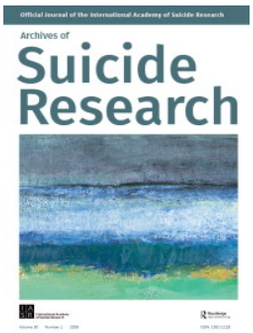

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What It Means to Believe: Non-Suicidal Self-Injury and Emotion Beliefs Moderate the Relationship Between Emotion Experiences and Emotion Dysregulation

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ABSTRACT

Objective: Although emotion dysregulation is a transdiagnostic risk factor for psychopathology, research typically focuses on dysregulation of negative emotions only. We investigated the contributions of dimensions of emotional experience, emotion beliefs, and non-suicidal self-injury (NSSI) to both negative and positive emotion dysregulation.

Method: 441 participants (*M* age = 23.65, 73.5% female, 39.0% with lifetime NSSI) reported their negative and positive emotion reactivity, intensity, perseveration, and dysregulation, as well as their NSSI history and beliefs about the controllability and usefulness of emotions.

Results: Emotion intensity, perseveration, uncontrollability beliefs, and NSSI were uniquely associated with emotion dysregulation. Counter to predictions, emotion reactivity was associated with less dysregulation. Greater perseveration was associated with greater dysregulation of both negative and positive emotions, but only for participants who believed emotions were uncontrollable. NSSI also moderated the associations between emotion experiences and dysregulation. Among individuals who self-injure, increased emotional intensity was associated with greater dysregulation of positive emotions. Among individuals who self-injure and believed emotions were more useful, increased reactivity was linked to less dysregulation of positive emotions. Conversely, for those without a NSSI history who believed emotions were less useful, increased reactivity was associated with less dysregulation of positive emotion.

Conclusion: Emotion beliefs are an important mechanism associated with dysregulation of both negative and positive emotion. Positive emotions play a complex role in dysregulation, influenced by cognitive (controllability and usefulness beliefs) and behavioral factors (NSSI), underscoring the need for future research to explore dysregulation of both negative and positive emotions to improve emotional well-being.

HIGHLIGHTS

- Emotion experiences, beliefs, and NSSI are linked toand positive and negative emotion dysregulation.
- Extended emotions responses are linked to dysregulation only in the context of believing emotions areuncontrollable.
- Similar emotion beliefs relate differently to experiences and dysregulation depending on NSSI status.

KEYWORDS
Emotion beliefs; emotion dysregulation; meta-cognitive beliefs; non-suicidal self-injury; self-harm

Emotions shape the way we interact with our world (Bradley & Lang, 2007). Individuals with enduring difficulties regulating their emotions experience widepread emotion dysregulation that impedes day-to-day functioning (Gross, 2013; Jazaieri et al., 2013). Individual differences in how we experience our emotions is argued to underlie emotion dysregulation (Cole et al., 2019; Gross & Jazaieri). In particular, emotion reactivity (i.e., likelihood of emotional response), intensity (i.e., strength of emotional response), and perseveration (i.e., duration of emotional response), are thought to uniquely contribute to emotion dysregulation (Gross & Jazaieri, 2014; Ripper et al., 2018). Non-suicidal self-injury (NSSI), where an individual directly harms themselves without suicidal intent, is a clinically important behavior characterized by emotion dysregulation (e.g., Chapman et al., 2006; Hasking et al., 2017; Nock, 2009). Given that emotion dysregulation shapes the trajectory of NSSI (e.g., Kelada et al., 2018; Robinson et al., 2019), it is critical to: i) understand the mechanisms that perpetuate emotion dysregulation; and ii) consider how these mechanisms may differ for individuals with and without NSSI lived experience.

The beliefs an individual holds about emotions may be one such mechanism underlying emotion dysregulation. Also referred to as emotion malleability beliefs, controllability beliefs center on the extent to which an individual views emotions as entities that can be shaped, changed, or molded (Ford & Gross, 2019; Kneeland et al., 2016). Usefulness beliefs center on the extent to which an individual views emotions as functional or helpful in meeting a goal (Ford & Gross, 2019). Controllability and useful beliefs may influence if, when, and how we regulate our emotions (Ford & Gross, 2018, 2019). Individuals are less likely to regulate specific emotions they believe are less controllable (Hong & Kangas, 2022; Tamir et al., 2007). Likewise, greater controllability beliefs are associated with increased engagement with regulation strategies and more regulatory effort (Kneeland et al., 2016). In contrast, individuals who believe emotions are fixed and *un*controllable are more likely to engage in reactive and avoidance-based emotion regulation strategies and are less likely to engage in help-seeking behaviors, such as engaging with psychological services (De Castella et al., 2018; Kneeland & Simpson, 2022). Compared to controllability beliefs, the relationship between usefulness beliefs and emotion dysregulation remains largely unexplored (Hong & Kangas, 2022). Preliminary evidence from the mindfulness and acceptance tradition has found that people who believe emotions are unhelpful also show elevated responses to emotional challenge (Ford et al., 2018). Taken together, these findings suggest emotion beliefs may underlie emotion dysregulation.

Believing emotion are (un)controllable and (un)helpful may also have consequences for an individual's long-term emotional wellbeing. In a community sample, greater controllability beliefs were associated with decreased symptoms of stress, depression, and suicide ideation (Kneeland et al., 2024). Likewise, in a sample of clinical adults, greater controllability beliefs were associated with fewer depressive symptoms and lower odds of recent suicide behavior (Fan et al., 2024). Preliminary evidence also suggests that believing emotions are not useful is associated with poorer psychological well-being and greater internalizing symptoms (Ford et al., 2018; Johnston et al., 2024; Karnaze & Levine, 2018). Additionally, believing emotions are both useless and uncontrollable is associated with greater emotion dysregulation and mood disorder symptoms (Becerra

et al., 2020). Taken together, these findings suggest beliefs about emotion may underlie emotion dysregulation. Given that emotion dysregulation is argued to be a transdiagnostic risk factor for psychopathology (e.g., Carver et al., 2017; Cavicchioli et al., 2023), it is critical to establish if emotion experiences and emotion beliefs are uniquely associated with emotion dysregulation.

If an individual's beliefs about emotions are an integral precursor to emotion dysregulation, then investigating how this association differs in the context of elevated emotion dysregulation can provide new insights into these processes. NSSI is robustly associated with more intense negative emotions (e.g., Boyes et al., 2020; Gee et al., 2020; Horgan & Martin, 2016; Kranzler et al., 2018; Nicolai et al., 2016; Robinson et al., 2023) and greater emotion dysregulation (for review, see Wolff et al., 2019). Critically, these robust differences in self-reported emotion dysregulation diverge from n experimental studies of real-time emotional challenge, which tend to find no differences in the generation or regulation of negative emotion between individuals with and without a self-injury history (Davis et al., 2014; Mettler et al., 2021; Robinson et al., 2023, 2024). This dissociation provides suggests individuals who self-injure may hold inaccurate beliefs about their emotions and regulation abilities that do not reflect their *actual* real-time emotional response (Mettler et al., 2021; Robinson et al., 2023, 2024). Additionally, although NSSI is distinct from suicide, NSSI engagement and frequency have been highlighted as a risk factor for suicide ideation (e.g., Chesin et al., 2017) which has been differentially associated with controllability beliefs across clinical and community samples (Fan et al., 2024; Kneeland et al., 2024). However, how emotion beliefs maybe uniquely associated with NSSI has not yet been investigated.

To date, NSSI research has typically focused on *negatively*-valenced emotion dysregulation, with positive emotions thought to play a role only in buffering against negatively-valenced emotional/cognitive cycles that lead to NSSI engagement (Hasking et al., 2018). However, recent research has begun to highlight the importance of *positively*-valenced emotion dysregulation for understanding psychopathology in general (Carl et al., 2013; Gruber et al., 2020), and NSSI in particular (Perini et al., 2021). Preliminary research demonstrates that individuals who self-injure report experiencing less positive emotions overall compared to their peers (Arbuthnott et al., 2015; Boyes et al., 2020; Bresin, 2014; Victor & Klonsky, 2014). However, as in the case for negatively-valenced emotion, experimental studies have found no differences in the generation or regulation of positive emotion between individual with and without a self-injury (Jankowski et al., 2024; Mettler et al., 2021), suggesting that individuals who self-injure may hold *widespread* inaccurate beliefs about their emotions, regardless of valence. Given the limited understanding of positively-valenced emotion dysregulation, investigation of the correlates of positive emotion dysregulation is needed to identify similarities and differences between positively- and negatively-valenced systems, particularly among individuals who experience widespread emotion dysregulation, such as those who self-injure.

The current study aimed to understand the unique emotional, cognitive, and behavioral contributors to positively- and negatively-valenced emotion dysregulation. We first replicate the associations between dimensions of negative emotion experience (i.e., emotion reactivity, intensity, and perseveration) and emotion dysregulation, before

extending previous research by investigating how emotion controllability beliefs and NSSI history may alter these relationships. We predicted: (a) greater reactivity, intensity, and perseveration of negative emotions would be associated with greater negative emotion dysregulation; and (b) these relationships would be strengthened for those who believe emotions are less controllable and/or who self-injure. Given the limited investigation of other emotion beliefs, we extend previous research by exploring how emotion usefulness beliefs are associated with emotion experiences and dysregulation. Finally, we explore how associations found in the context of negatively-valenced emotions may extend to positively-valenced emotions.

METHODS

Participants

Participants ($n = 441$; Mage = 23.65, $SD = 7.32$) were undergraduate psychology students at a large public university in Australia. The majority (73.5%) of participants identified as female, while 26.5% identified as male. Consistent with population estimates of the urban area (Australian Bureau of Statistics, 2021), 1.6% of participants identified as Aboriginal or Torres Strait Islander (i.e., the Indigenous peoples of Australia). The majority of participants were born in Australia (70.1%), with the next highest proportions being from the United Kingdom (5.0%), Malaysia (2.7%), and South Africa (2.0%). Thirty-nine percent of participants reported lifetime NSSI engagement, with 22.3% indicating they had self-injured once or more in the previous 12 months. The average age of NSSI onset was 15.2 years ($SD = 3.41$), and the most common forms of self-injury were cutting the skin (29.3%), banging or hitting oneself (18.2%), and severely scratching the skin (9.8%). Among the total sample, 34.2% reported a previous mental illness diagnosis, most commonly depression and anxiety, with 18.4 years ($SD = 5.48$) the average age of onset.

Measures

Emotion Experiences

Dimensions of emotion reactivity, intensity, and perseveration were measured for both negative and positive emotions using the 60-item Emotion Reactivity, Intensity, and Perseveration Scale (ERIPS; Ripper et al., 2018), which utilizes 20 emotion adjectives (10 negative and 10 positive) from the Positive and Negative Affect Scale (Watson et al., 1988). Participants responded to each adjective on a 5-point Likert scale, rating their emotional reactivity ("When exposed to a situation that would make the 'average' person experience this feeling, how likely is it that you will experience this particular feeling?") intensity ("When you are experiencing a situation that does make you feel this way, how intense is the feeling compared to how other people feel"), and perseveration ("When you are experiencing a situation that does make you feel this way, how long is this feeling likely to persist?"). Items were rated on scales ranging from "1 – Not at All" to "5 – Extremely." Responses were summated to provide scores for positive and negative Reactivity, Intensity, and Perseveration, with higher scores indicating stronger emotional experiences. Previous investigation demonstrates the Negative and Positive

subscales account for independent variance in trait affect (Ripper et al., 2018). As in previous samples (Boyes et al., 2020; Ripper et al., 2018), all negative (Reactivity: $\alpha = 0.93$; Intensity, $\alpha = 0.92$; Perseveration: $\alpha = 0.91$), and positive subscales (Reactivity: $\alpha = 0.92$, Intensity; $\alpha = 0.93$, Perseveration: $\alpha = 0.92$) demonstrated excellent internal consistency.

Emotion Dysregulation

Negatively-valenced emotion dysregulation was measured using the 18-item Difficulties in Emotion Regulation Scale-SF (DERS-N; Kaufman et al., 2016). Positively-valenced emotion dysregulation was measured using the 13-item Difficulties in Emotion Regulation Scale-Positive (DERS-P; Weiss et al., 2015). Both scales invite participants to respond to items such as "When I am upset, I believe I will end up feeling very depressed" (DERS-N) and "When I'm happy, I feel ashamed with myself for feeling that way" (DERS-P) on a 5-point Likert scale ranging from "1 – Almost Never," to "5 – Almost Always." Item responses for each scale were summated, with higher scores indicating greater difficulties regulating emotions. As in previous samples (Kaufman et al., 2016; Weiss et al., 2015) both the DERS-N and DERS-P demonstrated excellent internal consistency (DERS-N: $\alpha = 0.90$, DERS-P: $\alpha = 0.96$).

Emotion Beliefs

The extent to which participants believed emotions are controllable and useful was measured using the Overwhelming and Uncontrollable and the Useless sub-scales of the Beliefs about Emotions Questionnaire (BAEQ; Manser et al., 2012). Participants were asked to rate their agreement with items such as "Feeling upset is not useful" and "Feeling upset is uncontrollable" on a 5-point Likert scale ranging from "1 – Strongly Disagree" to "5 – Strongly Agree." Items were reverse scored and totaled with higher scores indicating stronger beliefs that emotions are less controllable or less useful. As in previous samples (Manser et al., 2012; Strodl et al., 2023), both subscales demonstrated adequate to good internal consistency in the current study (Uncontrollable Beliefs: $\alpha = 0.92$, Useless Beliefs: $\alpha = 0.74$).

Non-Suicidal Self-Injury

Lifetime history and previous 12-month engagement in NSSI were assessed using the Inventory of Statements about Self-Injury (ISAS; Klonsky & Glenn, 2009). Participants were provided with a brief description of self-injury and then asked if they had ever engaged in self-injury (response options: Yes; No). Participants who indicated that they had self-injured were asked how many times they had self-injured in the previous 12 months, responding on a 6-point scale ranging from "1 – None" to "6 – Five times or more times." Section One of the ISAS was used to gain a more descriptive and contextual understanding of participants' NSSI engagement, including age of onset, and methods used. For reporting NSSI engagement/frequency, ISAS has demonstrated good test-retest reliability over 1–4 weeks ($r = 0.85$; Klonsky, 2011; Klonsky & Glenn, 2009).

Procedure

Ethical approval was obtained from Curtin University's Human Research Ethics Committee. Participants were recruited through an undergraduate research pool and received partial course credit for research participation. The survey was hosted online through Qualtrics. An information sheet was provided at the beginning and participants provided informed consent via a tick box before completing the online survey. The survey took approximately 45–60 minutes to complete and all participants received information on mental health and NSSI resources.

Data Analysis

Data analysis were conducted using SPSS v28 (IBM Corporation, 2021) and the PROCESS macro (Hayes, 2017). Incomplete cases where participants had not reported their lifetime NSSI engagement or completed less than half of the emotion questionnaire measures were removed ($n = 23$). As key analyses included gender, participants who identified as gender diverse (e.g., agender, nonbinary, transgender; $n = 5$) were excluded from to protect against spurious findings. Missing values analysis indicated data were not missing completely at random, $\chi^2(8687) = 9{,}861.64$, $p < 0.001$. However, given that the amount of missing data across all variables was minimal (<1.6%), missing values were imputed using expectation maximization (Tabachnick & Fidell, 2013). Pearson's and point biserial correlations describe zero-order associations. Two hierarchical linear regression models tested whether dimensions of emotion experience are uniquely associated with negative and positive emotion dysregulation, before considering whether emotion beliefs and NSSI history moderate these direct effects. Predictor variables were standardized and entered in the same manner for both regression analyses. At Step 1, age and gender were entered as covariates. At Step 2, dimensions of emotion experience were added. At Step 3, emotion beliefs and lifetime NSSI history were added. Two- and three-way interactions between emotion experiences, emotional beliefs, and lifetime NSSI history were added in Steps 4 and 5. Significant two- and three-way interactions were investigated using simple slopes tests at $M \pm 1$ SD (Aiken & West, 1996).

RESULTS

Demographic Analysis

Table 1 presents descriptive statistics and zero-order correlations. Men reported greater positive emotion dysregulation than women, although gender was not associated with negative emotion dysregulation. Conversely, women held stronger beliefs that emotions are controllable than men. Women were also more likely than men to report self-injuring. Younger participants reported greater dysregulation of both negative and positive emotions than older participants. Given these associations, age and gender were entered as covariates in both models.

Table 1. Descriptive statistics and correlations between variables.

	NSSI		No NSSI													
Variable	*M*/%	*SD*	*M*/%	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Female gender	**80.8%**†	–	**68.7%**†	–	–											
2. Age	23.63	6.53	23.67	7.79	0.06	–										
3. Negative reactivity	**32.50**§	**8.61**	**29.14**§	**8.89**	**0.22**§	−0.09	–									
4. Negative intensity	**30.67**§	**8.50**	**25.77**§	**8.92**	**0.10***	**−0.12***	**0.65**§	–								
5. Negative perseveration	**31.36**§	**7.67**	**27.34**§	**8.42**	**0.11***	**−0.10***	**0.69**§	**0.77**§	–							
6. Positive reactivity	**30.27**†	**7.50**	**32.22**†	**7.70**	−0.03	0.04	**0.26**§	0.01	−0.03	–						
7. Positive intensity	28.05	8.24	29.14	8.31	**−0.09***	0.02	0.02	**0.29**§	0.07	**0.60**§	–					
8. Positive perseveration	**27.47**†	**7.15**	**29.67**†	**7.39**	**−0.13**†	0.06	−0.02	−0.03	0.03	**0.72**§	**0.66**§	–				
9. NSSI	**100%**§	–	**0%**§	–	**0.13**†	−0.00	**0.17**§	**0.26**§	**0.24**§	**−0.12**†	−0.06	**−0.15**†	–			
10. Uncontrollable beliefs	**31.44**§	**8.37**	**25.73**§	**8.47**	**0.13**†	**−0.10***	**0.40**§	**0.52**§	**0.55**§	**−0.24**§	**−0.12***	**−0.27**§	**0.31**§	–		
11. Useless beliefs	23.28	5.53	22.72	5.28	−0.00	0.00	−0.00	−0.02	0.04	**−0.14**†	**−0.14**†	**−0.12***	0.05	0.05	–	
12. Negative dysregulation	**49.90**§	**13.71**	**40.20**§	**12.85**	0.02	**−0.21**§	**0.35**§	**0.52**§	**0.54**§	**−0.28**§	**−0.12***	**−0.23**§	**0.34**§	**0.70**§	**0.15**†	–
13. Positive dysregulation	**22.21**†	**10.88**	**19.49**†	**9.07**	**−0.12***	**−0.18**§	0.08	**0.23**§	**0.18**§	**−0.11***	0.09	−0.00	**0.13**†	**0.17**§	0.00	**0.46**§

Note. $^{*}p < 0.05$, $^{\dagger}p < 0.01$, $^{\S}p < 0.001$. Gender was coded as a binary variable Male = 1, Female = 2. Significant correlations are bolded for clarity. NSSI $n = 172$; No NSSI $n = 269$.

Table 2. Predictors of difficulties with regulating negatively-valenced emotions.

		B(SE)	95% CI for *B*	*β*	R^2	ΔR^2
Step 1					0.04	0.04
	Age	**−0.40(0.09)**	**[−0.58, −0.22]**	**−0.21**$^{\$}$		
	Gender[a]	1.00(1.48)	[−1.92, 3.91]	.03		
Step 2					0.35	0.30
	Reactivity	**−1.56(0.79)**	**[−3.12, 0.00]**	**−0.12***		
	Intensity	**3.60(0.89)**	**[1.86, 5.35]**	**0.26**$^{\$}$		
	Perseveration	**5.75(0.93)**	**[3.93, 7.57]**	**0.41**$^{\$}$		
Step 3					0.58	0.24
	NSSI	**3.33(0.96)**	**[1.45, 5.21]**	**0.12**†		
	Uncontrollable Beliefs	**7.37(0.55)**	**[6.29, 8.45]**	**0.53**$^{\$}$		
	Useless Beliefs	**1.61(0.45)**	**[0.74, 2.49]**	**0.11**$^{\$}$		
Step 4					0.59	0.01
	Reactivity x NSSI	2.42(1.43)	[−0.38, 5.22]	0.11		
	Intensity x NSSI	−1.15(1.58)	[−2.08, 1.05]	−0.04		
	Perseveration x NSSI	−0.11(1.70)	[−3.45, 3.22]	−0.01		
	Reactivity x Uncontrollable Beliefs	−0.77(0.64)	[−2.03, 0.49]	−0.06		
	Intensity x Uncontrollable Beliefs	−0.52(.80)	[−2.08, 1.05]	−0.05		
	Perseveration x Uncontrollable Beliefs	**2.02(0.80)**	**[0.44, 3.60]**	**0.16***		
	Reactivity x Useless Beliefs	−0.41(0.66)	[−1.69, 0.88]	−0.03		
	Intensity x Useless Beliefs	−0.39(0.67)	[−3.45, 3.22]	−0.01		
	Perseveration x Useless Beliefs	0.47(0.71)	[−0.92, 1.85]	0.04		
Step 5					0.60	0.01
	Reactivity x Uncontrollable Beliefs x NSSI	−1.42(1.50)	[−4.37, 1.53]	−0.07		
	Intensity x Uncontrollable Beliefs x NSSI	2.43(1.76)	[−1.02, 5.88]	0.13		
	Perseveration x Uncontrollable Beliefs x NSSI	−0.10(1.69)	[−3.43, 3.22]	−0.01		
	Reactivity x Useless Beliefs x NSSI	0.68(1.37)	[−2.00, 3.37]	0.03		
	Intensity x Useless Beliefs x NSSI	1.70(1.50)	[−1.24, 4.63]	0.08		
	Perseveration x Useless Beliefs x NSSI	−1.78(1.54)	[−4.80, 1.24]	−0.09		

Note. NSSI = non-suicidal self-injury; $^{*}p < .05$, $^{\dagger}p < .01$, $^{\$}p < .001$. [a]Gender was coded such that Male = 1, Female = 2. Significant predictors are bolded for clarity.

Negative Emotion Dysregulation

Table 2 summarizes analyses focused on negatively-valenced emotions. The final model accounted for 59.3% of the variance in negatively valenced emotion dysregulation, $R^2 = 0.59$, adjusted $R^2 = 0.58$, $F(17, 423) = 36.28$, $p < 0.001$. As predicted, greater emotion intensity and perseveration, NSSI, and controllability beliefs were uniquely associated with greater emotion dysregulation. Counter to predictions, greater emotion reactivity was associated with *less* emotion dysregulation. Exploratory analysis revealed usefulness beliefs were also all associated with greater emotion dysregulation. Counter to hypotheses, the interaction between emotion perseveration emotion and uncontrollable beliefs was the only significant interaction. Specifically, greater perseveration was associated with greater emotion dysregulation among participants who believed emotions are less controllable ($b = 4.56$, $t = 3.32$, $p = 0.001$), but showed no association among those who believed emotions are more controllable ($b = 0.53$, $t = 0.48$, $p = 0.634$, Figure 1a).

Positive Emotion Dysregulation

Table 3 summarizes exploratory analyses focused on positively-valenced emotions. The final model accounted for 15.3% of the variance in difficulties regulating positive emotions, $R = 0.15$, adjusted $R^2 = 0.12$, $F(17, 423) = 4.51$, $p < 0.001$. As for negative

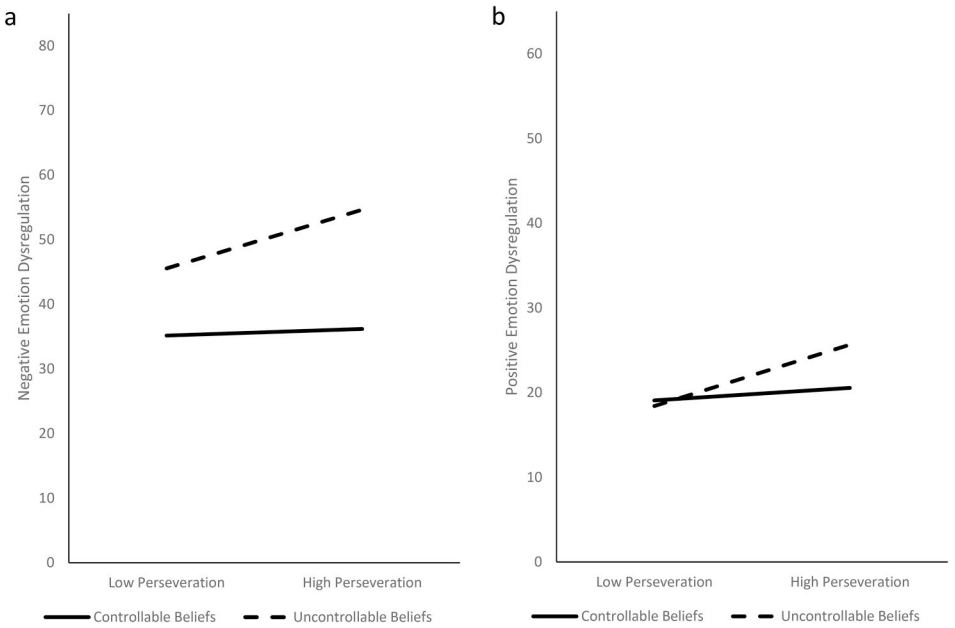

Figure 1. Simple slopes for significant two-way interactions. (a) The relationship between emotion perseveration and negative emotion dysregulation as moderated by controllability beliefs; (b) the relationship between emotion perseveration and positive emotion dysregulation as moderated by controllability beliefs.

Table 3. Predictors of difficulties with regulating positively-valenced emotions.

		B(SE)	95% CI for *B*	*β*	R^2	ΔR^2
Step 1					0.04	0.04
	Age	**−0.23(0.06)**	**[−0.36, −0.11]**	**−0.17**§		
	Gender[a]	**−2.47(1.05)**	**[−4.53, −0.41]**	**−0.11***		
Step 2					0.09	0.05
	Reactivity	**−2.69(0.67)**	**[−4.01, −1.37]**	**−0.27**§		
	Intensity	**2.00(0.62)**	**[0.79, 3.22]**	**0.20**†		
	Perseveration	0.59(0.72)	[−0.82, 2.00]	0.06		
Step 3					0.12	0.03
	NSSI	**2.15(.97)**	**[0.24, 4.06]**	**0.11***		
	Uncontrollable Beliefs	**1.25(.49)**	**[0.29, 2.21]**	**0.13***		
	Useless Beliefs	−0.08(0.46)	[−0.98, .82]	−0.01		
Step 4					0.15	0.03
	Reactivity x NSSI	−0.76(1.46)	[−3.64, 2.12]	−0.05		
	Intensity x NSSI	**3.20(1.33)**	**[0.59, 5.80]**	**0.20***		
	Perseveration x NSSI	−2.40(1.55)	[−5.45, .65]	−0.15		
	Reactivity x Uncontrollable Beliefs	0.02(0.69)	[−1.33, 1.36]	0.00		
	Intensity x Uncontrollable Beliefs	−0.49(0.61)	[−1.68, 0.71]	−0.06		
	Perseveration x Uncontrollable Beliefs	**1.45(.73)**	**[0.02, 2.88]**	**0.16***		
	Reactivity x Useless Beliefs	0.28(0.69)	[−1.08, 1.64]	0.03		
	Intensity x Useless Beliefs	0.70(60)	[−0.47, 1.88]	0.08		
	Perseveration x Useless Beliefs	−1.31(0.70)	[−2.68, 0.06]	−0.14		
Step 5					0.17	0.02
	Reactivity x Uncontrollable Beliefs x NSSI	1.55(1.57)	[−1.53, 4.64]	0.12		
	Intensity x Uncontrollable Beliefs x NSSI	.12(1.35)	[−2.54, 2.78]	0.01		
	Perseveration x Uncontrollable Beliefs x NSSI	−2.57(1.49)	[−5.49, 0.35]	−0.20		
	Reactivity x Useless Beliefs x NSSI	**3.47(1.47)**	**[0.58, 6.36]**	**0.24***		
	Intensity x Useless Beliefs x NSSI	−0.88(1.25)	[−3.34, 1.58]	−0.06		
	Perseveration x Useless Beliefs x NSSI	−2.12(1.44)	[−4.95, 0.71]	−0.15		

Note. NSSI = non-suicidal self-injury; $^{*}p < 0.05$, $^{\dagger}p < 0.01$, $^{\S}p < 0.001$; [a]Gender was coded such that Male = 1, Female = 2. Significant predictors are bolded for clarity.

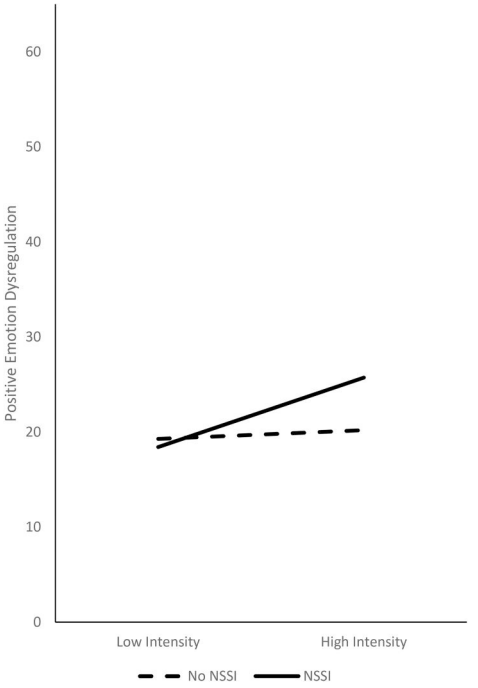

Figure 2. Simple slopes for significant two-way interactions. The relationship between emotion intensity and positive emotion dysregulation as moderated by NSSI status.

emotion dysregulation, greater emotion intensity, NSSI, and controllable beliefs were uniquely associated with greater positive emotion dysregulation and emotion reactivity was associated with less emotion dysregulation. Both emotion perseveration and usefulness beliefs were unrelated to emotion dysregulation.

Direct effects were qualified by three unique interactions between emotional, cognitive, and behavioral factors. Again, mirroring findings for negative emotion dysregulation, emotion perseveration, and controllability beliefs interacted to predict positive emotion dysregulation. Greater emotion perseveration was associated with greater emotion dysregulation among participants who believed emotions are less controllable ($b = 3.62$, $t = 2.75$, $p = 0.006$), but showed no association among those who believed emotions are more controllable ($b = 0.73$, $t = 0.73$, $p = 0.464$, Figure 1b). There was also an interaction between emotion intensity and NSSI such that people who self-injured showed a positive association between emotion intensity and emotion dysregulation ($b = 3.66$, $t = 3.51$, $p < 0.001$) but people without self-injury lived experience did not ($b = 0.46$, $t = 0.58$, $p = 0.105$; Figure 2). Finally, there was a three-way interaction between emotion reactivity, usefulness beliefs, and NSSI (see Figure 3). For people who believe emotions are more useful, reactivity was negatively associated with dysregulation only among people who self-injure (NSSI: $b = -6.05$, $t = -3.52$, $p < 0.001$; No NSSI: $b = -1.79$, $t = -1.62$, $p = 0.106$). For people who believe emotions are less useful, reactivity was negatively associated with dysregulation only among people who *do not* self-injure (NSSI: $b = -0.73$, $t = -0.43$, $p = 0.664$; No NSSI: $b = -3.41$, $t = -2.58$, $p = 0.010$).

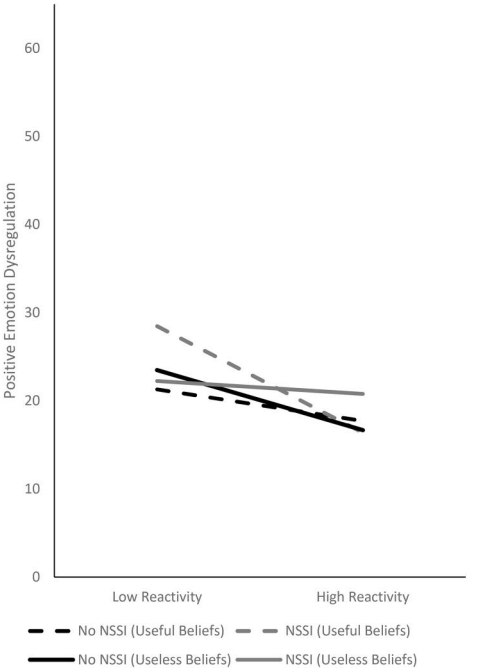

Figure 3. Simple slopes for the significant three-way interaction. Relationship between emotion reactivity and emotion dysregulation, moderated by usefulness beliefs and NSSI status.

DISCUSSION

Emotion dysregulation characterizes poor psychological health, including NSSI (e.g., Aldao et al., 2016; Wolff et al., 2019). A more nuanced understanding of the unique emotional, cognitive, and behavioral mechanisms that contribute to negative and positive dysregulation emotions is required to both advance our conceptual knowledge and isolate potential targets for clinical intervention. Our findings revealed dimensions of emotion experiences, emotion beliefs, and NSSI history were associated with emotion dysregulation, and that these patterns differed by valence. Consistent with previous research (Wolff et al., 2019), engaging in self-injury was associated with elevated dysregulation of negative emotions. We extend this pattern to positive emotion dysregulation, finding that emotion experiences, beliefs, NSSI were differentially associated with positive emotion dysregulation.

Consistent with previous research, greater emotion intensity and preservation were uniquely associated with dysregulation of negative emotions, with emotion intensity also uniquely associated with positive emotion dysregulation. Building on previous literature, we found that these associations were qualified by two interactions. Previous research has demonstrated that individuals who believe emotions are less controllable tend to report greater emotion dysregulation (Becerra et al., 2024; Preece et al., 2022). Adding nuance to this association, the current study found a positive association between emotion preservation and emotion dysregulation, but only among participants who believed emotions are controllable. Perseveration of negative emotions has previously been

associated with greater psychological distress and depression, anxiety, and stress symptoms (Ripper et al., 2018)—phenomena all associated with negative emotion dysregulation (Gross & Jazaieri, 2014). In contrast, perseveration of positive emotions is often suggested to protect *against* behavioral and internalizing symptoms linked to emotion dysregulation (Boyes et al., 2020; Hatzopoulos et al., 2022; Ripper et al., 2018). However, we found correlational evidence that, in the context of believing emotions are uncontrollable, the ongoing persistence of emotion experiences, regardless of valence, was associated with greater difficulties regulating emotions.

Emotional intensity also interacted with NSSI to predict positive emotion dysregulation, where greater intensity of positive emotions was associated with elevated emotion dysregulation only among individuals who self-injure. This finding also highlights the complexity of our emotional experiences. Some individuals are averse to positive emotions and, counter to hedonic goals, report seeking out negative emotional experiences (Bloore et al., 2020). For individuals who self-injure, experiencing heightened, intense positive emotions may be unwanted, overwhelming, and uncomfortable, and thus, these emotions may be more difficult to regulate (Perini et al., 2021).

Somewhat unexpectedly, we found greater reactivity was associated with *decreased* dysregulation for both negative and positive emotions. In contrast, previous research has found heightened emotion reactivity to be associated with greater difficulties regulating emotions (Burr et al., 2021; Jenkins & Schmitz, 2012). Notably, Preece et al. (2022) also found that greater reactivity was associated with less positive (but not negative) emotion dysregulation. Given that Preece et al. (2022) also drew from a university student sample, it may be the case that the relationship between reactivity and dysregulation may differ for clinical which may differ between clinical and nonclinical populations. Additionally, our study used the ERIPS (Ripper et al., 2018) to measure trait emotion experiences rather than the Emotion Reactivity Scale (ERS; Nock et al., 2008) which is commonly used in NSSI research (Mettler et al., 2021, 2025). The ERS is unidimensional and conflates valence, reactivity, intensity, perseveration, and valence. Thus, our unexpected findings may reflect our use of multidimensional ERIPS. Future research should test whether this is the case by comparing associations between emotional experiences and dysregulation using unidimensional and multidimensional measures. Our findings suggest that, after accounting for individual differences in emotional intensity and perseveration, people who report they are more likely than average to experience an emotional response also tend to report fewer difficulties regulating emotions, perhaps because they are more aware of their emotions in general. This elevated emotional awareness may mean they are able to implement regulation strategies earlier in the emotion generation process when regulation attempts are more effective (Feldman Barrett et al., 2001).

Extending this unexpected finding, exploratory analysis revealed both usefulness beliefs and NSSI history moderated the association between reactivity and dysregulation for positive emotions only. Among people who believe emotions are more useful, reactivity was negatively associated with dysregulation only for people who self-injure. In contrast, among people who believe emotions are less useful, reactivity was negatively associated with dysregulation only among people who *do not* self-injure. Focusing on university students in general (regardless of NSSI history), previous research found

useless beliefs mediated the relationship between positive emotion reactivity and dysregulation (Preece et al., 2022). Our results extend this finding, suggesting a different process may be at play for people who self-injure. One possibility is that people with NSSI lived experience who believe positive emotions are useful have developed this belief through engaging in therapeutic interventions that also target emotion dysregulation. For instance, Emotion Regulation Group Therapy, which emphasizes the usefulness of emotions and teaches emotional awareness, has demonstrated effectiveness in reducing emotion dysregulation, which in turn reduces NSSI engagement (Gratz et al., 2012). In contrast, people with NSSI lived experience who believe emotions are unhelpful may be unable to access the potential benefits of increased emotional awareness of positive emotions we suggest accompanies increased emotion reactivity. However, it is unlikely that all individuals with lived experience of NSSI in our sample would have received therapeutic interventions targeting emotion dysregulation. Given the exploratory and unexpected nature of this finding, replication is first required to rule out the possibility that the finding is spurious by establishing the extent to which this moderation effect generalizes to other samples.

CLINICAL IMPLICATIONS

Broadly, our findings highlight the growing need for treatments and interventions to extend beyond the narrow focus on the experience of negative emotions and consider the complex dynamics of both negative and positive emotional experiences and dysregulation. Considering positive emotion dysregulation, rather than solely negative emotion dysregulation, will provide a more holistic and accurate understanding of the impact on functioning and the effectiveness of therapy (Perini et al., 2021; Preece et al., 2022). Similarly, most interventions to date have focused on addressing beliefs about the controllability of emotions (Hong & Kangas, 2022). However, our results indicate targeting beliefs about the usefulness of emotions may also play an important role in reducing emotion dysregulation. Due to the evaluative nature of usefulness beliefs, these beliefs are considered to be antecedent to emotion regulation (Ford & Gross, 2018), therefore providing an targetable cognitive mechanism for change in emotion dysregulation interventions. That emotion beliefs differed based on NSSI history further supports the potential clinical implications these targetable cognitive mechanisms could have, particularly in relation to individuals experiencing heightened emotion dysregulation. Initial studies have seen encouraging results targeting and modifying emotion beliefs in clinical inventions, in cognitive behavior therapy as a mechanism of change for anxiety disorders (De Castella et al., 2015; Reffi et al., 2020), and in emotion-focused therapy for binge-eating disorders (Glisenti et al., 2023).

Limitations and Future Directions

Our findings should be considered in light of four key limitations. Firstly, our sample was limited to an Australian undergraduate student sample that overrepresented young women, and detailed information regarding participants' mental health diagnoses, socioeconomic status, and ethnicity were not collected. Future research should prioritize investigating the extent to which findings generalize to other, more diverse populations

(e.g., adolescents, people receiving clinical treatment). Secondly, our study draws on cross-sectional data and so cannot explain the temporal sequence of the relationship between emotion experiences, beliefs, dysregulation, and NSSI. Thus, it remains unclear whether persistent emotions drive beliefs that emotions are less controllable or whether controllability beliefs over time create more persistent emotions. Future research could use experimental methods to manipulate an individual's emotion beliefs or intensive longitudinal methods (e.g., ecological momentary assessment) to establish if emotion beliefs play a causal role in emotion regulation difficulties. Thirdly, the difference in variance explained between negative and positive emotion dysregulation models suggests that positive emotion dysregulation was not as well captured as negative in our sample. This could be limited by participants' own subjective understanding or experience of positive emotion dysregulation as well as the potential recall bias of self-report data (Davis et al., 2014; Mettler et al., 2025). Future research should replicate and extend these exploratory findings using psychophysical outcomes. Finally, although we examined differences in emotion experiences and dysregulation by valence, we did not consider whether emotional beliefs themselves differ by valence (i.e., whether negative or positive emotions are differentially viewed as controllable or useful).

CONCLUSION

Our findings expand the existing literature on positive emotion dysregulation and underscore the importance of our emotional beliefs in influencing both positive and negative emotional experiences. These findings emphasize the need to understand the differential roles emotional beliefs play in emotion regulation difficulties for both individuals with and without lived experience of NSSI. A deeper understanding of these dynamics can inform targeted interventions, ultimately enhancing emotional well-being and regulation strategies for individuals who self-injure.

DISCLOSURE STATEMENT

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