perhaps our omission of negative beliefs about positive emotions contributed to our poor CFA model fit.

We examined the data and found other possible clues as to the unsatisfactory fit of the best-fitting model: for instance, while all individual items from the BAEQ have acceptable factor loadings for their subscales ( > .5), modification indices suggest that the factor loading pathways for several items could be changed to improve model fit. Further, the factor loading of the “Useless” subscale onto the global subscale is quite small ($B = .14, p = .04$), suggesting it does not contribute greatly to the overall Beliefs construct. However, SEM as applied in the current
study was explicitly used to test a hypothesis; and given that we had no theoretical reason to think that changing these pathways was logical or appropriate, we did not alter the model further. Instead, we proceeded with the best-fitting structure of beliefs about emotions from the test of Hypothesis 1—i.e., a single hierarchical factor structure—to use in testing Hypotheses 2 and 3.

Consistent with past work, depressive symptoms were significantly positively associated with negative beliefs about emotions, negative emotion intensity, and non-acceptance of emotion, and significantly negatively associated with emotional clarity (e.g., Bakhshaie et al., 2014; Beardwood, & Rimes, 2017). Higher negative beliefs about emotion were also generally associated with higher negative emotion intensity and non-acceptance of emotion and lower emotional clarity. Unexpectedly, the belief that emotions are useless, although significantly associated with depressive symptoms, was not significantly associated with negative emotion intensity or non-acceptance of emotion, which could indicate that this particular belief fits the model proposed by the current study less soundly than other beliefs—for instance, the association between beliefs about the uselessness of emotions and depressive symptoms is less likely to be explained by non-acceptance of emotion.

In accordance with Hypothesis 2a, negative beliefs about emotion were positively indirectly associated with non-acceptance of emotion via negative emotion intensity. This is the first study to show such a pattern, and while these constructs were not assessed longitudinally, the directionality of pathways between them lends credence to several lines of clinical theory that emphasize negative beliefs about emotion as a key early contributor to other maladaptive emotional patterns (e.g., Linehan, 1987; Van Dijk, 2013). In psychotherapy, the acceptance of emotion is often conceptualized as a skill that is distinct from the tolerance of intense distress, and these skills are often taught separately (e.g., Linehan, 1987). However, our study shows that,
at least when negative beliefs about emotions are involved, these constructs might not be so easily separable. Perhaps when negative beliefs are present, high negative emotion intensity is interpreted as "confirming" an individual's belief: that is, that negative emotions *really are* overwhelming and uncontrollable, for instance. This, then, might lead to rejection of the emotions as bad or unacceptable. Such a temporal process, however, would need to be confirmed via longitudinal research.

Contrary to our hypothesis, there was no indirect effect through emotional clarity. Despite theory suggesting that both negative emotion intensity and emotional clarity may help explain this association (e.g., Linehan, 1987; Van Dijk, 2013), our results suggest that only negative emotion intensity plays a significant role. Given that prior literature suggests emotional clarity is related to depressive symptoms (e.g., Bamonti et al., 2010; Thompson et al., 2015), but does not seem to play the role we hypothesized in our model, future research should continue to examine the nature of this association.

Further, as predicted by **Hypothesis 3a**, we found that beliefs about emotions and depressive symptoms were positively indirectly associated via non-acceptance of emotion. This is consistent with prior theoretical literature pointing to non-acceptance as a contributor to that relation (Linehan, 1993; Hess et al., 2000). The current study is the first empirical study to show this pattern in the data. It suggests that, as theorized, negative beliefs about emotions are associated with depression by way of difficulty accepting what one is feeling.

Age moderated both 1) the direct path between beliefs about emotions and negative emotion intensity and 2) the path between beliefs about emotions and emotional clarity, such that both associations decreased in strength as age increased. We also found support for **Hypotheses 2b** (that age would moderate the indirect effect of beliefs about emotions on non-acceptance of
emotion through negative emotion intensity), but did not find support for 3b (that age would moderate the indirect effect of beliefs about emotions on depressive symptoms through non-acceptance of emotion). This suggests that the primary importance of age in these analyses is in how it influences the relation between beliefs and emotional experiences, but that these effects do not ultimately influence outcomes further down the chain of our theoretical model, such as non-acceptance of emotions or depressive symptoms.

In sum, we found in Study 1 that a single-factor hierarchical model was the best fit to the beliefs about emotions data; beliefs about emotions had an indirect effect on non-acceptance of emotion through negative emotion intensity but not emotional clarity; and beliefs about emotions had an indirect effect on depressive symptoms through non-acceptance of emotion. However, limitations of Study 1 included its non-clinical community sample and our use of retrospective self-report trait measures to assess the constructs of interest. Consequently, in Study 2 we used clinical groups with both current and remitted depressive disorders, allowing us to draw implications with regard to psychopathology. We also aimed to increase ecological validity by utilizing data aggregated across time from daily life.
Chapter 3: Study 2

In Study 2, we examined our variables of interest using an intensive longitudinal design. We analyzed experience sampling (ESM) data reflecting daily emotional experiences in a subset of participants who have a current depressive disorder, a remitted depressive disorder, and healthy control participants. Prior literature has found differences in emotional experiences between such individuals. For instance, those with current MDD have more intense negative emotion (Bylsma, Taylor-Clift, & Rottenberg, 2011; Myin-Germeys et al., 2003; Watson, Clark, & Carey, 1988), lower emotional clarity (Loas et al., 1998; Thompson et al., 2017; Visted et al., 2018), and higher non-acceptance of emotion (Brockmeyer et al., 2012; Campbell-Sills et al., 2006) than healthy controls. Further, even though individuals with MDD in remission do not meet criteria for a current MDE, they are also characterized by differences in emotional functioning compared to healthy controls: those with remitted MDD have more intense negative emotion (Barge-Schaapveld & Nicolson, 2002; Knowles et al., 2007; Wichers et al., 2012), lower emotional clarity (Visted et al., 2018), and higher non-acceptance of emotion (Ehinger et al., 2008; Ehinger et al., 2010) than healthy controls. In addition, compared to those with current MDD, those with remitted MDD exhibit lower levels of cognitive and behavioral avoidance of negative emotional experiences (Quigley, Wen, & Dobson, 2017). Thus, individuals with remitted depression fall somewhere in the middle of currently depressed and never-depressed individuals with regard to a variety of dimensions of emotional characteristics.

In addition to these differences in emotional experiences between people with varying depression diagnoses, we might expect to see the same pattern holds for beliefs about emotions, with levels for remitted depression falling somewhere in the middle of currently depressed and never-depressed individuals. If the strengths of pathways between variables are comparable
across groups, our model could explain why prior research shows elevations in other emotion variables. That is, we suggest that elevated negative beliefs about emotions are associated with elevated levels of other maladaptive emotional characteristics, such that mean differences between groups in a number of variables can be traced back to mean differences in beliefs about emotions.

Study 2’s inclusion of clinical groups and a healthy control group will help us address some of these questions. Although scores on self-report measures of depressive symptoms, such as the MASQ (used in Study 1), are an excellent way to capture a wide range of depressive symptomology that includes sub-clinical levels, the diagnostic interview included in Study 2 is a more valid way to assess the presence of depressive disorders (Stuart et al., 2014). In this manner, we can expand our exploration of emotional functioning to a clinically depressed population. We can also address the hypothesis that although community populations might have lower negative beliefs about emotions, non-acceptance of emotion, and negative emotion intensity (as well as higher levels of emotional clarity) compared to clinical populations, we expect to find the same strength of associations between those variables in healthy control, remitted depressed, and current depressed groups.

Another benefit to Study 2’s design is that it makes use of aggregated state, as opposed to trait, measures of negative emotion intensity, emotional clarity, and non-acceptance of emotion. Using ESM to collect momentary reports of emotional experiences helps to minimize the retrospective recall bias that individuals are prone to when making retrospective self-reports (Schwarz, 2011). Depressed individuals, in particular, are more prone to retrospective recall bias when reporting past emotions than are non-depressed individuals, and ESM can help temper this
bias (e.g., Gotlib & Joormann, 2010), which is important given our use of a clinical sample in Study 2.

Our **Hypotheses 1a, 1b, 2a, and 2b** mirrored the hypotheses made in Study 1, with aggregated state measures replacing some of the formerly used global assessments. In **Hypotheses 1c, 2c, and 3**, we went a step further and addressed questions about individual differences based on diagnostic group. First, we hypothesized that beliefs about emotions would have significant and positive indirect associations with mean non-acceptance of emotion through high mean state negative emotion intensity and low mean emotional clarity (**Study 2, Hypothesis 1a; see Figure 5**). We hypothesized that these associations would be moderated by age (**Study 2, Hypothesis 1b**), but that they would not differ across diagnostic groups (**Study 2, Hypothesis 1c**). Second, we hypothesized that beliefs about emotion would have indirect positive associations with depressive symptoms through mean non-acceptance of emotion (**Study 2, Hypothesis 2a; see Figure 6**). We hypothesized that these relations would be moderated by age (**Study 2, Hypothesis 2b**), but would not differ across diagnostic groups (**Study 2, Hypothesis 2c**). Finally, we hypothesized that mean negative emotion intensity, non-acceptance of emotion, emotional clarity, and negative beliefs about emotion would significantly vary across groups (**Study 2, Hypothesis 3**).

### 3.1 Method

#### 3.1.1 Participants

A total of 332 participants who completed the home survey attended the laboratory session. Of these 332 participants, 215 were eligible to continue participation. The sample of 215 was composed of 66.0% women and 34.0% men. The mean age of the sample was 44.3 (SD = 16.1, range = 18-77). Participants’ self-reported racial/ethnic backgrounds were 69.8% White,
19.5% Black, 2.8% Asian, 0.5% Native American, and 7.0% other or multiracial (0.5% did not report). In addition, 1.4% reported that they were Latinx/a/o.

Participants were eligible to continue participation if, based on their psychiatric diagnoses, they met criteria for one of three groups. For the remitted depressed group (n = 80), individuals needed to have experienced at least two depressive episodes in full remission, as assessed by the SCID-5 (First et al., 2014). Depressive episodes could include MDEs that were part of MDD or persistent depressive disorder (PDD) and/or persistent depressive episodes (PDEs) but participants in the remitted depressed group could not be currently experiencing, or in partial remission from, a depressive disorder. To be eligible for the current depressed group (n = 48), people needed to be in a current MDE that was either part of MDD or PDD. The current depressed group did not require a previous depressive episode. Because of the high rates of comorbidity between anxiety and depressive disorders (Kessler et al., 2003), people with current and past history of anxiety disorders were eligible for the two depressive groups. Further, the inclusion of psychiatric comorbidities in depressed groups allowed us to represent a wider range of depressive severity in our sample, since depression tends to be more severe when comorbidities are present (Kessler et al., 2003). To be eligible for the healthy control group (n = 87), individuals had to have experienced no MDEs or PDEs. Because anxiety and depressive disorders have overlapping symptom profiles, risk factors, and biological markers (Gorman, 1996), healthy controls also were required not to have current or past generalized anxiety disorder, social anxiety disorder, panic disorder, or agoraphobia. Exclusionary criteria for all groups include bipolar I, bipolar II, or cyclothymic disorder diagnosis and current or past psychotic symptoms. Other disorders were not assessed.
Based on the recommendation that SEM analyses use data from at least 100-200 participants (Boomsma & Hoogland, 2001; Kline, 2005; Muthén and Muthén, 2002), our sample size of 215 was more than adequate. For instance, the results of a robustness study on maximum likelihood estimation conducted by Boomsma and Hoogland (1983) revealed that as long as the sample size exceeded 200, there were hardly any sample-size-related problems with non-convergence (Boomsma & Hoogland, 2001).

Of the 332 participants who underwent diagnostic interviewing, 119 participants were ineligible to continue in the study. Of these 119 participants, 17.6% \((n = 21)\) met criteria for only one past MDE; 18.5% \((n = 22)\) endorsed symptoms consistent with current or past bipolar I, bipolar II, or cyclothymic disorder; 16.0% \((n = 19)\) endorsed current or past psychotic symptoms; 9.2% \((n = 11)\) met criteria for a current or past anxiety disorder without required MDD or PDD diagnoses; 8.4% \((n = 10)\) were experiencing a current PDE in the absence of current MDD; 7.6% \((n = 9)\) exceeded the age and/or gender quota for their diagnostic group; and 3.4% \((n = 4)\) were in partial remission from MDD. In addition, the sample of 215 does not include those who had low ESM compliance (fewer than 20% of surveys; 5.9%; \(n = 7\)), withdrew after the interview (5.0%; \(n = 6\)), experienced critical technical problems during ESM (5.0%; \(n = 6\)), or were excluded for other reasons (3.4%; \(n = 4\)).

3.1.2 Procedure

After eligibility for the three groups was assessed, participants who were not eligible were thanked and compensated for the online survey ($6) and the laboratory session ($12 per hour). Participants who were eligible for one of the groups continued with their laboratory session, during which they completed additional self-report measures (those relevant to present study described below), various cognitive tasks, and an individual tutorial for the ESM protocol.
For the ESM protocol, research assistants either helped participants to install the iOS app Status/Post on their own iPhones or provided participants with a 4th-generation iPod Touch with the software installed on it. The software was designed to collect data offline throughout the sampling period so that it did not require Wi-Fi or a data plan, resulting in a more diverse sample. A research assistant then provided an individual, interactive tutorial, instructing participants on an ESM protocol. During the tutorial, which took approximately 30 minutes, an undergraduate research assistant presented a series of slides and led participants through each ESM question. Throughout the tutorial, research assistants assessed whether participants understood the procedure. For example, they asked participants to generate example responses for items to assess understanding; when participants had trouble with doing so, research assistants provided them with standardized examples. Finally, participants were compensated for the online survey ($6) and the laboratory session ($12 per hour).

During the 14-day ESM period, which started the day after the lab visit, participants were randomly prompted five times per day during a 15-hour window of their choosing to complete surveys. Surveys occurred on average 180 minutes apart ($SD = 62$) and took approximately three minutes to complete. The mean percentage of surveys completed was 74.8% ($SD = 18.3$%; range = 20%-99%). This average is comparable to or higher than prior emotion research (Hill & Updegraff, 2012; Flueckiger, Lieb, Meyer, Withhauer, & Mata, 2016). After completing the ESM period, participants were sent a debriefing email and were compensated for their time ($40), with an additional bonus for the completion of at least 80% of prompts ($10).

3.1.3 Self-Report Measures Administered during Lab Session

**Depressive symptomology.** Severity of depressive symptomology was assessed using the MASQ-AD (Clark & Watson, 1991) during participants’ visit to the lab (see Study 1 for
more details). The MASQ-AD has been validated in clinically depressed samples (Bredemeier et al., 2010). The internal consistency of the MASQ-AD items was excellent in this sample (α = .96).

**Beliefs about emotion.** Beliefs about emotion were measured using the BAEQ (Manser et al., 2012) as part of the initial online survey (see Study 1 for more details). This study is the first in which the BAEQ has been used to assess a clinical sample. The items from the four administered subscales retained acceptable to excellent internal consistency in our sample: Overwhelming and Uncontrollable (9 items, α = .91), Shameful and Irrational (10 items, α = .87), Useless (8 items, α = .70), and Damaging (5 items, α = .71).

3.1.4 Diagnostic interview

**Psychopathology.** Current and lifetime diagnostic mental health history was assessed using the Structured Clinical Interview for DSM-5 (SCID-5-RV; First, Williams, Karg, & Spitzer, 2014), a diagnostic interview that is considered the gold standard for the diagnosis of depressive disorders (Stuart et al., 2014). Interviews were conducted by one of three advanced clinical psychology graduate students who had completed an assessment course in which they learned to administer the SCID. Inter-rater reliabilities revealed that raters demonstrated perfect agreement in assessing for the presence of a current MDD, current PDD, past MDD and past PDD (k = 1.0 for each disorder) in a random subset of interviews (n = 48). Interviewers obtained telephone supervision from a licensed psychologist on complicated cases during the participant session.

3.1.5 Experience Sampling Measures

**Emotional clarity.** State emotional clarity was assessed at each ESM survey with the single item: “At the time of the beep, I was clear about my feelings.” Participants rated the extent
to which they agreed with the statement on a 5-point Likert scale from 0 (not at all) to 4 (extremely). This item was adapted from the item with the highest factor loading on the Clarity of Feelings subscale of the Trait Meta-Mood Scale (TMMS; Salovey et al., 1995). Modifications included adding “at the time of the beep” and changing the sentence structure to past tense. This item has been previously used in ESM research and has been shown to have a positive, but not significant, association with trait clarity (Bailen, Wu, & Thompson, 2019; Thompson, Boden, & Gotlib, 2017). During the tutorial, participants were instructed: “For this question, we want to know how clear you are about your feelings: that is, how much you understand what you are feeling. Keep in mind that this immediately before starting the survey. If you were very clear about your feelings, select ‘Extremely.’ If you weren’t clear at all about your feelings, select ‘Not at all.’ You can also select an option in between.” This item, aggregated across time points, was correlated with the trait-level Clarity subscale administered in Study 1 (Palmieri et al., 2009) at .24 (p < .001).

**Negative emotion.** State levels of negative emotion were assessed at each ESM survey with a series of items: “I felt [emotion] at the time of the beep.” A set of twelve emotion words (both negative and positive) were randomly presented at each survey. Participants rated the extent to which they felt each emotion on a 5-point Likert scale from 0 (not at all) to 4 (extremely). During the in-person tutorial, the experimenters emphasized that participants should indicate how they were feeling at the moment they were prompted to complete the survey. A negative emotion intensity score was computed by averaging ratings for all six negative emotions words, including bored, sluggish, sad, frustrated, nervous and angry, at each survey, and these scores were then mean aggregated within person across time points. The Cronbach’s alpha of these six items when aggregated across time points was .87, indicating good reliability.
This aggregated scale was correlated with the trait-level PANAS-NA subscale administered in Study 1 at .49 ($p < .001$).

**Non-acceptance of emotion.** During the survey, after participants rated all the state emotion items, they saw the following message: “At this point, you just reported how you were currently feeling. The next series of questions will ask you about how you think you *should* have felt. These items include some of the same emotions you just reported on like happy and sad. Your answers to these may sometimes be the same and sometimes will be different from what you just reported feeling.” Participants were then presented with a series of items: “I should have felt [emotion] at the time of the beep.” Participants rated the extent to which they thought they *should* have felt three negative emotions (i.e., anger, sadness, and boredom) on a 5-point Likert scale from 0 (*not at all*) to 4 (*extremely*). These items were informed by items used in prior ESM research on the degree to which people report they should be feeling certain emotions (i.e., “should affect”; Thompson, Kircanski, & Gotlib, 2016). Modifications to the original items included reference to specific negative emotion states instead of general positive and negative emotion as well as minor changes to the wording to align with our previously administered negative emotion item. During the tutorial, participants were asked to generate four different examples of times when they believed they should have felt differently than they felt. When participants had trouble thinking of examples, the experimenters provided examples (e.g., “If you felt happy that a particular co-worker didn’t get a promotion, you may think that you should not be feeling any happiness.”)

To assess non-acceptance of emotion, we calculated difference scores by subtracting the rating for how much individuals believed they *should* have felt each emotion (anger, sadness, and boredom) from the degree to which they actually endorsed the same state emotion. The
absolute values of non-zero difference scores (i.e., instances in which participants reported they should have felt less or more of an emotion than they actually felt) were used as a measure of degree of non-acceptance of emotion. For instance, if a participant reported that she felt “extremely” sad (a rating of 4), and also reported that she should have felt “somewhat” sad (a rating of 2), her non-acceptance score for sadness was 2. A composite non-acceptance of emotion score was computed by averaging differences in ratings for the three emotions and mean-aggregating across the sampling period. The Cronbach’s alpha of these items (non-acceptance of sadness, anger, and boredom) when aggregated across time points was .78, indicating good reliability. This scale correlated with the trait-level non-acceptance measure (i.e., KIMS-A subscale) administered in Study 1 at .34 (p < .001).

3.1.6 Data Analytic Plan

We tested our hypotheses for Study 2 with a series of structural equation models. We began by examining the distribution of the data using guidelines for skew and kurtosis and testing for significant outliers using the procedures outlined in Study 1. Before testing our main hypotheses, we computed zero-order Pearson’s correlations between study variables. We also used correlations and t-tests to examine gender, age, and race/ethnicity as predictors of depressive symptoms and non-acceptance of emotion to determine whether these demographic variables significantly influenced our outcome variables. Of note, only White and Black groups were compared in race/ethnicity analyses, as these groups made up 90.2% of the data.

To test Hypothesis 1a, that trait beliefs about emotions would have significant and positive indirect associations with mean non-acceptance of emotion through high mean negative emotion intensity and low mean emotional clarity, we estimated a structural equation model in which direct paths lead from beliefs about emotion to non-acceptance of emotion and indirect
paths lead from beliefs about emotion to non-acceptance through negative emotion intensity and emotional clarity (see Figure 5). To test Hypothesis 1b, we included age as a moderator of paths between beliefs about emotions and negative emotion intensity and between beliefs about emotions and emotional clarity (see Figure 5).

As in Study 1, we assessed model fit using the $\chi^2$ fit statistic, the CFI, the SRMR, and the RMSEA. We then examined coefficients of the paths from beliefs about emotions to (1) negative emotion intensity and (2) emotional clarity, and paths from (3) negative emotion intensity to non-acceptance of emotion and (4) emotional clarity to non-acceptance of emotion. Next, also using the ML estimation as part of the model fitting, we tested the hypothesis that beliefs about emotion would have significant positive indirect associations with non-acceptance of emotion through high negative emotion intensity and low emotional clarity, and that age would moderate these indirect effects.

To test Hypothesis 1c, that the relations found in testing Hypothesis 1a would not differ across diagnostic groups, we conducted multiple groups analyses in which free models (i.e., in which coefficients were allowed to vary) were compared to constrained models (i.e., in which intercepts and path coefficients were set equal between groups).

To test Hypothesis 2a, that trait beliefs about emotion would have indirect positive associations with trait depressive symptoms through high non-acceptance of emotion, we estimated a new structural equation model in which a direct path led from beliefs about emotion to depressive symptoms and an indirect path led from beliefs to depressive symptoms through non-acceptance of emotion (see Figure 6). To test Hypothesis 2b, we included age as a moderator of the path between beliefs about emotions and non-acceptance of emotion (see Figure 6). Using the ML estimation as part of the model fitting, we then examined the coefficient
of the pathway from non-acceptance of emotion to depressive symptoms, which we expected to be positive and significant. Finally, we tested the indirect effect of beliefs about emotion on depressive symptoms through non-acceptance, and whether age moderated this effect. To test **Hypothesis 2c**, that the relations found in testing Hypothesis 2a would not differ across diagnostic groups, we again conducted multiple groups analyses, as described under Hypothesis 1c.

Finally, we tested **Hypothesis 3**, that that mean negative emotion intensity, non-acceptance of emotion, emotional clarity, and negative beliefs about emotion would significantly vary across diagnostic groups. To compare the means of the latent variable (i.e., beliefs about emotion) between groups, we conducted multiple groups analyses in which intercepts and factor loadings were set equal between groups, so that only means are allowed to vary. We then compared the intercepts, representing latent factor means, for each group to those of the reference group. To compare the means of indicator variables (i.e., negative emotion intensity, non-acceptance of emotion, emotional clarity) between groups, we conducted a series of ANOVAs.

We ran all analyses in the program R v3.4.1 (The R Foundation for Statistical Computing for Mac, 2017), using the lavaan package (Rosseel, 2012). For all analyses in lavaan testing moderation, we imputed missing data using predictive mean matching as part of the Hmisc package (Harrell, 2014). Linearity of data was assumed.

### 3.2 Results

#### 3.2.1 Descriptive and diagnostic analyses

Means, standard deviations, minimums, maximums, skew, and kurtosis were calculated for beliefs about emotion, depressive symptoms, negative emotion intensity, non-acceptance of
emotion, and emotional clarity (see Table 3). Mean depressive symptoms were similar to those found in other community samples (e.g., Bredemeier et al., 2010). The range of symptoms we observed (22-105) included the clinical cutoff of 76 (Buckby, Yung, Cosgrave, & Killackey, 2007), but the sample mean of 57.78 suggests participants experienced subthreshold symptoms on average. None of the data exceeded the cutoffs for skew (all values were between -2 and 2) or kurtosis (all values were between -7 and 7), indicating normal distributions. To screen for univariate outliers in our negative emotion intensity, non-acceptance of emotion, and emotional clarity data, a cutoff of $z > 3.29$ was applied (Tabachnick & Fidell, 2013). Three negative emotion values, two-non-acceptance values, and two BAEQ values (from the Shameful and Irrational subscale) exceeded this cutoff; however, especially given that our means for negative emotion intensity and non-acceptance of emotion were quite low (see Table 3), we decided that these values likely represented realistic variation in the data, and did not exclude them.

Zero-order Pearson’s correlations between study variables are presented in Table 5. We found that only the correlation between mean negative emotion intensity and mean non-acceptance of emotion exceeded a value of 0.8 ($r = .84$). All other correlations between study variables were under 0.8, suggesting no multicollinearity (Berry & Feldman, 1985). As expected, depressive symptoms were significantly positively associated with negative beliefs about emotions, negative emotion intensity, and non-acceptance of emotion, and significantly negatively associated with emotional clarity. All beliefs about emotion types were associated with other emotion variables, with the exception of beliefs that emotions are useless, which was not significantly associated with negative emotion intensity, emotional clarity, or non-acceptance of emotion.
With regard to demographic differences, none of the three study groups (current depressed, remitted depressed, healthy control) significantly differed with regard to demographic factors; see Table 4 for group comparisons of all demographic factors and study variables. Mean non-acceptance of emotion did not significantly differ by gender, \( t(141.76) = .91, p = .37 \), or race/ethnicity, \( t(56.00) = .83, p = .41 \), but was significantly inversely associated with age, \( r = -.27, p < .001 \). Mean depressive symptoms did not significantly differ by gender, \( t(139.32) = 1.61, p = .11 \), or ethnicity/race, \( t(62.30) = -.91, p = .37 \). Age was significantly inversely associated with depressive symptoms, \( r = -.18, p < .01 \), such that with increasing age people experienced decreasing depressive symptoms. Because there were no differences across race and ethnicity, we did not include these demographic variables in our models.

3.2.2 Test of Hypotheses 1a and 1b: Indirect Effects on Non-Acceptance of Emotion

A structural equation model was fit to the data such that beliefs about emotions led to non-acceptance through negative emotion intensity and emotional clarity, with direct pathways from beliefs about emotions to non-acceptance of emotion (see Fig. 5). An examination of absolute fit indices indicated that this model was not a good fit to the data. The chi square value was significant, \( \chi^2(620) = 1821.00, p < 0.001 \). The CFI value was below 0.9, indicating poor model fit (CFI = 0.68). The SRMR value was above 0.08 (SRMR = .15) and the RMSEA value was above 0.06 (RMSEA = .10), which also indicate poor model fit.

All of the coefficients for paths between beliefs, negative emotion intensity, and non-acceptance of emotion were significant and in anticipated directions; however, the path from beliefs to negative emotion intensity was not moderated by age, which is inconsistent with 

**Hypothesis 1b.** In addition, there was support for the hypothesized positive indirect pathway from beliefs about emotions to non-acceptance of emotion through negative emotion intensity;
this indirect effect was significant, $B = .33$, $SE(B) = .06$, $p = .04$. Age did not significantly moderate this indirect effect. Of note, the total effect of beliefs about emotions on non-acceptance of emotion was also significant, suggesting that negative emotion intensity partially, but not entirely, explained the association. The pathways from beliefs to clarity and from clarity to non-acceptance were non-significant. Relatively, there was no significant indirect effect of beliefs about emotions on non-acceptance of emotion through emotional clarity, $B = .00$, $SE(B) = .00$, $p = .97$.

3.2.3 Test of Hypothesis 1c: Pathway Comparisons Across Diagnostic Groups

A model in which regression coefficients were allowed to vary between diagnostic groups was fit to the data, as was a separate model in which regression coefficients were constrained to be equal between groups. A chi square difference test revealed that these models were not significantly different ($\chi^2(9) = 5.18$, $p = .82$), suggesting that regression pathways did not differ between diagnostic groups.

3.2.4 Test of Hypotheses 2a and 2b: Indirect Effects on Depressive Symptoms

A structural equation model was fit to the data such that beliefs about emotions led to depressive symptoms through non-acceptance of emotion, with direct pathways from beliefs about emotions to depressive symptoms (see Fig. 6). An examination of absolute fit indices indicated that this model was not a good fit to the data. The chi square value was significant, $\chi^2(1532) = 3662.19$, $p < .001$. The CFI value was below .9, indicating poor model fit (CFI = .73). The SRMR value was above .08 (SRMR = .13) and the RMSEA value was above .06 (RMSEA = .08), which also indicate poor model fit.

As expected, beliefs about emotions significantly and positively predicted non-acceptance of emotion. Also as expected, this association was significantly moderated by age,
such that the association weakened as age increased. However, the pathway from non-acceptance to depressive symptoms was not significant, and indirect effect of beliefs about emotions on depressive symptoms through non-acceptance of emotion was not significant.

3.2.5 Test of Hypothesis 2c: Pathway Comparisons Across Diagnostic Groups

A model in which regression coefficients were allowed to vary between diagnostic groups was fit to the data, as was a separate model in which regression coefficients were constrained to be equal between groups. A chi square difference test revealed that these models were not significantly different ($\chi^2(5) = 6.28$, $p = .28$), suggesting that regression pathways did not differ between diagnostic groups.

3.2.6 Test of Hypothesis 3: Mean Comparisons Across Diagnostic Groups

SEMs were conducted to compare the means of the beliefs about emotions latent variable between diagnostic groups. The current depressed group was found to have significantly stronger negative beliefs about emotion than the remitted depressed group, $B = 1.35, p < .01$, and healthy control group, $B = 1.87, p < .001$. The remitted depressed group was found to have significantly stronger negative beliefs about emotion than the healthy control group, $B = .62, p = .03$.

Multivariate analyses of variance were conducted to compare the means of indicator variables, including emotional clarity, non-acceptance of emotion, and negative emotion intensity, between diagnostic groups. No significant differences between groups were found for emotional clarity, $F(2,212) = .62, p = .54$; however, significant differences between groups were found for non-acceptance, $F(2,212) = 13.75, p < .001$, and negative emotion intensity, $F(2,212) = 20.59, p < .001$. In particular, a Fisher’s LSD post-hoc test revealed that the current depressed group had higher non-acceptance and negative emotion intensity than remitted depressed and healthy control groups ($p < .01$ for all comparisons), and that the remitted depressed group had
higher non-acceptance ($p = .04$) and negative emotion intensity ($p = .05$) than the healthy control group.

### 3.3 Study 2 Summary & Interim Discussion

After examining the associations between beliefs about emotions, non-acceptance of emotion, and depressive symptoms in Study 1, we aimed in Study 2 to examine these factors in a clinical sample to make inferences about how they are associated with MDD. In Study 2, we used self-report and mean-aggregated state data to test our hypotheses in current depressed, remitted depressed, and healthy control groups. As in Study 1, we tested a series of direct and indirect effects to explain the relations between beliefs about emotion and non-acceptance of emotion and between beliefs about emotion and depressive symptoms. We also tested whether these indirect effects were moderated by age. Finally, we tested whether mean levels of our variables of interest and the strengths of pathways between those variables varied as a function of study group.

We first investigated the associations between key study variables. Consistent with past work (e.g., Bakhshaie et al., 2014; Beardwood, & Rimes, 2017), depressive symptoms were significantly positively associated with all other study variables. Higher negative beliefs about emotion were also generally associated with higher negative emotion intensity and non-acceptance of emotion and lower emotional clarity. However, consistent with findings from Study 1, the belief that emotions are useless was not significantly associated with negative emotion intensity, non-acceptance of emotion, or emotional clarity. Taken together, this suggests that this particular belief does not fit the model proposed by the current study as well as other beliefs do and provides one possible reason for the poor fit of our SEMs.
In accordance with Hypothesis 1a, negative beliefs about emotions had a significant positive indirect effect on non-acceptance of emotion via negative emotion intensity. That is, the strength of the relation between high negative beliefs about emotion and high non-acceptance was in part attributable to high negative emotion intensity. This replicates findings from Study 1 and adds support for a framework by which these variables might be interrelated. However, contrary to our hypothesis, there was no significant indirect effect through emotional clarity. The finding that only negative emotion intensity, not emotional clarity, plays a significant role in the relation between beliefs about and non-acceptance of emotion is at odds with multiple schools of clinical thought that view poor understanding of one's own emotions as a key factor in maintaining psychopathology (e.g., Linehan, 1987; Mennin, 2007). Regarding age, contrary to Hypothesis 1b, age did not moderate the indirect effect on non-acceptance of emotion through negative emotion intensity; that is, the mediating role of negative emotion intensity was equally strong in participants of different ages. This is inconsistent with our Study 1 findings, in which age was a significant moderator of this association.

In addition, inconsistent with Hypothesis 2a, we did not find an indirect effect of non-acceptance of emotion on depressive symptoms. This was surprising in the context of Study 1, which found that non-acceptance of emotion was indeed a significant mediator. Given that the only variable in these particular analyses that differed between studies was the measure of non-acceptance of emotion, the validity of Study 2’s aggregated measure of non-acceptance of emotion (which had an unexpectedly low mean and variance) comes under question. In this model, age significantly moderated the direct association between beliefs about emotions and non-acceptance, such that the association weakened as age increased. If we were to take these Study 2 findings in isolation, our model shows that given a younger adult and an older adult with
equally strong negative beliefs about emotion, these beliefs are more strongly associated with increased non-acceptance of emotion in young adults. This would be in line with research showing that older adults, compared to young adults, are more likely to be accepting of their emotions (Schirda et al., 2016), and would provide evidence of one means by which that age difference occurs. However, there was no moderating effect of age on the direct association between beliefs about emotions and non-acceptance of emotion in Study 2. Therefore, **Hypothesis 2b**—that such an indirect effect would be moderated by age—could not be tested. Our lack of findings indicates that age differences in the mediating role of non-acceptance are not, as we had originally theorized, at the root of age differences in depression.

As expected, in accordance with **Hypothesis 3**, almost all means of the key variables (apart from clarity) were highest in the current MDD group and lowest in the control group. This is consistent with, and expands upon, prior literature documenting group differences in other emotion variables (e.g., intensity of emotion, non-acceptance of emotion; Barge-Schaapveld & Nicolson, 2002; Brockmeyer et al., 2012). At the same time, in accordance with **Hypotheses 1c** and **2c**, the significant pathways and indirect effects in both models and indirect effect did not significantly differ between diagnostic groups. This finding is novel and suggests that when variables such as negative beliefs about emotion are elevated, other maladaptive emotion variables are likely elevated as well, and that this holds true regardless of diagnostic group. That is, regardless of an individual's MDD history, elevated negative beliefs about emotion are likely associated with elevated negative affect and depressive symptoms. Further, the presence of current and remitted MDD does not make this association any stronger. Future longitudinal research would be beneficial in further exploring these findings. For instance, a longitudinal study with depressed and non-depressed individuals could be used to observe whether increased
levels of negative beliefs about emotions leads to increased negative emotion intensity, non-acceptance of emotion, and depressive symptoms over time. This would allow us to test whether the presence of elevated negative beliefs about emotions "cause" other maladaptive emotional patterns and health consequences.
Chapter 4: General Discussion

Non-acceptance of emotion is strongly associated with poor emotional and psychological outcomes, including depressive symptoms and MDD. To solidify our understanding of depressive pathology, it is necessary to further explore the nature of its association with non-acceptance of emotion. We argue that beliefs about emotions are a much neglected but key piece of this association. In the present studies, we used trait self-report measures to evaluate the factorial structure of beliefs about emotions. We then used both trait self-report and mean-aggregated EMA data to examine how such beliefs relate to non-acceptance of emotion and depressive symptoms. Finally, we used mean-aggregated EMA data to compare the strengths of these pathways across individuals with current depression, remitted depression, and no history of depression.

4.1 Factor Structure of Beliefs About Emotions

In Study 1, we conducted a series of confirmatory factor analyses (CFAs) to test whether a two-category model of beliefs about emotion is a better fit than models with fewer or greater categories (Study 1, Hypothesis 1). However, we found that none of the structures tested was an ideal fit to the data, suggesting that we have yet to identify a strong underlying structure of beliefs about emotions. Despite falling short of conventional fit criteria standards, Model B, the single hierarchical factor model, was the best-fitting model of the three and was used in subsequent SEM models. Therefore, the significant causal SEM paths that were found in subsequent analyses should be considered with caution.

Importantly, CFA is an inherently disconfirmatory procedure: even with excellent fit measures, one can never prove that a given model is the "correct" model. Instead, one can only
eliminate inferior models. In this regard, though Study 1 finds the model with a single hierarchical factor (Model B) to be the best-fitting, it is perhaps more important that we can eliminate Models A (the four-factor model) and C (the two-factor hierarchical model) as competing models.

4.2 Indirect Effects on Non-Acceptance of Emotion

In line with prior literature (Leahy, 2002; Ouimet et al., 2016; Trincas et al., 2016), we found in both studies that negative beliefs about emotions were positively associated with non-acceptance of emotion. Our findings also converged to support our hypothesis that negative emotion intensity would help explain the association between beliefs about emotions and non-acceptance of emotion (Study 1, Hypothesis 2a; Study 2, Hypothesis 1a), which both confirms and augments the existing literature in several ways. First, it replicates research that has found positive trait associations between different pairings of these three variables (e.g., Ouimet et al., 2016; Lavender et al., 2017). Second, it suggests a structure wherein these three variables fit together, with beliefs influencing non-acceptance both directly and also indirectly, through negative emotion intensity. This is the first study to show such a pattern, and although these constructs were not assessed longitudinally, the directionality of pathways between them lends credence to several lines of clinical theory that emphasize negative beliefs about emotion as a key contributor to other maladaptive emotional patterns (e.g., Linehan, 1987; Van Dijk, 2013). Third, it is notable that the same pattern of emotional dynamics that individuals reported retrospectively was also seen when examining data drawing on aggregated reports of negative emotion intensity and emotional non-acceptance in daily life. Not only are people’s beliefs about emotions related to their judgments about how badly they generally feel or how non-accepting they generally are, but their beliefs about emotions relate to their aggregated real-time reports of
non-acceptance, which are explained by aggregated real-time negative emotion intensity. This is a much stronger endorsement of the existence of this phenomenon than if it were found by analyzing retrospective reports alone: as Robinson and Clore (2002) point out, state reports are less easily influenced than retrospective reports by the reporter's personal cognitive biases.

This framework, by which emotional intensity explains the relation between negative beliefs about emotions and non-acceptance of emotion, is in line with theoretical and clinical treatment literature. On the most basic level, if we conceptualize non-acceptance as a mental "behavior," our findings are in line with cognitive behavior therapy's classic principle that thoughts, emotions, and behaviors are inherently related (e.g., Hollon & Beck, 2013). More specifically, we found in our study that an emotional reaction (negative emotion intensity) helps explain the link between a thought (negative belief) and mental behavior (emotional non-acceptance). Further, our findings are also in line with acceptance-based behavior therapy, which suggests that learned ways of conceptualizing emotions (i.e., negative beliefs about emotions) can lead us to react to naturally occurring distress (i.e., intense negative emotion) with non-acceptance of that emotion (Roemer & Orsillo, 2020).

Although both studies supported the mediating role of intensity in the relation between beliefs about emotions and non-acceptance of emotion, both studies also converged to suggest that emotional clarity was not a significant mediator. This is inconsistent with our hypotheses (Study 1, Hypothesis 2a; Study 2, Hypothesis 1a), which predicted that both intensity and clarity would be significant mediators. Our two studies also converged to indicate a lack of support for any association, direct or indirect, between emotional clarity and non-acceptance of emotion. These findings oppose prior correlational research showing that emotional clarity is negatively associated with non-acceptance of emotion (e.g., Bardeen et al., 2012; Cooper,
O'Shea, Atkinson, & Wade, 2014; Gratz & Roemer, 2004) as well as one study in which emotional clarity significantly predicted non-acceptance of emotion using SEM (Vine & Aldao, 2014). It is worth noting that, to our knowledge, all prior research examining the relations between clarity and non-acceptance has used the Difficulties in Emotion Regulation Scale to assess both variables (DERS; Gratz & Roemer, 2004). Our use of different measures (including ESM, which is arguably a stronger methodology) could explain the discrepancy between prior research and our findings, which instead suggest that emotional clarity does not play a large role in the prediction of non-acceptance of emotion.

Future research should make use of multiple measures of emotional non-acceptance and clarity to explore these same questions. If the present findings (that intensity, but not clarity, mediates the relation between beliefs about emotions and non-acceptance of emotion) are replicated, they can be used to guide future clinical theory in two ways. First, our findings suggest a greater emphasis on the intensity of emotional experience and a lower emphasis on one’s ability to identify, distinguish, and understand one's emotions in the genesis of non-acceptance of emotion. Second, given that emotional clarity is consistently inversely associated with depressive symptoms (e.g., Bamonti et al., 2010; Thompson et al., 2015), it is likely that clarity is related to depressive symptomology, but our study shows that its role is likely to be independent from that of non-acceptance of emotion. Future research should continue to explore exactly how clarity fits into the larger clinical picture.

4.3 Indirect Effects on Depressive Symptoms

The results of Study 1, but not Study 2, supported our hypotheses that non-acceptance of emotion explained the association between beliefs about emotions and depressive symptoms (Study 1, Hypothesis 3a; Study 2, Hypothesis 2a). Although negative beliefs about emotions
were positively associated with depressive symptoms in both studies, indirect effects through non-acceptance were only significant in Study 1. This was surprising, especially given that the beliefs about emotions measure and the depression measure were the same in Studies 1 and 2, and the Study 2 sample was a subset of the sample from Study 1, both of which theoretically should have increased the odds of replication in Study 2.

Some personality and health-related research suggests aggregated state measurement has superior validity as compared to global assessment of the same constructs (e.g., Brown & Moskowitz, 1997; Augustine & Larsen, 2012), which would suggest that our Study 2 findings were more valid than our Study 1 findings. In general, individuals are prone to reflect on beliefs about the self when answering global self-report measures, more so than when responding to momentary assessments (Hogan & Hogan, 1996; Robinson & Clore, 2002). Accordingly, our participants’ self-conceptions about their own emotional non-acceptance might differ from how non-accepting they actually are in daily life. Further, research has shown that daily reports of positive and negative emotion intensity have incremental validity over global measures of the same constructs (Wichers et al., 2010), suggesting that in emotion research in particular, aggregated state measurements have enhanced validity. Together, this evidence would support the trustworthiness of our findings using mean-aggregated data in Study 2. Future research should attempt to replicate these findings to determine whether the indirect effect of beliefs about emotions on depressive symptoms through non-acceptance is legitimate.

However, it is also worth noting that our Study 2 non-acceptance variable has not been validated for use in ESM, and it had an unexpectedly low mean and variance. This non-acceptance variable was also the only variable in these particular analyses that differed between studies. The association between mean-aggregated non-acceptance of emotion across two weeks,
which we used in Study 2, and global self-reports of non-acceptance of emotion, which we used in Study 1, was significant but small. Our use of a non-acceptance measure with questionable validity might contributed to the failure of Study 2 non-acceptance of emotion to significantly predict depressive symptoms, a finding that has been well-established in prior literature (e.g., Bakhshaie et al., 2014; Saxena et al., 2011), and Study 2's lack of indirect effects of beliefs about emotion on depressive symptoms through non-acceptance of emotion. Indeed, when global self-reported non-acceptance is substituted for aggregated state non-acceptance in Study 2 analysis, the indirect effect becomes significant; full results of this analysis are presented in Appendix 1. Perhaps we would have been better served with a more straightforward non-acceptance item, adapted from an established global self-report measure, as opposed to the non-acceptance variable we calculated based on negative emotion and "should" affect. Alternately, if the measure was not problematic (as suggested by the significant positive correlation with retrospectively reported non-acceptance of emotion), but our time frame was too short to capture a wider range of emotional non-acceptance, then using a time period of several weeks in which we had more opportunity to capture instances of strong non-acceptance of emotion could have lead to increased variance and might have led to findings that were more in line with our predictions. Future research should work to validate an EMA measure that can accurately capture a representative range of non-acceptance of emotion in daily life.

4.4 Age as a Moderator of Indirect Effects

We had hypothesized that age would moderate the indirect effect of beliefs about emotions on non-acceptance of emotion (Study 1, Hypothesis 3b; Study 2, Hypothesis 2b); however, age moderated the relations between beliefs and negative emotion intensity—and the indirect effects on non-acceptance—in Study 1, but not Study 2. More specifically, in Study 1,
the explanatory role of negative emotion intensity in the relation between beliefs about emotions and non-acceptance decreased in strength as age increased. If we were to take the Study 1 findings in isolation, our model shows that given a younger adult and an older adult with equally strong negative beliefs about emotion, these beliefs are more strongly associated with increased negative emotion intensity in young adults. Thus, the moderating role of age in predicting negative emotion intensity could help explain the decreased negative emotion intensity seen in older adults as compared to younger adults (Carstensen et al., 2011). However, while we expected this effect to replicate in Study 2, there was no moderating effect of negative emotion intensity in Study 2. Although these inter-study findings are seemingly contradictory, global self-report measures have been shown to draw upon beliefs about the self (Robinson & Clore, 2002), and it could be that this phenomenon is stronger in older adults than young adults, leading to an indirect effect of negative emotion intensity on non-acceptance of emotion in the Study 1 (which used global self-report measures of non-acceptance of emotion and negative emotion) but not in the Study 2 data (which used aggregated EMA data of the same constructs). Indeed, as memory declines with age, aging individuals increasingly display over-generality of autobiographical memories, relying less on specific instances and on more general information about the self (Ros, Latorre, & Serrano, 2009).

We had also expected that age would moderate the indirect effect of beliefs about emotions on depressive symptoms (Study 1, Hypothesis 2b; Study 2, Hypothesis 1b). However, the indirect effect in Study 2 was non-significant, so we could not examine age as a moderator of it. In Study 1, age did not significantly moderate the direct association between beliefs about emotions and non-acceptance, so we were also unable to examine age as a moderator of the (significant) indirect effect. If, as was hypothesized, it had been found that the
strength of the indirect association between negative beliefs about emotions and depressive symptoms decreased as age increased, such a moderating effect could have helped to explain the lower prevalence of depressive disorders in older adults compared to younger adults (Hasin et al., 2005).

4.5 Comparisons of Clinical Groups: Mean Levels and Strength of Pathways

We also examined group differences in mean levels of key emotion variables and the strength of pathways connecting them. In line with Study 2, Hypothesis 3, the three groups (current depressed, remitted depressed, and healthy control groups) all had significantly different beliefs about emotions, non-acceptance of emotion, and negative emotion intensity. These differences were such that the MDD group had the highest levels, the healthy control group had the lowest, and the remitted depressed group fell in the middle. In line with our hypotheses (Study 2, Hypothesis 1c; Study 2, Hypothesis 2c), current, remitted, and healthy control groups did not differ significantly with regard to the strength of pathways between variables or the strength of indirect effects. An individual whose depression is in remission, for instance, given a strong set of negative beliefs about emotions, is just as likely as a currently depressed individual to endorse elevated non-acceptance of emotion; and this relation is just as strongly explained by negative emotion intensity. That is, although mean level of variables differed, the relations between those variables remained the same.

The fact that the remitted depressed group’s scores were higher than the control group's scores replicates existing research on negative emotion intensity (e.g., Barge-Schaapveld & Nicolson, 2002) and non-acceptance of emotion (Ehring et al., 2008, 2010). The fact that the current group’s scores were higher than the control group's scores also replicates existing research on negative emotion intensity (e.g., Myin-Germeys et al., 2003) and non-acceptance of
emotion (e.g., Brockmeyer et al., 2012). However, this is the first study to show a similar pattern with beliefs about emotions, such that it is higher in currently depressed individuals than controls as well as in remitted depressed individuals than controls. Further, this is the first study to compare all three groups (current, remitted, and control) and demonstrate that negative emotion intensity, non-acceptance of emotion, and beliefs about emotions are higher in currently depressed individuals as compared to remitted depressed individuals, as well as when both groups are compared to controls.

This finding raises two important points. First, the group differences reinforce the maladaptive nature of negative beliefs about emotion. Current and remitted depressed individuals endorse stronger negative beliefs about emotions than healthy controls, suggesting that negative beliefs about emotion are related to both current and past depressive pathology. Second, the difference between current and remitted depressed groups’ beliefs could suggest that beliefs about emotions are not stable over the course of a lifetime--i.e., that negative beliefs about emotion subside to some degree after remission from MDD-- but because our data are cross-sectional, this idea would need to be confirmed by longitudinal research.

Further, the finding that those with a history of recurrent depressive episodes endorse stronger negative beliefs about emotions than healthy controls suggests that negative beliefs about emotions are not only a feature of MDD but could also be a feature of (and perhaps contributor to) sub-clinical depression. Longitudinal research assessing people’s beliefs about emotion before, during, and after depressive episodes is needed to test whether these negative beliefs are a harbinger of future episodes or a "scar" of prior episodes. If elevations in negative beliefs about emotion precede the onset of an MDE, for example, they could provide an early warning sign that intervention is needed.
The idea that beliefs about emotions ebb and flow with MDD status provides some hope that such beliefs could be responsive to psychotherapy. Indeed, some related research supports the idea that certain beliefs about emotions are malleable. For instance, the beliefs that emotions are controllable (Kneeland, Nolen-Hoeksma, Dovidio, & Gruber, 2016) and useful (Tamir, Bigman, Rhodes, Salerno, & Schreier, 2015) have been subject to experimental manipulation, as have beliefs about the success of emotion regulation (Bigman, Mauss, Gross, & Tamir, 2016). Given that these were laboratory-based manipulations that were meant to serve a short-term purpose in community samples, it will be important to develop interventions that have the potential to promote longer-lasting changes in beliefs about emotions. In individuals with MDD, long-lasting decreases in negative beliefs could potentially contribute to decreased depressive symptoms and, eventually, remission; and in individuals with remitted depression, if negative beliefs are found to predict depressive episodes longitudinally, then decreases in negative beliefs could protect against future depressive episodes.

Inconsistent with our hypotheses, there were no group differences in emotional clarity, even though prior research has shown differences between all three groups (Ehring et al., 2008; Loas et al., 1998; Thompson et al., 2017; Visted et al., 2018). Of note, prior studies used global self-report measures of clarity in their analyses, while we used mean-aggregated clarity, which is arguably a stronger methodology. It is possible that, despite prior evidence, emotional clarity does not in fact differ across these groups. If this were the case, it would argue against the utility of clarity-building skills (e.g., emotion labeling; exercises in mindfulness to internal experiences) in treatments for depression (e.g., Hayes et al., 2004).

Overall, the lack of group differences in pathways between variables, taken together with the significant group differences in mean levels of most variables, suggests that it is the increased
levels of maladaptive emotional traits and behaviors, and not group differences in relations between them, that play a key role in this model. That is, high non-acceptance of emotion is just as likely to be associated with high depressive symptoms in current, remitted, and control groups. An important next step would be to see whether these associations are temporal in nature and test causal assumptions.

4.6 Future Directions

Our results provide us with a solid understanding of the interrelated nature of beliefs about emotion, emotional intensity, and non-acceptance of emotion. As a next step, our cross-sectional mediation findings would need to be confirmed by longitudinal research. If these findings are supported, this would mean that a decrease in negative emotion intensity serves to weaken the positive association between negative beliefs about emotions and non-acceptance of emotion. Further, our results regarding how these variables relate to depressive pathology were inconclusive. Although it is clear that negative beliefs about emotions and non-acceptance of emotion are associated with depressive pathology, and are higher in current and remitted depressed samples, it is not certain that, as we hypothesized, non-acceptance is a mediator of the relation between beliefs about emotions and depressive symptoms.

Given the strength of our findings that emotional intensity mediates the relation between negative beliefs about emotions and non-acceptance of emotion, emotional intensity might seem like a logical target for therapy. However, it is difficult to successfully and directly target negative emotion intensity itself. Research shows that a deliberate attempt to decrease one’s own emotional state—i.e., emotional suppression—is not only ineffective, but can lead to increased negative emotion intensity longitudinally (Campbell-Sills et al., 2006). Therefore, the most successful leading treatments for mood disorders target negative emotion intensity indirectly by
targeting factors that *lead* to increases in negative emotion intensity: for instance, behavioral avoidance, social isolation, and maladaptive thought patterns (e.g., Butler, Chapman, Forman, & Beck, 2006). Therefore, negative beliefs about emotions might be a better target for intervention than negative emotion itself. In this sense, the utility in our mediation findings lies in the discovery of a process that, if it is replicated longitudinally and in clinical treatment studies, can be explained to patients through psychoeducation and provide motivation for treatment of their negative beliefs. Patients can be told, for instance, that in targeting their beliefs over the course of treatment, they could find that they are experiencing less intense sadness or fear and that when they do experience these emotions, they might be more accepting of them.

The difference in levels of negative beliefs about emotions between diagnostic groups suggest that beliefs about emotion do change and could be malleable within a treatment framework. However, psychoeducation and intervention surrounding beliefs about emotion are not explicitly included in leading cognitive-behavioral treatments for depression. We suggest this could improve the efficacy of such treatments, and could potentially included by way of cognitive restructuring or behavioral exposures: that, for example, that if a depressed patient who believes emotions are overwhelming learns by way of testing this thought that she can in fact tolerate even the worst of emotions, her negative beliefs about emotion and non-acceptance of emotion will decrease, leading to a reduction in depressive symptoms. Given that beliefs about emotions are theorized to develop in early childhood (e.g., Gottman et al., 1996), such an intervention might be especially successful in school-age or even younger children and could potentially lead to lower non-acceptance of emotion (and possibly depressive symptoms) later in life; however, these questions are as yet unexplored by longitudinal research.
Future research should also examine how cultural factors influence the patterns found in the present studies. Research has shown that cultural differences can influence how people relate to their emotions and also how those attitudes, beliefs, and regulatory strategies relate to wellbeing (Ford & Mauss, 2015). For instance, Asian Americans are more likely than European Americans to engage in emotional suppression—an emotion regulatory strategy wherein one attempts to control one’s outward expression of emotions (Gross & John, 2003; Mauss, Butler, Roberts, & Chu, 2010; Triandis, 1994). Further, suppression's relation to health outcomes is associated with race: in a study of European American and Asian American college students, race moderated the association between depressive symptoms and emotional suppression, such that the association was stronger in European Americans than in Asian Americans (Cheung & Park, 2010). Given racial differences such as these in emotional experience, it is possible that the pathways from negative beliefs about emotions and non-acceptance of emotion to depressive symptoms that was seen in our study might have been weaker or absent in certain racial groups. This would be a promising direction for future research to explore, and attention should be paid to recruiting a sufficiently diverse participant sample to do so.

The present two-study project is the first to illuminate the association between beliefs about emotions and non-acceptance of emotion in community and clinical samples. Overall, these two studies provide robust support for the role of negative emotion intensity in explaining the positive association between beliefs about emotions and non-acceptance of emotion. Study 1, although not Study 2, also provides evidence of an indirect effect on depressive symptoms through non-acceptance of emotion. Our study also highlights higher levels of negative beliefs about emotion, negative emotion intensity, and non-acceptance of emotion--and not, as could be alternately theorized, differing strength of pathways between those variables--as characterizing
differences between clinical groups. Our findings suggest that high levels of non-acceptance of emotion in MDD, for example, are not explained by stronger predictive pathways from beliefs about emotions; rather, individuals with MDD have higher-than-typical beliefs about emotions, which are associated with higher-than-typical non-acceptance of emotion. This finding reinforces beliefs about emotions as an important point of intervention: regardless of diagnostic status, strong negative beliefs about emotions are associated with other maladaptive emotional patterns. It will be important to continue to explore the structure of beliefs about emotions and its association with non-acceptance of emotion in MDD and beyond.
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Figure 1. A conceptual model of the role of emotions in the development of depression.
Figure 2. Confirmatory factor analyses testing beliefs about emotion as a) four latent factors, b) one hierarchical latent factor, and c) two hierarchical latent factors.
Figure 3. Structural equation model testing Study 1 Hypothesis 2. * = p < .05, ** = p < .01, *** = p < .001.
Figure 4. Structural equation model testing Study 1 Hypothesis 3. * = $p < .05$, ** = $p < .01$, *** = $p < .001$. 
Figure 5. Structural equation model testing Study 2 Hypothesis 1. * = p < .05, ** = p < .01, *** = p < .001.
Figure 6. Structural equation model testing Study 2 Hypothesis 2. * = p < .05, ** = p < .01, *** = p < .001
Table 1. Descriptive data for Study 1 variable total scores.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belief That Emotions Are Overwhelming and Uncontrollable</td>
<td>3</td>
<td>0.9</td>
<td>1.22</td>
<td>5</td>
<td>0.37</td>
<td>-0.64</td>
</tr>
<tr>
<td>Belief that Emotions Are Shameful and Irrational</td>
<td>2.11</td>
<td>0.72</td>
<td>1</td>
<td>4.8</td>
<td>0.37</td>
<td>0.42</td>
</tr>
<tr>
<td>Belief That Emotions Are Useless</td>
<td>3.22</td>
<td>0.65</td>
<td>1.5</td>
<td>5</td>
<td>-0.09</td>
<td>-0.09</td>
</tr>
<tr>
<td>Belief That Emotions Are Damaging</td>
<td>2.71</td>
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<td>1</td>
<td>5</td>
<td>0.24</td>
<td>-0.38</td>
</tr>
<tr>
<td>Negative Emotion Intensity</td>
<td>23.02</td>
<td>8.9</td>
<td>10</td>
<td>48</td>
<td>0.61</td>
<td>-0.4</td>
</tr>
<tr>
<td>Emotional Clarity</td>
<td>46.15</td>
<td>11.3</td>
<td>14</td>
<td>65</td>
<td>-0.41</td>
<td>-0.42</td>
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<tr>
<td>Emotional Non-Acceptance</td>
<td>27.35</td>
<td>8.52</td>
<td>9</td>
<td>45</td>
<td>-0.11</td>
<td>-0.65</td>
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<tr>
<td>Depressive Symptoms</td>
<td>59.95</td>
<td>18.68</td>
<td>22</td>
<td>105</td>
<td>0.3</td>
<td>-0.94</td>
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Table 2. Pearson correlations between total scores of Study 1 variables.

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<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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<tbody>
<tr>
<td>1. Belief That Emotions Are</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overwhelming and</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Uncontrollable</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Belief that Emotions Are</td>
<td>0.58***</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shameful and Irrational</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Belief that Emotions Are</td>
<td>0.12*</td>
<td>0.22***</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Useless</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Belief that Emotions Are</td>
<td>0.65***</td>
<td>0.63***</td>
<td>0.17***</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Damaging</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Negative Emotion Intensity</td>
<td>0.65***</td>
<td>0.45***</td>
<td>0.02</td>
<td>0.46***</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6. Emotional Clarity</td>
<td>-</td>
<td>-</td>
<td>-0.10*</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<tr>
<td>7. Emotional Non-Acceptance</td>
<td>0.44***</td>
<td>0.47***</td>
<td>-0.08</td>
<td>0.38***</td>
<td>0.49***</td>
<td>0.44***</td>
<td>1</td>
<td>-</td>
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<td>8. Depressive Symptoms</td>
<td>0.60***</td>
<td>0.50***</td>
<td>-0.08</td>
<td>0.49***</td>
<td>0.62***</td>
<td>0.44***</td>
<td>1</td>
<td>-</td>
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</table>

Note: * = p < .05, ** = p < .01, *** = p < .001
Table 3. Descriptive data for Study 2 variable total scores.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>Skew</th>
<th>Kurtosis</th>
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<tbody>
<tr>
<td>Belief That Emotions Are Overwhelming and Uncontrollable</td>
<td>2.88</td>
<td>0.91</td>
<td>1.22</td>
<td>5</td>
<td>0.42</td>
<td>-0.53</td>
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<tr>
<td>Belief that Emotions Are Shameful and Irrational</td>
<td>2.02</td>
<td>0.72</td>
<td>1</td>
<td>4.8</td>
<td>1.07</td>
<td>1.32</td>
</tr>
<tr>
<td>Belief That Emotions Are Useless</td>
<td>3.23</td>
<td>0.64</td>
<td>1.5</td>
<td>5</td>
<td>0.03</td>
<td>0</td>
</tr>
<tr>
<td>Belief That Emotions Are Damaging</td>
<td>2.55</td>
<td>0.84</td>
<td>1</td>
<td>5</td>
<td>0.42</td>
<td>-0.31</td>
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<tr>
<td>Negative Emotion Intensity</td>
<td>0.46</td>
<td>0.38</td>
<td>0</td>
<td>2.04</td>
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<td>Emotional Clarity</td>
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<td>1.42</td>
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<td>Depressive Symptoms</td>
<td>57.78</td>
<td>18.86</td>
<td>22</td>
<td>105</td>
<td>0.43</td>
<td>-0.86</td>
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Table 4. Demographic and clinical characteristics of Study 2 participants.

<table>
<thead>
<tr>
<th></th>
<th>Current Depressed (n = 48)</th>
<th>Remitted Depressed (n = 80)</th>
<th>Healthy Control (n = 87)</th>
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<tbody>
<tr>
<td>Age, Mean (SD, range)</td>
<td>41.94 (14.13)</td>
<td>44.20 (16.30)</td>
<td>45.45 (16.94)</td>
</tr>
<tr>
<td>Gender, % Women</td>
<td>72.9% a</td>
<td>71.3% a</td>
<td>57.5% a</td>
</tr>
<tr>
<td>Race/ethnicity, % Black</td>
<td>20.8% a</td>
<td>18.8% a</td>
<td>19.8% a</td>
</tr>
<tr>
<td>Key Study Variables, Mean (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief That Emotions Are</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overwhelming and Uncontrollable</td>
<td>3.62 (.94) a</td>
<td>2.87 (.87) b</td>
<td>2.48 (.64) c</td>
</tr>
<tr>
<td>Belief that Emotions Are</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shameful and Irrational</td>
<td>2.48 (.84) a</td>
<td>1.99 (.69) b</td>
<td>1.79 (.52) b</td>
</tr>
<tr>
<td>Belief That Emotions Are</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Useless</td>
<td>3.37 (.70) a</td>
<td>3.21 (.70) a</td>
<td>3.16 (.54) a</td>
</tr>
<tr>
<td>Belief That Emotions Are</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Damaging</td>
<td>3.14 (.77) a</td>
<td>2.54 (.85) b</td>
<td>2.23 (.69) c</td>
</tr>
<tr>
<td>Negative Emotion Intensity</td>
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<td></td>
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<tr>
<td>(Retrospective)</td>
<td>29.91 (7.85) a</td>
<td>21.20 (7.35) b</td>
<td>17.17 (5.63) c</td>
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<tr>
<td>Negative Emotion Intensity</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(Mean aggregated state)</td>
<td>.73 (.41) a</td>
<td>.44 (.29) b</td>
<td>.34 (.35) c</td>
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<td>(Mean aggregated state)</td>
<td>1.8 (.82) a</td>
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<td>27.74 (8.11) b</td>
<td>33.11 (6.63) c</td>
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<td>(Mean aggregated state)</td>
<td>.40 (.25) a</td>
<td>.26 (.18) b</td>
<td>.19 (.23) c</td>
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<td>56.54 (15.98) b</td>
<td>47.97 (13.55) c</td>
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Note: Different subscripts within rows indicate significant pairwise comparisons, \( p < 0.05 \). Only percentages of White and Black groups were compared in race/ethnicity analyses.
Table 5. Pearson correlations between total scores of Study 2 variables.

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Note: * = p < .05, ** = p < .01, *** = p < .001
Appendix

Indirect Effects of Beliefs About Emotion on Depressive Symptoms through Globally Assessed Non-Acceptance of Emotion in Study 2 Sample

A structural equation model was fit to the data such that beliefs about emotions led to depressive symptoms through global self-reported non-acceptance of emotion, with direct pathways from beliefs about emotions to depressive symptoms. An examination of absolute fit indices indicated that this model was not a good fit to the data. The chi square value was significant, $\chi^2(2007) = 4373.32, p < .001$. The CFI value was below .9, indicating poor model fit (CFI = .75). The SRMR value was above .08 (SRMR = .12) and the RMSEA value was above .06 (RMSEA = .08), which also indicate poor model fit.

As expected, beliefs about emotions significantly and positively predicted non-acceptance of emotion, $B = .72, SE(B) = .16, p < .001$. However, age was not a significant moderator of this association, $B = .008, SE(B) = .002, p = .88$. Also as expected, non-acceptance of emotion significantly predicted depressive symptoms, $B = .21, SE(B) = .06, p = .04$. In addition, there was support for the hypothesized indirect pathway from beliefs about emotions to depressive symptoms through non-acceptance of emotion; this indirect effect was significant, $B = .15, SE(B) = .07, p = .04$. 

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