School of Population Health

Emotion Beliefs: Latent Structure and Links to Emotion Regulation and Symptoms of Depression, Anxiety, and Stress

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This thesis is presented for the Degree of Master of Research (Psychology)

of

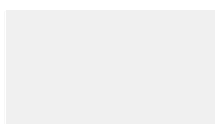**Curtin University**

February 2024

Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Numbers: 2021/ET00094, HRE2019-0587, and HREC2022-0242.

Signature:

Date: 19th February 2024

Acknowledgements

Attribution Statement

This thesis contains three co-authored papers that have been submitted for publication in peer-reviewed journals. I was the first author for all of these papers and was principally responsible for the conceptualisation of the study, all data analyses, interpretation of results, and writing of the papers.

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General Abstract

It is well-established that many psychopathologies, especially emotional disorders, involve core problems with emotion regulation. It is therefore important to understand the factors that may contribute to the development and maintenance of emotion regulation difficulties. Preliminary research suggests beliefs about emotions, specifically beliefs about the *controllability* and *usefulness* of emotions, may be one such factor. However, existing research typically precedes the development of a recent theoretical framework of emotion beliefs put forward by Ford and Gross (2019), and is thus limited in its capacity to comprehensively examine this relationship. The aim of this thesis was therefore to increase our understanding of the role of emotion beliefs in emotion regulation strategy use and emotional disorder symptomatology, from this more precise theoretical viewpoint. This thesis includes three studies, the first of which examines the psychometric properties and affective correlates of a recently developed measure of emotion beliefs, which aligns with Ford and Gross's (2019) framework. The remaining two studies then utilise this same measure, with study two examining the relationship between emotion beliefs and emotional disorder symptoms, and study three examining the relationship between emotion beliefs and patterns of emotion regulation strategy use. Overall, the results of these studies demonstrate that maladaptive emotion beliefs (i.e., stronger beliefs that emotions are uncontrollable and useless) are generally associated with more severe symptoms of depression, anxiety, and stress, and more maladaptive patterns of emotion regulation. This thesis therefore highlights the potential importance of considering emotion beliefs in the conceptualisation and treatment of emotional disorders and emotion regulation difficulties.

Chapter 1: General Introduction

This thesis is comprised of three studies that aim to increase our understanding of the role of emotion beliefs in emotion regulation patterns and emotional disorder symptomatology. Existing evidence examining the emotion beliefs construct and its relationship with other emotional variables typically precedes the development of a recent theoretical framework and ensuing measure of emotion beliefs, and there thus remains an important need for further research (Becerra et al., 2020; Ford & Gross, 2019). The remainder of this introduction will provide background on emotion beliefs, introduce the theoretical frameworks guiding this research, and briefly summarise some of the pertinent existing evidence on the importance of emotion beliefs for mental health and wellbeing. All three studies within this thesis have been individually submitted for review at peer-reviewed journals, and therefore read as standalone papers, but are also intended to build on each other when read in combination.

Background

Emotions are multidimensional phenomena that manifest as changes across the experiential (e.g., feeling stressed), physiological (e.g., sweating), and behavioural (e.g., pacing back and forth) channels of the emotion system (Mauss et al., 2005). Emotions occur when individuals attend to a situation and appraise it as contextually relevant to their goals (Moors et al., 2013), and can be positively or negatively valenced (e.g. happiness or sadness; Scherer, 2013). Emotions are helpful for a range of reasons, such as for providing an indication of other people's thoughts, enhancing decision making, and guiding appropriate social behaviour (Gross, 2015). However, emotions can also be harmful if they are experienced for a problematic duration, intensity, or frequency (Gross & Jazaieri, 2014). Therefore, individuals must be able to engage in emotion regulation; carrying out a goal to modify the trajectory of an unfolding emotional response (Gross & Jazaieri, 2014). Given this pervasive role emotions play in everyday life, all individuals naturally develop their own beliefs about the nature, meaning, and utility of emotions (Ford & Gross, 2018). These emotion beliefs are relatively stable, trait-like phenomena, which influence the way people perceive and respond to their own emotions, and the emotions of those around them (Ford & Gross, 2018). However, research shows emotion beliefs are also malleable, as they are amenable to therapeutic treatment (e.g., De Castella et al., 2015), making them an appealing target for clinical intervention (Ford & Gross, 2019).

The evidence for a relationship between emotion regulation difficulties and emotional disorders is well-established in the literature (e.g., Berenbaum et al., 2003; Gross & Jazaieri, 2014; Kring, 2008; Sheppes et al., 2015). This holds substantial implications for emotional disorder treatment, and many common interventions thus focus on targeting problematic patterns of emotion regulation (Gross & Jazaieri, 2014). For example, cognitive-behavioural therapy (CBT; Beck, 1976), the unified protocol approach (Barlow et al., 2010), dialectical-behaviour therapy (Linehan, 2014), and emotion-focused therapy (Greenberg, 2004) all emphasise the importance of understanding and regulating one's emotions. Despite this, much remains unknown about the mechanisms underlying emotion dysregulation (Gross & Jazaieri, 2014). Researchers are now transitioning towards looking at the factors which might influence emotion regulation (and in turn emotional disorders), with preliminary research highlighting emotion beliefs as a prominent possible mechanism (Kneeland et al., 2020). Since this is a relatively novel area of interest, until recently, there were few comprehensive theoretical frameworks of emotion beliefs (Becerra et al., 2020). Existing research is thus, to some extent, fragmented by a wide variety of operationalisations and measures in the field (Edwards & Wupperman, 2019). However, the recent development of a theoretical framework of emotion beliefs, put forward by Ford and Gross (2018; 2019), has aided conceptual clarity here, presenting the opportunity for new research to examine beliefs about emotions more systematically (Becerra et al., 2020).

Theoretical Frameworks

Emotion Beliefs

Ford and Gross's (2019) theoretical framework focuses on two types of beliefs they argue are fundamentally important for determining whether and how one will engage in emotion regulation. One of these fundamental beliefs is whether emotions are *controllable* versus experiences that are fixed and unchangeable. The other fundamental belief concerns *usefulness*, in terms of whether emotions are considered adaptive and desirable, versus detrimental and unwanted (Ford & Gross, 2019). Within these two overarching beliefs, Ford and Gross (2019) specify various subordinate categories (See Figure 1.1) along which emotion beliefs can differ, such as context (e.g., believing negative emotions are controllable in the workplace but not at home) or time courses (e.g. believing it is useful to be sad for brief periods of time but not for too long). They theorise that valence is a particularly salient subordinate category by which individuals organise their emotion beliefs. This means

individuals might simultaneously hold distinct beliefs about the usefulness or controllability of negative versus positive emotions (e.g., anger is useful, but happiness is not; Ford & Gross, 2019). Ford and Gross (2019) theorise that stronger maladaptive emotion beliefs (i.e., stronger beliefs that emotions are uncontrollable or useless) could negatively impact each stage of the process model of emotion regulation (Gross, 2015), and thus may ultimately have a detrimental effect on psychological health.

The Process Model of Emotion Regulation

Gross's (2015) process model describes how individuals go through a four-stage valuation system before the goal to regulate an emotion is activated. This four-stage system involves first perceiving an emotion (situation stage), focusing attention on the emotion (attention stage), appraising the emotion in terms of what it is and what it means for one's goals (appraisal stage), and then, based on this appraisal, deciding whether or not to regulate the emotion (response stage). After an emotion has been evaluated in this way, emotion regulation occurs across another four stages, whereby individuals identify the need to regulate an emotion (identification stage), select an emotion regulation strategy to use (selection stage), implement that strategy through contextually-suitable tactics (implementation stage), and monitor their progress to consider whether they need to maintain, switch, or stop their regulatory effort (monitoring stage; Gross, 2015). Emotion beliefs are theorised to operate at the appraisal stage, by influencing one's evaluation of how controllable and useful the emotion is, which would then impact whether one decides to activate an emotion regulation goal, and thus could also pervasively influence how individuals progress through each ensuing stage of the emotion regulation process (Ford & Gross, 2019). For example, believing emotions are uncontrollable could reduce the likelihood of identifying the need to regulate, appropriately considering various emotion regulation strategies, or persisting with regulatory effort, given this effort would be perceived as ineffectual (Ford & Gross, 2019). Believing emotions are useless might increase the likelihood of identifying the need to regulate, given one would want to reduce this emotion, but this may also contribute to inappropriate or excessive selection, implementation, or perseverance with regulatory efforts (Ford & Gross, 2019).

Figure 1.1

Conceptual Mapping of Ford and Gross's (2019) Framework of Emotion Beliefs

Superordinate Beliefs About Emotions

To what extent are emotions controllable versus uncontrollable?	To what extent are emotions useful versus useless?
"I believe emotions are controllable"	"I believe emotions are useful"

Subordinate Beliefs About...

Examples of Subordinate Beliefs
(in general, and with overlap across multiple subordinate categories)

Subordinate Beliefs About...	Examples of Subordinate Beliefs	
Specific emotional valences (e.g., positive or negative) **or specific emotions** (e.g., anger, sadness, or joy).	**General:** *Anger is uncontrollable.* **With overlap:** *Anger is uncontrollable for children.*	**General:** *Sadness is useful.* **With overlap:** *Feeling sad for too long is useless.*
Specific emotion intensities (e.g., lower or higher intensity, such as annoyance or rage).	**General:** *Intense emotions are uncontrollable.* **With overlap:** *Slight anxiety is controllable at work.*	**General:** *Intense emotions are useless.* **With overlap:** *Intense anger is useful when it's brief.*
Specific emotion channels (e.g., experiential feelings, physiological changes, or behavioural responses).	**General:** *Emotional expression is controllable.* **With overlap:** *Crying is controllable when in public.*	**General:** *Feeling your emotions is useful.* **With overlap:** *Feeling sad for too long is useless.*
Specific contexts (e.g., within specific social contexts, or given specific psychological resources).	**General:** *Emotions are controllable in public.* **With overlap:** *Intense emotions are uncontrollable in private.*	**General:** *Emotions are useful for relationships.* **With overlap:** *expressing my anger to my partner is useless.*
Specific time courses (e.g., short versus extended periods of time).	**General:** *Emotions are uncontrollable in the short run.* **With overlap:** *Given enough time, I can control my sadness.*	**General:** *Emotions are useful when they are short-lived.* **With overlap:** *Being angry for a long time is useless.*
Specific targets (e.g., myself, people I know, or strangers	**General:** *My own emotions are controllable.* **With overlap:** *My partner's jealousy is uncontrollable.*	**General:** *Other people's emotions are useful.* **With overlap:** *It is useful to be angry at myself but not others.*

Note. Adapted from Ford, B. Q., & Gross, J. J. (2019). Why beliefs about emotion matter: An emotion-regulation perspective. *Current Directions in Psychological Science*, *28*(1), 74-81. https://doi.org/10.1177/0963721418806697

Empirical Findings

Becerra et al. (2020) recently introduced the Emotion Beliefs Questionnaire (EBQ) based on Ford and Gross's (2019) framework, as the first singular tool comprehensively designed to measure emotion beliefs about both the *controllability* and *usefulness* of emotions, and to do so across both negative and positive emotions. Although still an emerging field, recent work utilising the EBQ has begun to provide support for Ford and Gross's (2019) theorising, as multiple studies have found beliefs that emotions are uncontrollable and useless (across both valence domains) were associated with greater emotion regulation difficulties and emotional disorder symptom severity (Becerra et al., 2020; Ranjbar et al., 2023; Rogier et al., 2023). Most research preceding the EBQ is conceptually limited, in that it has typically focused only on controllability beliefs and has not considered both positive and negative emotional valences (Becerra et al., 2020), however, such studies have still found similar patterns of results (e.g., De Castella et al., 2013; Kneeland et al., 2016; Manser et al., 2012). A recent systematic review also concluded that there is strong evidence for a positive relationship between believing emotions are controllable and using adaptive emotion regulation strategies (Hong & Kangas, 2022). Those authors also concluded that the paucity of research on usefulness beliefs highlights the need for further investigation into this area.

Structures and Aims of the Thesis

This thesis aims to deepen our understanding of the emotion beliefs construct, and how it empirically relates to emotion regulation patterns and emotional disorder symptoms. Whilst existing literature provides initial evidence for these relationships, there is a need for further research that is informed by Ford and Gross's (2019) theoretical framework, such that it includes a focus on emotional valence, and examines both controllability *and* usefulness beliefs. This more nuanced understanding of the various qualities and affective correlates of emotion beliefs may shed light onto potential pathways to psychopathology (Becerra et al., 2020) and may also highlight additional areas for therapeutic intervention in individuals experiencing psychopathology (Kneeland et al., 2016). Thus, across the three studies that follow, this thesis will systematically examine the structure of the emotion beliefs construct, and its links with emotion regulation and emotional disorder symptoms. In *Study 1* (Chapter 2), the psychometric properties and affective correlates of the recently developed EBQ (Becerra et al., 2020) are examined, and this tool is utilised to explore the latent structure and

validity of the emotion beliefs construct. In *Study 2* (Chapter 3), the relationships between emotion beliefs and symptoms of depression, anxiety, and stress are examined. In *Study 3* (Chapter 4) the relationship between emotion beliefs and patterns of emotion regulation strategy use are then explored. Finally, Chapter 5 provides a general discussion, synthesising the key findings, implications, and limitations across the three studies, as well as recommendations for future research on emotion beliefs.

Chapter 2: Study 1

The Emotion Beliefs Questionnaire: Psychometric Properties, Norms, and Links to Affective Outcomes

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Abstract

Background: The Emotion Beliefs Questionnaire was recently developed to measure beliefs about the *controllability* and *usefulness* of negative and positive emotions. These are beliefs that have been theorised to be influential for emotion regulation and psychological outcomes. However, to date there are few studies utilising large, representative samples to examine the EBQ's psychometric properties and affective correlates. Our aim was to fill this gap by examining the EBQ's psychometric properties and exploring associations between emotion beliefs, emotion regulation, and affective disorder symptoms.

Methods: A sample of 1175 adults recruited from the general population in the United States completed measures of emotion beliefs, emotion regulation, and affective disorder symptoms.

Results: Confirmatory factor analyses supported the EBQ's intended subscale structure, where controllability and usefulness beliefs were separated by valence. This structure was invariant across gender, age, and education categories. The EBQ correlated in expected ways with other measures, demonstrating good validity, and had good to excellent levels of internal consistency reliability.

Limitations: This study used a non-clinical sample that was predominantly White. Future work should utilise clinical and cross-cultural samples to maximise generalisability of findings.

Conclusions: Our findings indicate that the EBQ is a psychometrically sound tool for measuring the multidimensional emotion belief construct. The EBQ may have clinical utility in the conceptualisation, assessment, and treatment of maladaptive emotion beliefs. Furthermore, our results highlight the importance of considering the potential influence of maladaptive emotion beliefs in emotion dysregulation and affective disorder symptoms.

The Emotion Beliefs Questionnaire: Psychometric Properties, Norms, and Links to Affective Outcomes

Emotions are a highly salient feature of everyday life (Gross, 2015). Given their salience, it is unsurprising that individuals have beliefs about emotions (Ford & Gross, 2018). These beliefs appear to influence how people understand, interpret, and respond to their own emotions, and the emotions of those around them (Manser et al., 2012). Research is now beginning to reveal that beliefs about emotions might be a mechanism underlying emotion regulation (e.g., Ford et al., 2018). Given that difficulties regulating emotion contribute to a wide range of psychopathologies, especially affective disorders, this could mean beliefs about emotions have important implications for long-term psychological health (Becerra et al., 2020).

Emotion Beliefs and Affective Outcomes

Ford and Gross (2019) recently developed a framework for examining emotion beliefs, focusing on beliefs about the *controllability* of emotions (i.e., the extent to which emotions are modifiable versus unchangeable) and beliefs about the *usefulness* of emotions (i.e., the extent to which emotions are beneficial versus detrimental). Within this framework, Ford and Gross (2019) argue for the importance of emotional valence, and how this may have a differential influence on emotion beliefs, such that an individual could simultaneously hold distinct beliefs about the controllability or usefulness of negative versus positive emotions. This theoretical framework posits that believing emotions are uncontrollable or useless can be detrimental for psychological health, as these beliefs may limit effective utilisation of emotion regulation, or guide emotion regulation in non-optimal ways (Ford & Gross, 2019).

Ford and Gross (2019) theorise that emotion beliefs may influence each stage of Gross's (2015) process model of emotion regulation. In the identification stage, the individuals identify an emotion and determine whether there is a need to regulate it (Gross, 2015). Here, believing the emotion is useless is expected to increase the probability of deciding that it needs regulating, whereas believing the emotion is uncontrollable is likely to decrease the probability of deciding to regulate (Ford & Gross, 2018). In the selection stage of emotion regulation, the individual chooses which regulation strategy to use (Gross, 2015). Here, believing the emotion is useless might increase an individual's likelihood of selecting numerous strategies simultaneously, in a desperate attempt to down-regulate it, whilst believing the emotion is uncontrollable might mean the individual would put less

consideration into selecting effective strategies, perceiving this regulatory effort as pointless (Ford & Gross, 2018). In the implementation stage of emotion regulation, the individual considers and carries out specific tactics to actualise their strategy (Gross, 2015). Here, believing the emotion is useless may increase the chances of using tactics which may be ineffectual, whereas believing the emotion is uncontrollable may mean the individual has less experience regulating it, leading to a limited repertoire of tactics to draw on (Ford & Gross, 2018). Finally, at the monitoring stage of emotion regulation, the individual considers the outcome of their effort to determine whether to maintain, switch, or stop their chosen regulatory strategy (Gross, 2015). Here, believing the emotion is useless might make an individual feel disappointed if they have not successfully regulated it, whereas believing the emotion is uncontrollable might mean an individual is less likely to persevere with regulatory efforts (Ford & Gross, 2018). In this way, emotion beliefs are theorised as influential mechanisms underlying emotion regulation successes and failures, which accumulate to impact long-term psychological health (Ford & Gross, 2019). Enhancing our understanding of the potential role of emotion beliefs in the emotion regulation process may help to optimise affective disorder treatments that focus on improving emotion regulation ability (Preece et al., 2022).

The Emotion Beliefs Questionnaire

Using Ford and Gross's (2019) framework, Becerra et al. (2020) recently developed the Emotion Beliefs Questionnaire (EBQ); the first psychometric measure of beliefs about the controllability and usefulness of negative and positive emotions. The EBQ is a 16-item self-report measure designed to consist of four subscales: Negative-Controllability (e.g., "*it doesn't matter how hard people try, they cannot change their negative emotions*"), Positive-Controllability (e.g., "*people cannot control their positive emotions*"), Negative-Usefulness (e.g., "*the presence of negative emotions is a bad thing for people*") and Positive-Usefulness (e.g., "*positive emotions are harmful*"). The two controllability subscales can be summed into a General-Controllability composite score, and the two usefulness subscales can be summed into a General-Usefulness composite score. All four subscales can also be summed into a total scale score as a measure of an individual's overall level of maladaptive emotion beliefs (Becerra et al., 2020). Items are answered on a 7-point Likert scale, with higher scores indicating stronger beliefs that emotions are uncontrollable or useless.

In their developmental paper, Becerra et al.'s (2020) confirmatory factor analyses (CFAs) revealed the EBQ was best represented by a three-factor structure, where the controllability domain loaded onto a single lower-order 'General-Controllability' factor, rather than separating by emotional valence. In subsequent studies though, the EBQ has typically been best represented by the intended four-factor structure, where the controllability and usefulness beliefs both separated into valence-specific subscale factors (Becerra et al., 2023; Ranjbar et al., 2023; Rogier et al., 2023), although, the positive and negative controllability factors have been highly correlated (estimated $r \geq .74$), suggesting a broad level of consistency across studies. The high correlations between the valenced controllability factors may also provide insight into our understanding of the nature of the emotion beliefs construct, as they appear to suggest that emotional valence could be less influential on controllability beliefs than usefulness beliefs (Becerra et al., 2020). Two recent studies have found support for EBQ's first-order subscale factors loading onto a higher-order factor (Becerra et al., 2020; Rogier et al., 2023), indicating that controllability and usefulness beliefs may be separable, yet linked, components of a multidimensional emotion belief construct.

The concurrent or criterion validity of the EBQ has so far been examined in an Australian sample ($n = 161$; Becerra et al., 2023), as well as in an Italian ($n = 516$) sample (Rogier et al., 2023), and American ($n = 242$) and Iranian ($n = 347$) samples (Ranjbar et al., 2023). Becerra et al. (2020) and Ranjbar et al. (2023) found scores on the EBQ correlated in expected ways with other belief measures, such as the Implicit Theories of Emotions Scale (Tamir et al., 2007) and the Beliefs about Emotions Scale (Veilleux et al., 2015). Higher scores on the EBQ (i.e., stronger beliefs that emotions are uncontrollable and useless) have also been significantly associated with greater overall difficulty regulating emotions, and higher levels of depression, anxiety, and stress symptoms (Becerra et al., 2020; Ranjbar et al., 2023; Rogier et al., 2023).

In terms of reliability, Cronbach's alpha internal consistency coefficients have also tended to show the EBQ subscale and composite scores as having levels of reliability within the acceptable to excellent range (Becerra et al., 2020; Ranjbar et al., 2023; Rogier et al., 2023). Whilst psychometrics for the EBQ have therefore been promising so far, the limited number of studies with relatively small samples warrants further examination of the measure. There is also presently very limited research on the EBQ's measurement invariance across demographic groups, which is important for determining the utility of the EBQ when comparing emotion beliefs across different populations or groups (Putnick & Bornstein,

2016). The two existing studies on this have found full invariance for gender (Ranjbar et al., 2023; Rogier et al., 2023) and age (Ranjbar et al., 2023) at the configural, metric, and scalar levels. Additionally, the EBQ demonstrated configural and metric invariance across American and Iranian cultural groups, and partial scalar invariance (Ranjbar et al., 2023).

The Present Study

The overall aim of the current study was to examine the psychometric properties and affective correlates of the EBQ, with a particular focus on the role emotion beliefs play in shaping emotion regulation and affective disorder symptoms. Using a large, representative (in terms of age and gender) sample of general community United States of America (USA) participants we examined the EBQ's factor structure, measurement invariance across key demographic categories (i.e., age, gender, and education level), internal consistency reliability, and concurrent/criterion validity. We expected higher rates of beliefs about emotions being uncontrollable and useless to be associated with more emotion regulation difficulties and higher levels of depression, anxiety, and stress symptoms. We also provide normative data for the EBQ stratified by gender and age, as there are currently no norms to assist clinicians or researchers in interpreting what constitutes a high or low EBQ score.

Method

Participants and Procedure

Ethics approval for this project was granted by the University of Western Australia Human Research Ethics Committee. All participants provided informed consent for their data to be used. Our sample consisted of 1175 adults, recruited from the general population of the United States of America (USA) via an online survey recruitment company (Qualtrics Panels) to be representative of the adult population in terms of gender (52.3% female, 47.2% male, 0.4% non-binary) and age ($M = 46.2$ years, SD = 17.8, range 18 – 90). Most participants reported their ethnicity as White (79.6%), African American (13.3%), or Asian (3.7%). Regarding highest level of education, 31% of participants had completed high school, 18.6% had a bachelor's degree, and 10.6% had a postgraduate degree. All participants completed emotion belief, emotion regulation, and psychopathology measures as part of a larger battery of self-report questionnaires in an anonymous, online survey.

Measures

In addition to the EBQ (described above), participants were asked to complete the measures below.

The Perth Emotion Regulation Competency Inventory (PERCI)

The PERCI (Preece et al., 2018) is a 32-item self-report measure that assesses the ability to alter the experiential and behavioural manifestations of an emotion, as well as the ability to know when to appropriately activate a goal to regulate an emotion. The PERCI has eight subscales, measuring different facets of emotion regulation ability across negative and positive emotions: *negative-controlling experience* (*e.g., "when I'm feeling bad, I'm powerless to change how I'm feeling"*), *negative-inhibiting behaviour* (*e.g., "when I'm feeling bad, my behaviour becomes out of control"*), *negative-activating behaviour* (*e.g., "when I'm feeling bad, I have trouble getting anything done"*), *negative-tolerating emotions* (*e.g., "when I'm feeling bad, I must try to totally eliminate those feelings"*), *positive-controlling experience* (*e.g., "when I'm feeling good, I have no control over whether that feeling stays or goes"*), *positive-inhibiting behaviour* (*e.g., "when I'm feeling good, my behaviour becomes out of control"*), *positive-activating behaviour* (*e.g. "when I'm feeling good, I have trouble completing tasks that I'm meant to be doing"*), *and positive-tolerating emotions* (*e.g., "when I'm feeling good, I can't allow those feelings to be there"*). The four negative emotion subscales can be combined into a *negative-emotion regulation* composite score, and the four positive emotion subscales can be combined into a *positive-emotion regulation* composite score. All eight subscales can also be combined into a *general-emotion regulation* composite score as an overall marker of emotion regulation difficulties. Each item on the PERCI is answered using a 7-point Likert scale, with higher scores reflecting a higher level of difficulty regulating emotions. The subscale and composite scores of the PERCI have previously demonstrated good reliability and validity (Preece et al., 2018), and all scores had good internal consistency in the current sample (α = .86 - .97).

The Emotion Regulation Questionnaire

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a 10-item self-report measure of the habitual use of two emotion regulation strategies: *cognitive reappraisal* (*e.g., "when I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm"*), and *expressive suppression* (*e.g., "I control my emotions by not expressing them"*). Each item is answered on a 7-point Likert scale, with higher scores

reflecting more use of each strategy. The ERQ has previously demonstrated good reliability and validity (Preece et al., 2021), and both subscales had good reliability in our sample ($\alpha \geq .80$).

The Depression Anxiety Stress Scales-21 (DASS-21)

The DASS-21 (Lovibond & Lovibond, 1995) is a 21-item self-report measure of symptoms of depression, anxiety, and stress over the past week. Three subscale scores can be derived for each symptom category: *depression* (*e.g. "I couldn't seem to experience any positive feeling at all"*)*, anxiety* (*e.g., "I felt I was close to panic"*)*, and stress* (*e.g., "I found myself getting agitated"*)*.* Each item is answered on a 4-point Likert scale, with higher scores reflecting stronger severity of symptoms. The DASS-21 has previously demonstrated good validity and reliability (Antony et al., 1998), and had excellent internal consistency in the current sample ($\alpha = .90 - .94$).

Analytic Strategy

Confirmatory factor analyses (CFAs) were conducted using *R* software with the Lavaan package (Rosseel., 2012), and IBM SPSS 28 was used for all other analyses.

Factor Structure

We conducted CFAs with robust maximum likelihood estimation (Satorra-Bentler scaled chi square statistic) to examine the factor structure of the EBQ. As with Becerra and colleagues' (2020) EBQ development paper, we explored multiple theoretically-informed factor structures for the EBQ, with each model having increasing factor differentiation (See Figure 2.1).

We began by testing six first-order models, to establish how to best represent the first-order factor structure of the EBQ. Model 1 was a 1-factor model, with all 16 EBQ items specified to load onto a single factor. Model 2 was a 2-factor correlated model, with the EBQ items split only by negative or positive valence, so items loaded onto either '*negative valence*' or '*positive valence*' factors. Model 3 was also a 2-factor correlated model, with EBQ items being separated by belief domain, so items loaded onto either '*general-controllability*' or '*general-usefulness*' factors. Model 4 was a 3-factor correlated model, with controllability and usefulness beliefs separated, but a distinction for valence only specified for the controllability domain, so items loaded onto either '*negative-controllability*', '*positive-controllability*', or '*general-usefulness*' factors. Model 5 was another 3-factor

correlated model, again with controllability and usefulness beliefs separated, with the valence distinction only applied to the usefulness domain; items loaded onto either '*general controllability*', '*negative-usefulness*', or '*positive-usefulness*' factors. Model 6 was a 4-factor correlated model, where controllability and usefulness beliefs were separate components, with each of these being further separated according to negative and positive valence; items loaded onto either '*negative-controllability*', '*positive-controllability*', '*negative-usefulness*', or '*positive-usefulness*' factors. Finally, in Model 7 we tested a higher-order version of the best-fitting factor structure from the lower-order models, where the first-order factors collectively loaded onto a general, second-order factor.

We evaluated the fit of each model according to five common goodness-of-fit indices: the comparative fit index (CFI), the Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), standardised root mean residual (SRMR), and the Akaike information criterion (AIC). We considered CFI and TLI values > .90, and RMSEA and SRMR values < .08 to be indicative of acceptable fit, whilst CFI and TLI values over > .95, and RMSEA values and SRMR < .06 were indicative of excellent fit (Marsh et al., 2004). We also compared the fit of each model using AIC, where models are penalised for complexity and rewarded for parsimony, and lower AIC values reflect better model fit (Morgan et al., 2015).

Measurement invariance testing was conducted to assess the psychometric equivalence of the EBQ across different age categories (under 45 years of age, compared to 46 years and above), genders (males compared to females), and formal education levels (college compared to no college). We examined *configural* (equal factor loadings), *metric* (equal factor loadings and varying intercepts), *scalar* (equal factor loadings and intercepts), and *strict* (equal factor loadings, intercepts, and residuals) levels of invariance. Measurement invariance was supported if the configural model has acceptable goodness-of-fit indices, a change in CFI less than or equal to .01 for each successive model, and a change in RMSEA less than or equal to .015 compared to the configural model (Chen., 2007).

Figure 2.1

Visual Representation of the Tested CFA Models for the EBQ
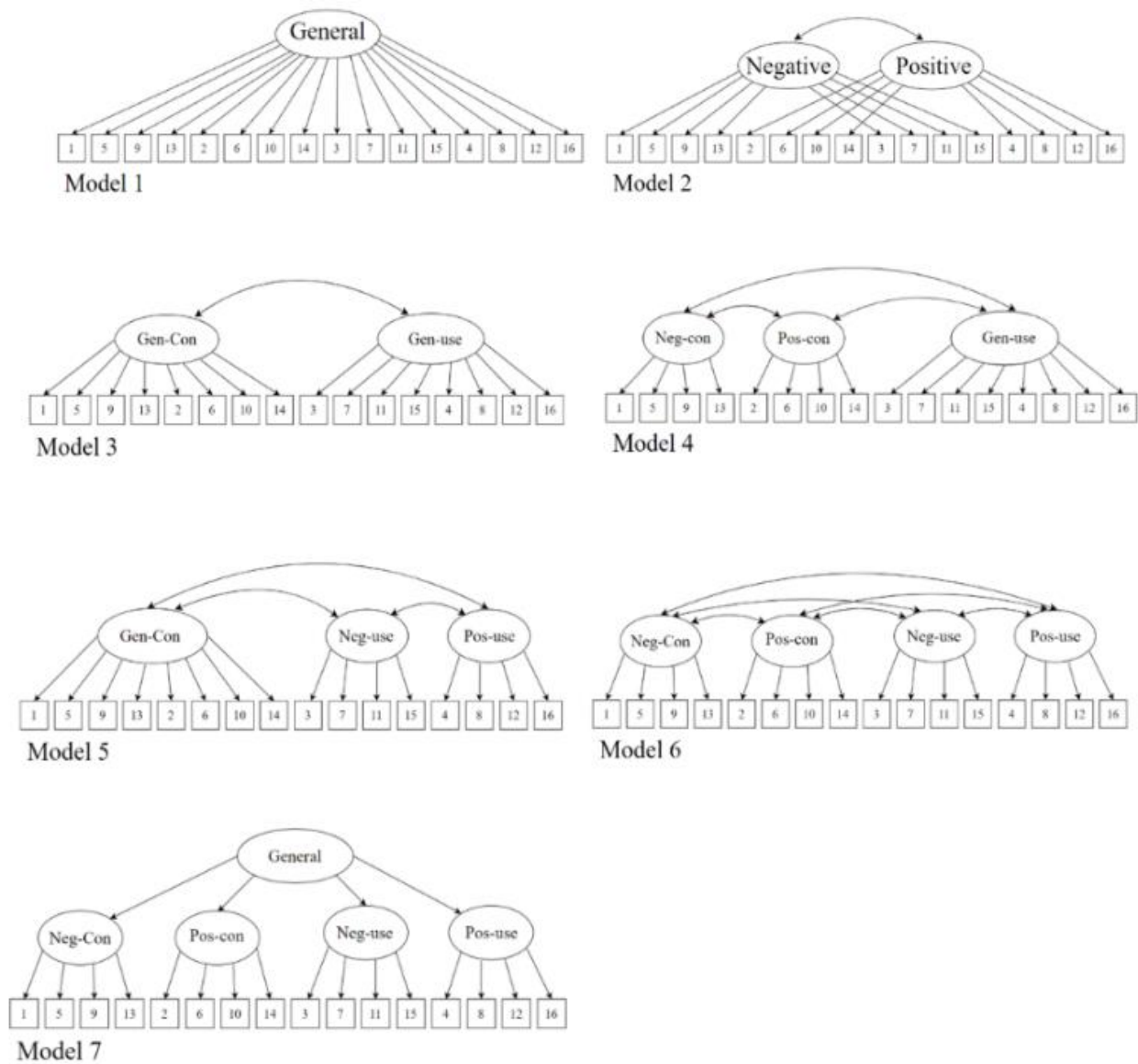
Note. Ellipses represent latent factors, and squares represent EBQ items. Neg-con = negative-controllability, Pos-con = positive-controllability, Neg-use = negative-usefulness, Pos-use = positive-usefulness, Gen-con = general-controllability, Gen-use = general-usefulness. Items are numbered according to administration order, as recommended by Becerra et al. (2020).

Descriptive Statistics and Internal Consistency Reliability

Cronbach's alpha and McDonald's omega internal consistency reliability coefficients were calculated for all EBQ subscale scores. Descriptive statistics are provided for the total sample and are also provided separately by gender, to facilitate comparison of group differences.

Concurrent and Criterion Validity

Pearson's correlations between EBQ scores and ERQ, PERCI, and DASS-21 scores were calculated. In terms of concurrent validity, we expected scores on the EBQ would significantly positively correlate with scores on the PERCI, given this is a measure of difficulties in emotion regulation ability. Furthermore, we expected scores on the EBQ would significantly negatively correlate with scores on the ERQ's *cognitive reappraisal* subscale, (a generally adaptive emotion regulation strategy), and significantly positively correlate with scores on the ERQ's expressive suppression subscale (a generally maladaptive emotion regulation strategy; Gross & John, 2003). Since previous research shows EBQ scores are associated with psychopathology symptoms (Becerra et al., 2020), we expected significant, positive correlations between EBQ scores and DASS-21 scores.

Hierarchical multiple regression analyses were also conducted, to determine the predictive utility of the EBQ in explaining variance in psychopathology symptoms. We ran three regression analyses, each of which had one of the DASS-21 subscales (depression, anxiety, or stress symptoms) as the criterion variable. Demographic factors (age and gender) were included in the first block of predictors, to partial out the effect they may have as demographic covariates (Crawford & Henry, 2003), and the EBQ subscales were included in the second block of predictors.

Results

Factor Structure

Of the lower-order models, Model 6 (i.e., the 4-factor model reflecting the intended subscale structure of the EBQ) provided the best fit to the data, with all goodness-of-fit indices in the acceptable or excellent range (See Table 2.1). All items in Model 6 loaded well onto their specified factor (See Table S2.1 in Supplementary materials for all factor loadings). The '*negative-controllability*' and '*positive-controllability*' factors were very highly correlated (estimated $r = .97$) in this model, and the 'negative-usefulness' and 'positive-

usefulness' factors were moderately correlated (estimated $r = .36$; See Table S2.2 for all estimated intercorrelations). Model 5 (3-factor model) demonstrated that distinguishing between valence for the usefulness domain, whilst having a single controllability factor spanning both valences, was also tenable, but it nonetheless had slightly worse fit than the 4-factor model. Other models that did not split between emotional valence or belief category were not as well-fitting. Given that Model 6 was the best-fitting solution, we used this for our higher-order model. Model 7 (higher-order model) was also acceptable according to the goodness-of-fit indices, suggesting the tenability of summing EBQ subscale scores into a total scale score. However, the fit index values on Model 7 were lower than on the models' first-order equivalent, and we thus used Model 6 as the best solution for our measurement invariance testing.

Measurement invariance testing demonstrated the EBQ was largely invariant across all demographic categories (See Table 2.2). The EBQ exhibited full measurement invariance at the configural, metric, scalar, and strict levels for both gender (male versus female) and education level (college versus no college). Across age groups (under 45 years versus 46 and above), the EBQ was invariant at the configural, metric, and scalar level. At the strict level, age was noninvariant ($\Delta CFI = .028$), however, when the residuals of EBQ items 12 and 16 were freed, model fit improved substantially, and the measure thus achieved partial strict invariance.

Table 2.1

Goodness-of-fit Index Values for the Confirmatory Factor Analysis Models of the EBQ

Model	Factors	SBχ^2 (df)	CFI	TLI	RMSEA (CI)	SRMR	AIC
1	1-factor	2546.147 (104)	.774	.740	.141 (.137 - .146)	.095	65299.694
2	2-factors	2493.065 (103)	.779	.743	.141 (.136 - .145)	.095	65248.611
3	2-factors	2331.852 (103)	.794	.760	.136 (.131 - .141)	.096	65087.399
4	3-factors	2316.987 (101)	.795	.757	.137 (.132 - .142)	.096	65076.534
5	3-factors	806.953 (101)	.935	.932	.077 (.072 - .082)	.051	63566.499
6	4-factors	768.172 (98)	.938	.924	.076 (.071 - .081)	.049	63533.718
7	Higher-order model	825.232 (100)	.933	.920	.079 (.074 - .084)	.053	63586.779

Note. For all models, X^2 $p < .001$. CFI = comparative fit index, TLI = Tucker-Lewis index, RMSEA = root mean square error of approximation, CI = confidence interval, SRMR = standardised root mean square residual, AIC = Akaike information criterion.

Table 2.2

Goodness-of-Fit Index Values for Measurement Invariance Testing of the Intended 4-Factor Structure of the EBQ (Model 6)

	SBχ^2 (df)	CFI	TLI	RMSEA (CI)	SRMR	AIC
Gender						
Configural	968.386 (196)	.929	.913	.082 (.077 - .087)	.051	63155.906
Metric	984.786 (208)	.928	.917	.080 (.075 - .085)	.053	63148.306
Scalar	1011.071 (220)	.927	.920	.078 (.074 - .083)	.054	63150.591
Strict	1110.946 (236)	.919	.918	.080 (.075 - .084)	.055	63218.466
Age						
Configural	906.794 (196)	.933	.918	.079 (.073 - .084)	.049	63217.707
Metric	948.139 (208)	.930	.920	.078 (.073 - .083)	.057	63235.052
Scalar	967.084 (220)	.930	.923	.076 (.071 - .081)	.058	63229.996
Strict	1209.608 (236)	.908	.907	.084 (.079 - .089)	.061	63440.521
Strict (partial)	1088.571 (234)	.920	.918	.079 (.074 - .084)	.060	63323.484
Education						
Configural	932.923 (196)	.932	.917	.080 (.075 - .085)	.050	63546.736
Metric	940.301 (208)	.933	.922	.077 (.072 - .082)	.050	63530.114
Scalar	963.726 (220)	.932	.925	.076 (.071 - .081)	.051	63529.539
Strict	1033.875 (236)	.927	.925	.076 (.071 - .081)	.052	63567.688

Note. For all models, X^2 $p < .001$. CFI = comparative fit index, TLI = Tucker-Lewis index, RMSEA = root mean square error of approximation, CI = confidence interval, SRMR = standardised root mean square residual, AIC = Akaike information criterion.

Descriptive Statistics and Internal Consistency Reliability

Descriptive statistics and reliability statistics for the EBQ variables are presented in Table 2.3 (for EBQ descriptive statistics further broken down by age groups, see Table S2.3, and for descriptive statistics for all other study variables, see Table S2.4). All subscale and composite scores on the EBQ had good to excellent levels of internal consistency (α = .82 - .92) and, in terms of Pearson's correlations, ranged in the extent to which they correlated with one another from r = .36 to .96). To enable interpretation of EBQ scores in general community USA adult samples, normative reference data with approximate cutoff scores (based on scores less than $\pm$ 1SD from the mean being the 'average' range) are provided in Table S2.5 in the supplementary materials.

A one-way analysis of covariance (ANCOVA) was used to compare EBQ scores across genders, ages, and education levels. Males had significantly stronger beliefs that negative emotions and positive emotions were useless, and total levels of maladaptive beliefs, compared to females (ps < .05). Younger participants had significantly stronger beliefs that negative and positive emotions were uncontrollable, that positive emotions were useless, and total levels of maladaptive beliefs, compared to older participants (ps < .05). Participants who did not attend college had significantly stronger beliefs that negative emotions were uncontrollable, that positive emotions were useless, and total levels of maladaptive beliefs, compared to participants who had attended college (ps < .05).

Table 2.3

Descriptive Statistics, Cronbach's Alpha, and McDonald's Omega Reliability Statistics for the EBQ

	Total sample (*N* = 1175)					Males (*N* = 555)		Females (*N* =615)		Non-Binary (*N* = 5)	
	M	*SD*	*Range*	*α*	*ω*	*M*	*SD*	*M*	*SD*	*M*	*SD*
EBQ											
Subscales											
Negative-Controllability	10.48	5.58	4 - 28	.85	.86	11.05	5.82	9.98	5.33	9.60	1.14
Positive-Controllability	11.10	5.45	4 – 28	.84	.84	11.50	5.64	10.75	5.26	9.40	2.41
Negative-Usefulness	14.17	6.31	4 - 28	.84	.84	14.64	6.26	13.78	6.32	10.80	6.94
Positive-Usefulness	9.13	5.35	4 - 28	.84	.84	10.17	5.65	8.21	4.91	6.40	2.30
Composites											
General-Controllability	21.58	10.51	8 - 56	.91	.91	22.54	10.98	20.73	10.04	19.00	3.32
General-Usefulness	23.30	9.52	8 - 56	.82	.79	24.81	9.74	21.99	9.13	17.20	5.93
Total Scale	44.89	18.71	16 - 112	.92	.92	47.36	19.45	42.73	17.82	36.20	8.29

Note. EBQ = Emotion Beliefs Questionnaire**.**

Concurrent and Criterion Validity

Correlations between all study variables are displayed in Table 2.4. As expected, there were significant, positive correlations between all EBQ scores and all scores on the PERCI (p < .01), indicating that stronger beliefs about negative and positive emotions being uncontrollable and useless were associated with higher levels of difficulty regulating emotions. As predicted, significant, positive correlations between EBQ scores and the ERQ's *Expressive Suppression* scores indicated that higher levels of maladaptive emotion beliefs are associated with greater use of expressive suppression. Significant, negative correlations between the ERQ's *Cognitive Reappraisal* subscale, and the EBQ's *Negative-Controllability* and *Positive-Usefulness* subscales, meant that higher levels of these emotion beliefs were associated with less use of cognitive reappraisal. *Cognitive Reappraisal* was significantly positively associated with *Negative-Usefulness*, meaning that higher levels of beliefs that negative emotions are useless were associated with higher use of reappraisal.

All EBQ subscale and composite scores correlated significantly and positively (p < .01) with depression, anxiety, and stress symptoms. Of all the EBQ subscales, the *Negative-Controllability* subscale had the highest correlations with all symptom categories and the DASS-21 total score, although these correlations were similar to those with the EBQ total scale score.

Table 2.4

Pearson Correlation Matrix for All Study Variables

	EBQ Subscales				EBQ Composites		
	Negative-Controllability	Positive-Controllability	Negative-Usefulness	Positive-Usefulness	General-Controllability	General-Usefulness	Total Scale
EBQ subscales							
Negative-Controllability	-						
Positive-Controllability	.82**	-					
Negative-Usefulness	.47**	.52**	-				
Positive-Usefulness	.71**	.65**	.33**	-			
EBQ Composites							
General-Controllability	.96**	.95**	.52**	.71**	-		
General-Usefulness	.71**	.71**	.85**	.78**	.75**	-	
Total Scale	.90**	.90**	.73**	80**	.94**	.93**	-
ERQ							
Cognitive Reappraisal	-.12**	-.04	.14**	-.08**	-.09**	.05	-.02
Expressive Suppression	.30**	.27**	.21**	.24**	.30**	.28**	.31**
PERCI Subscales							
Negative-Controlling Experience	.52**	.46**	.33**	.28**	.51**	.37**	.48**
Negative-Inhibiting Behaviour	.50**	.45**	.29**	.36**	.49**	.39**	.48**
Negative-Activating Behaviour	.39**	.36**	.30**	.17**	.39**	.30**	.37**
Negative-Tolerating Emotions	.33**	.32**	.47**	.19**	.34**	.42**	.41**
Positive-Controlling Experience	.50**	.46**	.29**	.34**	.50**	.38**	.48**
Positive-Inhibiting Behaviour	.54**	.51**	.29**	.53**	.55**	.49**	.56**
Positive-Activating Behaviour	.49**	.47**	.21**	.51**	.51**	.42**	.50**
Positive-Tolerating Emotions	.52**	.49**	.23**	.59**	.53**	.49**	.54**
PERCI Composites							
Negative-Emotion Regulation	.50**	.45**	.40**	.29**	.50**	.42**	.50**
Positive-Emotion Regulation	.58**	.54**	.29**	.56**	.59**	.50**	.58**
General-Emotion Regulation	.57**	.53**	.37**	.45**	.58**	.49**	.58**
DASS-21							
Depression	.43**	.35**	.27**	.29**	.41**	.34**	.40**
Anxiety	.43**	.39**	.29**	.33**	.43**	.38**	.43**
Stress	.44**	.37**	.30**	.30**	.43**	.37**	.43**
Total Scale	.46**	.39**	.30**	.32**	.44**	.38**	.44**

Note. **p < .01, *p < .05. Higher scores on EBQ variables indicate stronger beliefs that emotions are uncontrollable or useless. Higher scores on the PERCI variables indicate greater difficulty regulating emotions.

In the hierarchical multiple regression analyses, the demographic variables alone accounted for a significant 9.6% of the variance in depression scores, a significant 11.1% of the variance in anxiety scores, and a significant 11% of the variance in stress scores (ps < .001). The addition of the four emotion belief variables accounted for a significant additional 14.2% of the variance in depression scores ($\Delta R^2 = .142$, $\Delta F[4, 1163] = 53.95$, p < .001), a significant additional 14.7% of the variance in anxiety scores ($\Delta R^2 = .147$, $\Delta F[4, 1163] = 57.38$, $p < .001$), and a significant additional 15% of the variance in stress scores ($\Delta R^2 = .150$, $\Delta F[4, 1163] = 58.95$, $p < .001$). Symptoms of depression, anxiety, and stress were all uniquely predicted by stronger beliefs that negative emotions are uncontrollable and useless (See Table 2.5).

Table 2.5

Results of Regression Models Predicting Depression, Anxiety, and Stress Symptoms

Variable	Depression		Anxiety		Stress	
	β	*B* [95% CI]	β	*B* [95% CI]	β	*B* [95% CI]
Age	-0.22***	-0.08 (-.10, -.06)	-0.25***	-0.08 (-.10, -.06)	-0.25***	-0.08 (-.10, -.07)
Gender	0.02	0.27 (-.40, .93)	0.02	0.23 (-.35, .81)	0.01	0.06 (-.55, .68)
EBQ Negative-controllability	0.36***	0.41 (.30, .52)	0.24***	0.24 (.15, .34)	0.31***	0.33 (.23, .43)
EBQ Positive-controllability	-0.03	-0.03 (-.14, .08)	0.07	0.07 (-.03, .16)	0.02	0.02 (-.08, .13)
EBQ Negative-usefulness	0.13***	0.13 (.07, .19)	0.12***	0.11 (.06, .16)	0.15***	0.15 (.09, .20)
EBQ Positive-usefulness	-0.04	-0.05 (-.14, .04)	0.03	0.03 (-.5, .11)	-0.04	-0.04 (-.12, .04)

Note. CI = confidence interval. *p <.05. **p < .01. ***p < .001. Gender was coded 1 = male, 2 = female. Despite the high correlation between the subscales of the EBQ, assumption testing for multicollinearity indicated no multicollinearity concerns (VIF < 5).

Discussion

The aim of this study was to examine the psychometric properties and affective correlates of the EBQ in a large, representative sample of US general community adults. Overall, our results demonstrated that the EBQ was a psychometrically sound instrument for measuring a coherent, multidimensional beliefs about emotions construct. Furthermore, our findings support the utility of the EBQ as a measure for exploring how emotion beliefs differentially relate to certain psychological outcomes.

The Structure of Emotion Beliefs

As predicted, CFAs supported the intended four-factor subscale structure of the EBQ, where controllability and usefulness beliefs are separated by valence. This finding aligns with most previous work (Becerra et al., 2023; Ranjbar et al., 2023; Rogier et al., 2023), providing further support for Ford and Gross's (2019) theoretical proposition that controllability and usefulness are separable and important beliefs domains, and that valence is an important consideration in this space. Importantly, the Negative-Controllability and Positive-Controllability factors on this four-factor solution were highly correlated, and the three-factor solution with a single controllability factor spanning both valences was also adequate in terms of fit index values. Future work should thus determine whether beliefs about the controllability of negative and positive emotions are independently modifiable. Furthermore, despite being statistically separable, all factors in the four-factor solution were positively correlated. This means that in practice, individuals are likely to hold similar beliefs about the controllability and usefulness of negative and positive emotions. As with Becerra et al. (2020) and Rogier et al. (2023), we too found evidence for the presence of a higher-order emotion beliefs factor; contributing to a growing understanding that controllability and usefulness beliefs appear to be individually important, yet coherent parts of a multidimensional emotion beliefs construct (Becerra et al., 2020).

The results of our measurement invariance testing revealed that this structure also holds across different gender, age, and education groups. This promising finding supports the utility of the EBQ in research settings, by highlighting that this instrument can accurately measure group differences in emotion beliefs in people from differing genders, ages, and educational backgrounds (Ranjbar et al., 2023). Further supporting the utility of the EBQ was the fact that all subscale and composite scores had good to excellent levels of internal

consistency, enabling confident examination of emotion beliefs at different levels of specificity or abstraction.

Relationships with Emotion Regulation and Affective Disorder Symptoms

In terms of concurrent validity and relationships with other measures, the EBQ generally correlated in expected ways with measures of emotion regulation ability and strategy use, such that stronger maladaptive beliefs were associated with poorer self-reported emotion regulation skills. In line with previous research (Becerra et al., 2020; Ranjbar et al., 2023), correlations between the PERCI and the EBQ revealed that in general, the controllability beliefs domain had stronger associations with self-reported emotion regulation difficulties than the usefulness domain. This appears to make conceptual sense, given that the goal of emotion regulation is essentially to control one's unfolding emotional response (Gross, 2015). Although theoretically, maladaptive emotion beliefs are expected to be associated with maladaptive emotion regulation strategy use (Ford & Gross, 2019), we found a significant correlation between stronger beliefs about negative emotions being useless and higher use of cognitive reappraisal, an 'adaptive' emotion regulation strategy (Gross & John, 2003). It is important to note here that due to the self-report nature of our survey data and the scope of the ERQ (Gross & John, 2003) reporting high use of cognitive reappraisal does not provide any context around whether this strategy is being applied in a healthy way. Despite this, one potential interpretation for this finding is in line with Ford and Gross's (2019) theorising; that individuals who believe emotions are useless might be applying multiple emotion regulation strategies, some of which may be adaptive (like cognitive reappraisal), and some of which may be maladaptive, to reduce their unwanted emotions. Future research should work to explore this potential explanation, by identifying the patterns of emotion regulation strategies used by individuals who believe emotions are useless or uncontrollable.

In regard to the EBQ's relationship with measures of affective disorder symptoms, we found that stronger beliefs about negative and positive emotions being uncontrollable and useless were associated with higher levels of depression, anxiety, and stress symptoms. This is in line with Ford and Gross's (2019) theorising, as well as previous work by Becerra et al. (2020), Ranjbar et al. (2023) and Rogier et al. (2023). Collectively, these findings further reinforce the importance of considering both belief domains, across both emotional valences, when conceptualising the relationship between emotion beliefs and psychopathology symptoms. Our regression analyses also revealed the particular importance of the negative

emotional valence domain, as beliefs about negative emotions being uncontrollable and useless were both significant unique predictors of all three symptom categories. The salience of beliefs about negative emotions here may be because negative emotional states typify depression, anxiety, and stress symptoms (Lovibond & Lovibond, 1995).

Implications

These findings have important implications for theory and practice. Theoretically, our findings revealed that the EBQ had strong psychometric properties and is thus well equipped to measure beliefs about the controllability and usefulness of emotions, across positive and negative valences, in the US general population. Given that the EBQ is based on Ford and Gross's (2019) framework of emotion beliefs, it then follows that this pattern of findings also provides broader support for this theoretical framework too. When conceptualising the emotion beliefs construct, our results using the EBQ demonstrated that both controllability and usefulness beliefs, across both valences, should be considered. Ford and Gross (2019) originally theorised that controllability and usefulness beliefs should be important for psychological health, potentially via their influence on the process of emotion regulation. Our findings support this proposition, in that they revealed that there is indeed a significant relationship between emotion beliefs, emotion regulation, and symptoms of depression, anxiety, and stress.

Practically, our findings indicate that it may be important for clinicians to consider and assess for the potential influence of emotion beliefs in clients presenting with affective disorders or emotion regulation difficulties. The EBQ's strong psychometrics indicate that this measure could be a good assessment option. As our results have highlighted the link between maladaptive emotion beliefs and difficulties with emotion regulation, it follows that treatments focused around improving emotion regulation may benefit from initially determining whether there is a need to also target potential maladaptive beliefs about emotions (Deplancke et al., 2022). Teaching clients to use more adaptive emotion regulation strategies is a key aspect of many types of psychotherapy (De Castella et al., 2013). However, this intervention is unlikely to be as beneficial to an individual if they hold an underlying belief that emotions are inherently uncontrollable and useless (Deplancke et al., 2022). The EBQ may assist in identifying such clients, with the normative data provided in this study helping to facilitate score interpretation.

Limitations and Future Directions

Our study has some limitations that could be addressed in future work. Firstly, by design, the current sample consisted of general community adults, and the present findings therefore may not be generalisable to clinical populations. The relationship between emotion beliefs, emotion regulation, and affective disorder symptoms may function differently in those with a mental illness (Becerra et al., 2020), so future EBQ work in clinical samples will be important. Secondly, given the cross-sectional nature of the data, we cannot draw conclusions around causality or directionality when exploring the relationships between emotion beliefs, emotion regulation, and affective disorder symptoms. Future experimental and longitudinal work will be useful in this area. Finally, although our sample was representative of the general USA population, it was predominantly White. As such, we cannot determine whether the current findings would be generalisable to other cultural groups, and this will be an important future direction to further our cross-cultural understanding of emotion beliefs. However, there are some indications that the construct manifests similarly in other cultures and languages; for example, in Iranian (Ranjbar et al., 2023), Italian (Rogier et al., 2023), and German (Biel et al., 2022) samples.

Conclusion

The EBQ is a psychometrically sound tool for measuring the multidimensional emotion belief construct. The ability to measure beliefs about the controllability and usefulness of emotions, across both valences, is a promising strength of the measure, and one that will pave the way for future studies to better explore the complex relationship between emotion beliefs and core emotional outcomes.

Chapter 3: Study 2

The Role of Emotion Beliefs in Depression, Anxiety, and Stress.

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Abstract

Objective: Beliefs about the controllability and usefulness of emotions may influence successful emotion regulation across multiple emotional disorders and could thus be influential mechanisms in long-term mental health outcomes. However, to date there has been little empirical work in this area. Our aim was to fill this gap, by examining the links between emotion beliefs and common emotional disorder symptoms. Specifically, we examined whether emotion beliefs can account for significant variance in depression, anxiety, and stress symptoms, and explored which profiles of emotion beliefs might characterise each of these symptom categories.

Methods: A sample of 948 Australian university students completed self-report measures of emotion beliefs and emotional disorder symptoms.

Results: A path analysis indicated that emotion beliefs accounted for a modest but significant 11%, 12%, and 9% of the variance in depression, anxiety, and stress symptoms, respectively (ps < .001). A latent profile analysis revealed six different profiles of combinations of emotion beliefs and emotional disorder symptom levels, collectively reinforcing the transdiagnostic relevance of emotion beliefs across each symptom category.

Conclusions: Overall, our results indicate the importance of considering emotion beliefs in conceptualisations of depression, anxiety, and stress, and suggest that emotion beliefs may be a useful assessment and treatment target.

The Role of Emotion Beliefs in Depression, Anxiety, and Stress

Emotion regulation difficulties that are characteristic of emotional disorders, such as depressive and anxiety disorders (Bullis et al., 2019), have important clinical implications for assessment and treatment, yet much remains unknown about the mechanisms underlying emotion dysregulation (Gross & Jazaieri, 2014). Preliminary research indicates that emotion beliefs may be a factor that contributes to the maintenance of these disorders, although more research is needed to understand which emotion beliefs are most strongly associated with symptoms (Kneeland et al., 2020). Emotion beliefs are beliefs about the nature, meaning, and utility of emotions, which impact how individuals perceive and respond to their emotions, and the emotions of those around them (Ford & Gross, 2018).

Beliefs and Emotional Disorders: Theoretical Background

Ford and Gross (2018; 2019) recently developed a new framework for conceptualising and organising emotion beliefs, based within the widely used process model of emotion regulation (Gross, 2015). This framework seeks to explain how emotion beliefs contribute to the development and maintenance of emotional disorders. In particular, Ford and Gross's (2018) theoretical framework posits two main types of beliefs about emotions relevant to this area: beliefs about the *controllability* of emotions and beliefs about the *usefulness* of emotions. The nature of beliefs in these areas can differ along a continuum; from the belief that emotions are completely uncontrollable to completely controllable. Similarly, some people believe emotions have a high degree of utility and value, whereas others consider them to be useless and harmful (Ford & Gross, 2018).

Ford and Gross (2018) theorise that controllability beliefs influence whether people attempt to modify their emotional response in a particular context, whilst usefulness beliefs influence the trajectory of emotion regulation (i.e., increasing or decreasing an emotional response) by influencing what people want to feel or not feel. In this way, emotion beliefs are theorised to be powerful determinants of acute emotional responses, which, over time, accumulate to contribute to longer-term emotional health outcomes (Ford & Gross, 2019).

Beliefs and Emotional Disorders: Empirical Findings

To date, most empirical studies in the field have focused on controllability beliefs and negative emotions, but not usefulness beliefs or positive emotions (for some exceptions, see Becerra et al., 2020; 2023). Multiple studies using self-report measures have highlighted the

importance of controllability beliefs for good mental health, with the belief that emotions are uncontrollable being associated with fewer emotion regulation efforts (Kneeland et al., 2016), increased depressive or anxiety symptoms (Deplancke et al., 2022; Ford et al., 2018; Veilleux, Pollert et al., 2021), increased negative affect (Kneeland et al., 2020), more persistent social anxiety disorder symptoms (De Castella et al., 2013), decreased wellbeing (De Castella et al., 2013; Tamir et al., 2007), and increased stress (De Castella et al., 2013). The existing body of research on usefulness beliefs, albeit smaller, also indicates that believing emotions are useless or harmful is associated with poorer emotion regulation decisions and more severe emotional disorder symptoms (Ford et al., 2018; Manser et al., 2012; Veilleux, Chamberlain et al., 2021; Veilleux, Pollert, et al., 2021).

In summary, the above findings suggest that controllability and usefulness beliefs may be associated with emotional disorder symptoms. However, there is a gap in understanding how these beliefs function differently across the valence spectrum. Valence is theorised to be a particularly salient category by which individuals organise their emotion beliefs (Ford & Gross, 2018), but little work has examined emotion beliefs across both negative and positive emotions. According to Ford and Gross's (2018) framework, individuals might simultaneously hold distinct beliefs about the usefulness or controllability of negative versus positive emotions, such that one could believe a negative emotion like anger is uncontrollable, whilst also believing a positive emotion like happiness is controllable. Recent psychometric studies utilising the Emotion Beliefs Questionnaire (EBQ; Becerra et al., 2020), a measure of controllability and usefulness emotion beliefs, have indeed found the EBQ's factor structure separates according to valence, indicating statistical value in differentiating between positive and negative emotion beliefs (Becerra et al., 2023; Ranjbar et al., 2023). Furthermore, given that research in other emotion domains such as emotion regulation has demonstrated that positive and negatively valenced emotions can function differently (Preece et al., 2018), it is important to examine how emotion beliefs function across the valence spectrum. Finally, more work is needed to understand the potentially complex interplay between usefulness and controllability beliefs in both the negative and positive emotion space. More specifically, it remains to be seen which configurations of beliefs are more or less related to different symptoms of emotional disorders and what are the unique contributions of each domain of emotion beliefs.

The Present Study

Our aim in this study was to examine the associations between emotion beliefs and three common types of emotional disorder symptoms (depression, anxiety, and stress). We utilised the EBQ (Becerra et al., 2020) to enable a comprehensive and differentiated mapping of the emotion beliefs construct. We conducted a path analysis to examine whether emotion beliefs (i.e., controllability and usefulness beliefs across both valence domains) explained a significant proportion of variance in depression, anxiety, and stress symptoms and determine which emotion beliefs were significantly associated with each symptom category. We additionally used Latent Profile Analysis (LPA) to further explore profiles of emotion beliefs, or combinations of different beliefs, that might uniquely characterise depression, anxiety, and stress symptom categories. Given that the emotion belief field is currently understudied, and this study is exploratory in nature, we decided to not propose any formal hypotheses about how specific emotion beliefs may differentially relate to depression, anxiety, and stress symptoms.

Method

Participants and Procedure

Our sample was 948 undergraduate psychology students from an Australian university. They had a mean age of 22.59 years ($SD = 6.64$, range $= 16 - 56$). The majority of participants were female (76.20%), born in Australia (69.62%), and answered yes to a question asking whether they had previously been diagnosed with a mental health disorder at some point in their life (64%). Participants completed a battery of self-report measures as part of a larger online survey using Qualtrics software. Participants received course credit for survey completion.

Measures

Emotion Beliefs

The EBQ (Becerra et al., 2020) is a 16-item self-report measure of beliefs about emotions based on Ford and Gross's (2018) theoretical framework. Four subscale scores can be derived, assessing each belief for negative and positive emotions separately: *negative-controllability* (e.g., *"People cannot control their negative emotions"*), *positive-controllability* (e.g., *"It doesn't matter how hard people try, they cannot change their positive emotions"*), *negative-usefulness* (e.g., *"People don't need their negative emotions"*), and

positive-usefulness (e.g., *"Positive emotions are harmful"*). Items are rated on a 7-point Likert scale from 1 ("*Strongly disagree*") to 7 ("*Strongly agree*"), with higher scores reflecting stronger beliefs that emotions are uncontrollable and useless (i.e., stronger maladaptive emotion beliefs). The EBQ has previously demonstrated good validity and reliability (e.g., Becerra et al., 2020), and had good internal consistency in the current sample across all subscales (Cronbach's $\alpha = .81 - .87$).

Depression, Anxiety, and Stress Symptoms

The Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995) was used to measure symptoms of depression, anxiety, and stress over the past week. The DASS-21 is a 21-item self-report scale answered using a 4-point Likert scale ranging from 0 ("*Did not apply to me at all*") to 3 (*"Applied to me very much, or most of the time"*), with higher scores indicating more severe symptoms. Three subscale scores can be derived, including (1) *depression* (e.g., *"I felt I had nothing to look forward to"*), (2) *anxiety* (e.g., *"I felt I was close to panic"*), and (3) *stress* (e.g., "*I found it hard to wind down*"). The DASS-21 has previously demonstrated good validity and reliability (e.g., Osman et al., 2012), and had good internal consistency across the subscales ($\alpha = .88 - .92$) in our sample.

Analytic Strategy

Correlation Matrix and Path Analysis

Using IBM SPSS (Version 28) we calculated Pearson's bivariate correlations to determine the raw associations among the variables. A path analysis was conducted using Mplus (Version 7.4), with the four EBQ subscales as the predictors and the DASS-21 subscales as the criterion variables. The DASS-21 subscales were free to covary. The model was fully saturated, so goodness of fit could not be formally assessed. However, our intention was to estimate the parameters within the model with 95% confidence intervals as an indication of precision. Given that previous studies show significant age and gender differences on DASS-21 scores (e.g., Crawford & Henry, 2003), age and gender were included as covariates, to partial out any effects they may have on depression, anxiety, and stress symptoms.

Latent Profile Analysis

Our LPA was conducted using *R* software with the TidyLPA package (Rosenberg et al., 2018) to explore how different combinations of emotion beliefs might uniquely

characterise depression, anxiety, and stress symptoms. This analysis thus had seven variables in total: the four emotion belief subscales, plus the symptoms of depression, anxiety, and stress subscales. Sample size requirements are currently understudied for LPA; however existing research recommends a minimum sample size of 250 participants (Tein et al., 2013). Given this, our sample of 948 participants was adequate.

We tested solutions for one to 10 profiles using the default model type in TidyLPA (equal variances and covariances fixed to zero; Rosenberg et al., 2018). We evaluated the fit of each model to determine the optimal solution (i.e., optimal number of profiles to explain the data) according to five common fit index values: the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), the Classification Likelihood Criterion (CLC), the Kullback Information Criterion (KIC), and the Appropriate Weight of Evidence Criterion (AWE; Akogul & Erisoglu, 2017). Lower values on each index indicates a better fitting model (Tein et al., 2013). Each of the five index values were considered, with a particular focus on the BIC, as previous research indicates this is the best performing indicator of optimal profile solutions (Nylund et al., 2007). We also considered entropy values, which can range from 0 to 1, where higher scores indicate a better model fit and values above .80 are deemed acceptable (Tein et al., 2013). Finally, model solutions were evaluated for generalisability, where profiles containing less than 5% of the sample were considered insubstantial and thus unacceptable within the optimal solution (Ferguson et al., 2020).

Results

Correlation Matrix and Path Analysis

The Pearson's bivariate correlation matrix, descriptive statistics, and reliability statistics are presented in Table 3.1. There were significant, positive correlations between symptoms of depression, anxiety, and stress, and all the emotion belief variables ($r = .18$ to $r = .33$), indicating that stronger beliefs that emotions are uncontrollable and useless were associated with higher levels of symptoms. These patterns were present across both the negative and positive valence domains. Across all four emotion belief domains, depression, anxiety, and stress had the strongest positive correlation with beliefs about the uncontrollability of negative emotions, and the weakest positive correlation with beliefs about the uselessness of negative emotions.

To investigate the relationship between the four emotion belief variables and depression, anxiety, and stress, we conducted a path model controlling for age and gender.

Path estimates and 95% confidence intervals are reported in Table 3.2, with the standardised estimates illustrated in Figure 1. Results indicated significant positive pathways between beliefs about the uncontrollability of negative emotions and depression ($B = 0.37$, 95% CI[0.20, 0.53], $\beta = 0.30$, unstandardised SE = .08, $p < .001$), anxiety ($B = 0.21$, 95% CI[0.07, 0.34], $\beta = .19$, unstandardised SE = .07, $p < .001$), and stress ($B = 0.25$, 95% CI[0.12, 0.39], $\beta = 0.22$, unstandardised SE = .07, $p < .001$) scores. There was also a significant positive pathway between beliefs that positive emotions are useless and anxiety scores ($B = 0.15$ 95% CI[0.02, 0.26], $\beta = 0.11$, unstandardised SE = .06, $p < .05$). In total, the model accounted for 11% of the variance in depression scores, 12% of the variance in anxiety scores, and 9% of the variance in stress scores (ps $< .001$).

Table 3.1

Descriptive Statistics, Reliability Statistics, and Pearson Correlation Matrix for All Study Variables

Variable	M	SD	Range	α	1	2	3	4	5	6	7	8	9
1. DASS-21 Depression symptoms	6.78	5.55	0 - 21	.92	-								
2. DASS-21 Anxiety symptoms	5.67	5.00	0 - 21	.88	.66***	-							
3. DASS-21 Stress symptoms	8.10	5.06	0 - 21	.88	.72***	.78***	-						
4. EBQ Negative-controllability	9.42	4.44	4 - 27	.81	.33***	.30***	.28***	-					
5. EBQ Positive-controllability	9.88	4.46	4 - 26	.82	.28***	.27***	.25***	.83***	-				
6. EBQ Negative-usefulness	10.98	4.95	4 - 28	.82	.19***	.19***	.18***	.55***	.53***	-			
7. EBQ Positive-usefulness	7.06	3.86	4 - 27	.87	.22***	.25***	.19***	.65***	.61***	.49***	-		
8. Age	22.59	6.4	16 - 56	-	-.14***	-.16***	-.10***	-.16***	-.15***	-.24***	-.12***	-	
9. Gender	-	-	-	-	.03	.12***	.11***	.00	.02	-.01	-.08*	-.04	-

Note. *p < .05. ***p <.001. Age was a continuous variable. Gender was coded 1 = male, 2 = female. M = Mean. *SD* = Standard Deviation. α = Cronbach's alpha. Higher scores on EBQ variables indicate stronger beliefs that emotions are uncontrollable or useless.

Table 3.2

Results of Path Analysis Predicting Depression, Anxiety, and Stress Symptoms

Variable	Depression		Anxiety		Stress	
	β	*B* [95% CI]	β	*B* [95% CI]	β	*B* [95% CI]
EBQ Negative-controllability	0.30***	0.37 [0.20, 0.53]	0.19**	0.21 [0.07, 0.34]	0.22***	0.25 [0.12, 0.39]
EBQ Positive-controllability	0.01	0.02 [-0.12, 0.16]	0.04	0.04 [-0.09, 0.18]	0.05	0.05 [-0.07, 0.17]
EBQ Negative-usefulness	-0.02	-0.02 [-0.12, 0.08]	-0.01	-0.01 [-0.09, 0.06]	0.01	0.01 [-0.07, 0.10]
EBQ Positive-usefulness	0.02	0.03 [-0.09, 0.15]	0.11**	0.15 [0.02, 0.26]	0.01	0.02 [-0.11, 0.14]
Age	-0.09**	-0.08 [-0.12, -0.03]	-0.11***	-0.08 [-0.12, -0.05]	-0.05	-0.04 [-0.08, 0.01]
Gender	0.03	0.33 [-0.50, 1.09]	0.12***	1.42 [0.80, 2.03]	0.11***	1.27 [0.56, 1.95]

Note. CI = confidence interval. ** $p < .01$. *** $p < .001$. Gender was coded 1 = male, 2 = female.

Figure 3.1

Path Analysis Modelling the Relationship Between Emotion Beliefs and Depression, Anxiety, and Stress
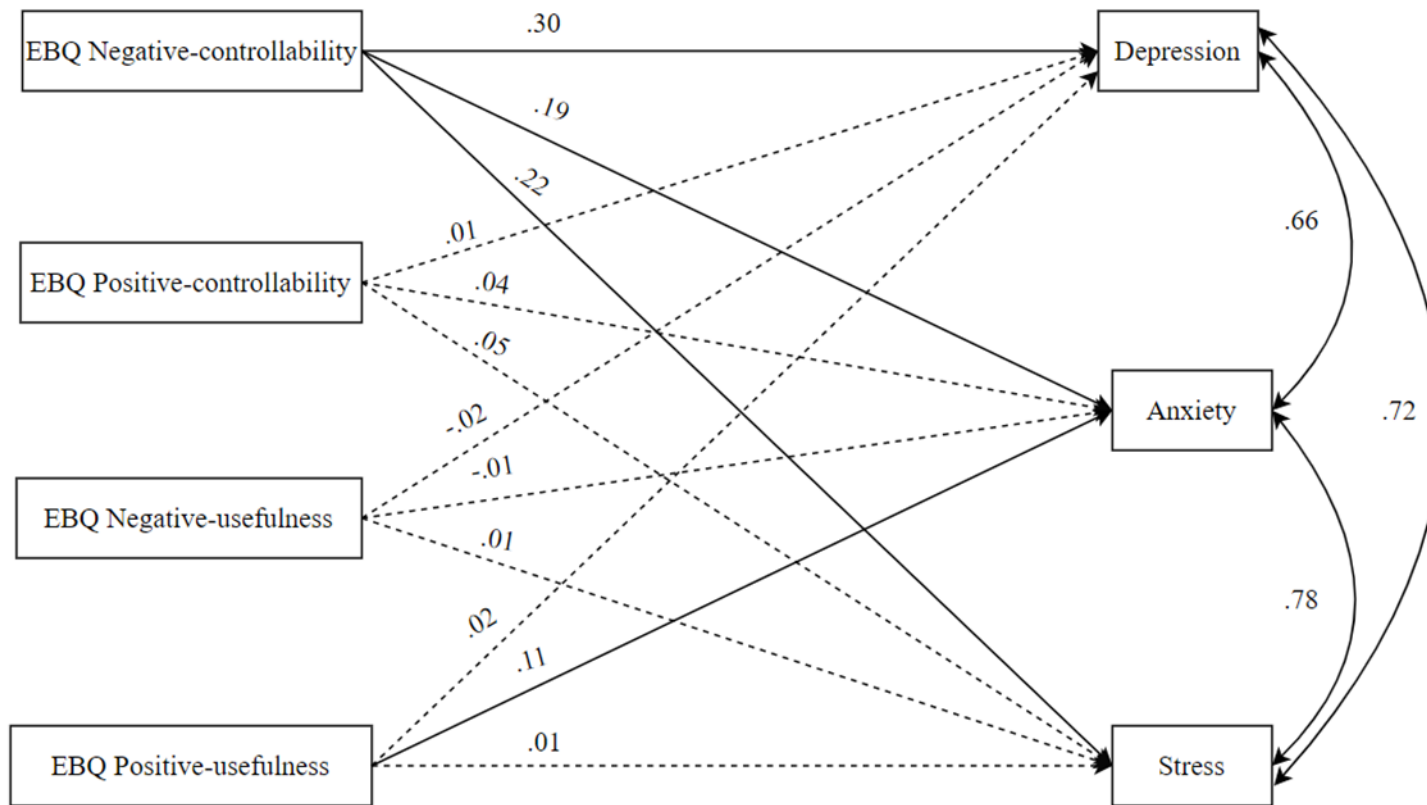
Note. Solid lines indicate significant paths, dotted lines indicate nonsignificant paths. Age and gender were included in the path analysis but are not shown here. Higher scores on the EBQ variables indicate stronger beliefs that emotions are uncontrollable or useless.

Latent Profile Analysis

Our LPA indicated the data were best represented by a six-profile solution. Initially, the LPA indicated the data were well represented by a nine-profile solution (see Table S3.1 in supplementary materials). However, further examination revealed the nine-profile solution (along with the seven-, eight-, and ten-profile solutions) contained profiles consisting of less than 5% of the sample. Given this, the six-profile solution was judged as the best solution. The six-profile solution had the best fit indices compared to the other five remaining solutions, had an acceptable entropy value, and all six profiles in this solution contained more than 5% of the data. The six profiles varied in their levels of depression, anxiety, stress, and emotion beliefs, with levels interpreted as 'low' 'average' or 'high' compared to the z-standardised sample means. Generally, Z scores around 0 are considered average (i.e., representing the mean score in the sample), with higher scores indicating a higher level of maladaptive beliefs about emotions or higher emotional disorder symptoms (see Figure 3.2). No distinct depression, anxiety, or stress profile emerged. Rather, all profiles had either low, average, or high levels of all three emotional disorder symptoms.

Three of the profiles had similarly elevated symptoms of depression, anxiety, and stress. We refer them here as "high symptoms/moderate maladaptive beliefs" (Profile 3, $n =$ 116), "high symptoms/low maladaptive beliefs" (Profile 4, $n = 123$), and "high symptoms/high maladaptive beliefs" (profile 5, $n = 51$). Whilst displaying similar symptom severity, these profiles had notable differences in their patterns of emotion beliefs. The "high symptoms/high maladaptive beliefs" profile had higher than average beliefs that emotions were uncontrollable and useless across both valence domains, which were the most extreme maladaptive beliefs in the sample. Relative to this, the "high symptoms/moderate maladaptive beliefs" had much lower levels of maladaptive beliefs, which were within the average range across both belief categories and both valence domains, and the "high symptoms/low maladaptive beliefs" profile held much more adaptive beliefs about the controllability and usefulness emotions across both valence domains.

The remaining three profiles shared lower levels of emotional disorder symptoms, and again differed in their emotion belief profiles. We refer to them here as "low symptoms/low maladaptive beliefs" (Profile 6, $n = 256$), "low symptoms/moderate maladaptive beliefs" (Profile 1, $n = 280$), and "moderate symptoms/moderate maladaptive beliefs" (Profile 2, $n =$ 122). The "low symptoms/low maladaptive beliefs" profile had the lowest symptom severity

and held the most adaptive beliefs about the controllability and usefulness of emotions across both valence domains in the sample. The "low symptoms/moderate maladaptive beliefs" profile only had slightly higher symptoms of depression, anxiety, and stress, yet much stronger beliefs about emotions being uncontrollable and useless. The "moderate symptoms/moderate maladaptive beliefs" profile had higher levels of symptom severity (albeit still within the average range) and was characterised by elevated beliefs that both positive and negative emotions were uncontrollable and useless.

Figure 3.2

Visual Representation of the Six-Profile Solution from the Latent Profile Analysis
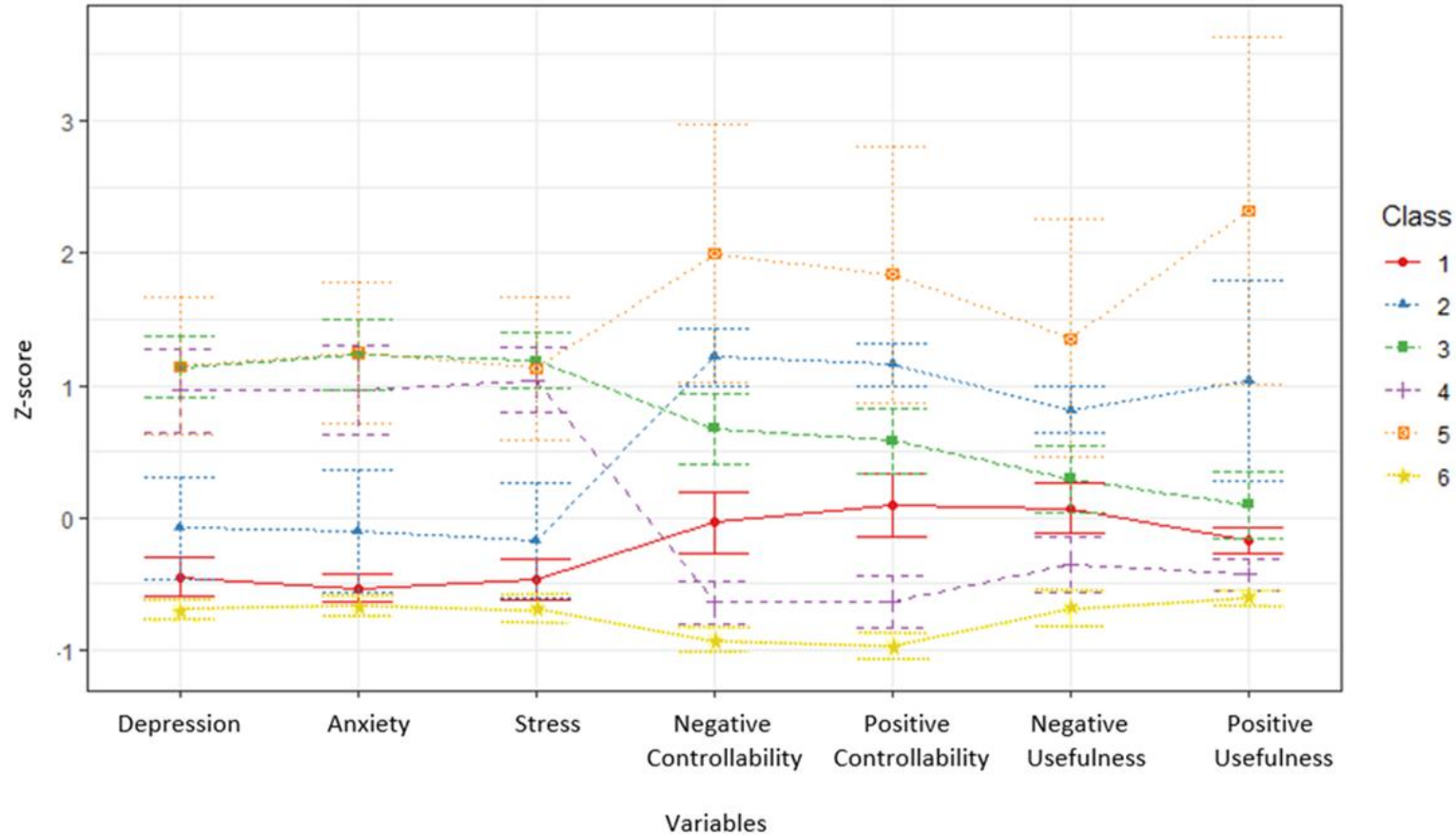
Note. Error bars are 95% confidence intervals. Scores are standardised values (z-scores), where 0 = mean sample score, and 1 value above or below = one standard deviation above or below the mean. Profile 1 = "low symptoms/moderate maladaptive beliefs", profile 2 = "moderate symptoms/moderate maladaptive beliefs", profile 3 = "high symptoms/moderate maladaptive beliefs", profile 4 = "high symptoms/low maladaptive beliefs", profile 5 = "high symptoms/high maladaptive beliefs", profile 6 = "low symptoms/low maladaptive beliefs".

Discussion

The aim of this study was to examine the relationship between emotion beliefs and depression, anxiety, and stress symptoms. Overall, our results support the notion that maladaptive emotion beliefs, across both valence domains, may play an important role in emotional disorder symptoms.

Links Between Emotion Beliefs and Emotional Disorder Symptoms

In terms of raw associations, our Pearson's correlations revealed that individuals holding stronger beliefs that emotions are uncontrollable and useless also generally had more severe symptoms of depression, anxiety, and stress. Crucially, these patterns were present across both negative and positive emotions. This therefore represents a novel extension of past work, which has previously tended to focus only on controllability beliefs (e.g., De Castella et al., 2013) or on beliefs about only negative emotions (e.g., Manser et al., 2012). Consistent with Ford and Gross's (2018) theorising, our results highlight the importance of broadening this scope to usefulness beliefs and positive emotions too.

Our path analysis also indicated that, of all the belief categories, beliefs about the uncontrollability of negative emotions appear to be particularly important, as the EBQ's negative-controllability subscale was the only significant unique path to all three symptom categories. The salience of this particular emotion belief makes theoretical sense here; if individuals believe they are incapable of controlling their negative emotions, they may be more distressed by them, and less likely to use adaptive emotion regulation strategies to decrease negative emotional experiences (Ford & Gross, 2019) that centrally characterise states of depression, anxiety, and stress (Lovibond & Lovibond, 1995). However, the reverse direction of influence was not explored, but may also be true; experiencing severe negative emotional states may make emotion regulation more difficult, contributing to heightened beliefs about the uncontrollability of negative emotions (Deplancke et al., 2022). Our path analysis also revealed that believing positive emotions are useless significantly predicted anxiety symptoms. One potential explanation for this belief being a predictor of anxiety symptoms, but not depression or stress symptoms, could be because of the perceived value of worry, a regulation strategy for negative emotions, in anxiety disorders (Georgiades et al., 2021). Individuals with anxiety often see worry as advantageous, in that it increases cautiousness to help avoid unfavourable outcomes (e.g., *"worry stops me from doing something to embarrass myself"*; Wells, 1995). It is possible then that in comparison to this

usefulness of negative emotions, people with anxiety may not believe positive emotions serve this same utility. Moreover, if positive emotions are not believed to have utility, individuals may be less motivated to engage in pursuits likely to increase positive affect and buffer against negative emotions. Again, it is possible that this relationship is bidirectional or reversed, so it will be important for future research to further examine this finding.

Profiles of Emotion Beliefs and Emotional Disorder Symptoms

Our study is, to the best of our knowledge, the first to utilise a LPA approach to explore different profiles of emotion beliefs, and how different combinations of emotion beliefs may exist together (for similar applications to other constructs, see Preece et al., 2021). These LPA findings appear to reinforce the transdiagnostic relevance of the emotion belief construct, as we did not find distinct profiles for depression, anxiety, and stress amongst our sample; rather, profiles were either globally high, average, or low in all three symptom categories. However, it is worth noting that this is likely due in part to the fact that there were high correlations between the depression, anxiety, and stress subscales in the current study. Similarly, another key finding here was that profiles did not seem to differ dramatically in their level of controllability versus usefulness beliefs, or their level of beliefs for negative versus positive emotions. Profiles instead tended to have either globally high levels of maladaptive beliefs across all categories, or more average or adaptive beliefs across all categories. This lack of differentiation within each emotion belief profile appears to suggest that individuals might either hold none of the maladaptive emotion beliefs, or the full 'set', which could collectively have a transdiagnostic impact across all three of the emotional disorder symptom categories (or, if the reverse direction of influence is true, be impacted by all three of the emotional disorder symptom categories). It is also possible that individuals may have finer emotion belief differentiation at the level of discrete emotions rather than global positive and negative valence domains. For example, a person might believe that anxiety is relatively uncontrollable despite often being quite useful, while at the same time believing that anger is neither controllable nor useful. Examining this kind of more granular belief differentiation may shed additional light onto the roles of emotion beliefs in emotional disorders.

Another key finding from our LPA was that although profiles with greater symptoms of depression, anxiety, and stress tended to hold stronger beliefs that emotions were uncontrollable and useless, this pattern was not ubiquitous. For example, participants in the

"high symptoms/low maladaptive beliefs" profile had high levels of depression, anxiety, and stress symptoms, yet held relatively adaptive beliefs about the controllability and usefulness of positive and negative emotions. Moreover, participants in the "moderate symptoms/moderate maladaptive beliefs" profile did not have elevated symptoms, but held relatively maladaptive beliefs about emotions. We think these findings make conceptual sense, as emotion beliefs are but one of many factors that might exert an influence on an individual's emotional experience and emotional disorder risk (e.g., Kneeland et al., 2016). In cases where individuals hold beliefs that emotions are uncontrollable and useless, but do not have elevated symptoms, these beliefs may still mean the individual is at higher risk of developing emotional disorders in the future. Conversely, if this relationship is operating in reverse, it's possible that individuals who are not experiencing emotional disorder symptoms are still having difficulty regulating their emotions, which may contribute to stronger beliefs that emotions are less controllable or useful. Contextual factors, such as the presence environmental stressors, may be contributing to disorder symptomatology in individuals with low maladaptive beliefs (i.e., the "high symptoms/low maladaptive beliefs" profile), whilst the absence of environmental stressors might be cushioning individuals with lower symptomatology despite higher maladaptive beliefs (i.e., the "moderate symptoms/ moderate maladaptive beliefs" profile). Future research should consider the potential influence of such factors.

Implications for Theory and Practice

These findings have several important theoretical and clinical implications. Theoretically, our pattern of results support Ford and Gross's (2018) emotion belief framework, whereby both controllability and usefulness beliefs, across both valence domains, are theorised to play an important role in long term mental health outcomes, likely via their role in providing a foundation for successful (or impaired) emotion regulation patterns. Our findings suggest that the full breadth of emotion beliefs are likely important to consider in the conceptualisation of symptoms associated with common emotional disorders. Not all individuals with high emotional disorder symptoms will necessarily hold beliefs about emotions being uncontrollable and useless, but when such beliefs are present this appears to put people at greater risk. If these findings are replicated in clinical samples, they may indicate that it would be beneficial to routinely assess for such emotion beliefs and target them in treatment. In assessments, validated tools like the EBQ (Becerra et al., 2020) are likely to have high utility. In terms of treatments, many existing cognitive behavioural

therapy (CBT) approaches focus on broadly targeting and challenging unhelpful beliefs (Beck, 1964), and have central focuses on developing emotion regulation skills. It is rarer, however, for treatments to directly focus on changing emotion beliefs, particularly with respect to the controllability and usefulness of positive emotions. Considering that much of psychotherapy is based upon the premise that emotions are changeable, individuals who already believe in the controllability and usefulness of emotion may be more likely to engage in psychotherapy (Kneeland et al., 2016). Contrarily, individuals holding less adaptive emotion beliefs might benefit from clinicians beginning the treatment process with psychoeducation and targeted CBT focused on the nature of emotions, to initially address maladaptive emotion beliefs (Kneeland et al., 2016), prior to moving on to interventions aimed at developing more adaptive emotion regulation abilities (Ford & Gross, 2019).

Limitations and Future Directions

Although we believe this study makes a useful contribution, there are some limitations that could be addressed in future research. First, the cross-sectional nature of the data precludes conclusions about directionality and causality. Future longitudinal and experimental work would be beneficial in providing a direct examination of the impact of emotion beliefs on emotional disorder symptoms (Ford & Gross, 2018). The reverse direction of influence should also be examined. It is possible that individuals with emotional disorders may experience emotions that are less controllable and useful, which leads them to form accurate beliefs that reflect the reality of their lived experience. Second, the scope of this paper was focused only on exploring the links between emotion beliefs and common emotional disorder symptoms. In future, it would be beneficial for researchers to extend on this work by examining emotion beliefs alongside other variables that might interact to influence emotional disorders, such as alexithymia (Preece et al., 2022) or emotion regulation (Ford & Gross, 2019). Third, although nearly two thirds (64%) of our participants self-reported having received a mental health diagnosis in the past, we did not use a clinical sample. The extent to which emotion beliefs exert an influence over emotional disorder symptoms might be different for those with and without severe mental health disorders (Beccera et al., 2020). As such, future research should consider comparing the emotion belief profiles of clinical versus nonclinical populations. Furthermore, the current sample was predominantly White, Australian born, and female. Culture can exert a pervasive influence over perceptions towards emotions and motivation to regulate emotions (Ford & Mauss, 2015). Thus, we cannot infer whether the current patterns would replicate cross-culturally.

Future work examining cross-cultural associations between emotion beliefs and emotional disorders would be beneficial (Ford & Gross, 2019).

Conclusion

Our data suggest that beliefs about both the controllability and usefulness of emotions, across both the negative and positive valence domains, are related to common emotional disorder symptoms. Our findings thus highlight the importance of comprehensively considering emotion beliefs in the conceptualisation, assessment, and treatment of depression, anxiety, and stress symptoms.

Chapter 4: Study 3

Emotion Beliefs and Emotion Regulation Strategy Use

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Abstract

Emotion regulation is essential for mental health, and it is thus important to understand the factors that influence emotion regulation. One such factor is thought to be beliefs about emotions; however, there is presently limited data testing this expectation. The aim of the present study was therefore to comprehensively examine the links between beliefs about emotions (specifically, the *controllability* and *usefulness* of emotions) and people's usage of a wide range of emotion regulation strategies. Participants ($N = 579$) completed psychometric self-report measures of emotion beliefs and typical emotion regulation strategy use. Correlation analyses revealed stronger beliefs about emotions being uncontrollable or useless were significantly associated with lesser use of adaptive emotion regulation strategies, and greater use of some maladaptive emotion regulation strategies. Latent profile analysis revealed seven profiles, each of which varied in their levels of maladaptive emotion beliefs and emotion regulation strategy use. Profiles with more maladaptive beliefs were generally associated with lower use of adaptive and higher use of maladaptive emotion regulation strategies. Overall, our findings suggest associations between maladaptive emotion beliefs and maladaptive patterns in emotion regulation. This highlights the potential importance of considering emotion beliefs in the conceptualisation and treatment of emotion regulation problems and emotional disorders.

Emotion Beliefs and Emotion Regulation Strategy Use

Difficulties with emotion regulation are a well-known predictor of psychopathology, and many clinical interventions thus aim to target and improve emotion regulation (Hong & Kangas, 2022). However, much remains to be learned about the factors that contribute to the development and maintenance of emotion regulation (Gross & Jazaieri, 2014). Identifying the factors underlying emotion regulation could have important implications for clients who find it difficult to reduce their use of maladaptive emotion regulation strategies or increase their use of adaptive emotion regulation strategies during psychotherapy (Hong & Kangas, 2022). In this context, beliefs about emotions have recently been proposed as a potential key factor underlying and impacting emotion regulation processes (Ford & Gross, 2019).

Emotion Beliefs and Emotion Regulation: Theoretical Considerations

According to the most widely used model of emotion regulation, the *Process Model of Emotion Regulation* (Gross, 2015), emotion regulation is the activation of a goal to modify an unfolding emotional response. Within the process model, this is putatively parcellated into four successive stages that begin after an emotion is generated and appraised as needing regulating (Gross, 2015). First, in the *identification* stage, the individual identifies an emotion and determines whether emotion regulation is necessary. Next, in the *selection* stage, the individual considers and selects potential emotion regulation strategies they could use to achieve their regulatory goal. Following this, in the *implementation* stage, the individual translates their strategy into specific tactics appropriate for their context. Finally, in the *monitoring* stage, the individual then evaluates the outcome of their regulation attempt, and decides whether to maintain, switch, or stop their regulatory effort. Problems can arise in any of these stages, which can lead to emotion regulation difficulty (Gross, 2015).

An emotion regulation strategy is generally considered 'adaptive' if it is flexibly applied, effective in achieving regulatory goals, or is generally associated with good long-term outcomes (e.g., cognitive reappraisal); in contrast, a strategy is generally considered 'maladaptive' if it is ineffective, rigidly applied, or has deleterious consequences on wellbeing (e.g., rumination; Hong & Kangas, 2022). Emotion regulation strategies can also be broadly classified as engagement-oriented (i.e., involve actively dealing with the situation or emotion), which are considered more adaptive, or disengagement-oriented (i.e., involve avoiding the situation or emotion), which are considered less adaptive (Olderbak et al., 2022).

A recent theoretical framework by Ford and Gross (2019) suggests that individual beliefs about the *controllability* and *usefulness* of emotions may contribute to the development and maintenance of emotional disorders, via their influence on the process of emotion regulation. These beliefs exist along a continuum, such as believing emotions are completely controllable to completely uncontrollable or completely useful to completely useless (Ford & Gross, 2019). These beliefs may also vary by valence, in that individuals could hold disparate beliefs about how controllable or useful positive and negative emotions are (e.g., my anger is useful, but my sadness is not; Ford & Gross, 2019).

According to Ford and Gross (2019), emotion beliefs may impact not only the way individuals first appraise an emotion (i.e., as controllable or useful), but also whether, and how, they then activate an emotion regulation goal. For example, it is theorised that beliefs about the controllability of emotions guide the initiation of emotion regulation, by influencing whether individuals perceive emotion regulation as achievable, whilst beliefs about the usefulness of emotion guide the course of emotion regulation, by influencing whether individuals perceive an emotion as good or bad, and motivating the efforts necessary for up- or down-regulation (Ford & Gross, 2019). Emotion beliefs are thus hypothesised to influence the success or failure of individual emotion regulation experiences, which may cumulatively impact emotional outcomes over time (Ford & Gross, 2019). However, the full range of impacts exerted by emotion beliefs have not yet been empirically explored in full.

Emotion Beliefs and Emotion Regulation: Empirical Findings

The majority of research in this space has, to date, focused on beliefs about the controllability of negative emotions or emotions in general, with much less work having examined beliefs about the usefulness of emotions, or beliefs about positive emotions (Becerra et al., 2020). Research consistently demonstrates that stronger beliefs about emotions being uncontrollable are associated with lower use of putatively adaptive emotion regulation strategies, such as cognitive reappraisal (Ford et al., 2018), and greater use of putatively maladaptive emotion regulations strategies, such as cognitive and behavioural avoidance (De Castella et al., 2018), expressive suppression (Berglund et al., 2023; Deplancke et al., 2022), rumination (Trincas et al., 2016) and self-harm (Manser et al., 2012).

A recent systematic review by Hong and Kangas (2022) found that only six (out of the 22 studies examined) evaluated beliefs about the usefulness of emotion. Their findings identified similar patterns: stronger beliefs about emotions being useless are consistently

associated with greater use of maladaptive strategies, such as expressive suppression (Karnaze & Levine, 2018), avoidance (Sydenham et al., 2017), engaging in risky behaviour (Manser et al., 2012), and lower use of adaptive emotion regulation strategies such as seeking social support (Sydenham et al., 2017), or cognitive reappraisal (Berglund et al., 2023).

Beliefs about emotions being uncontrollable or useless have also been associated with greater self-perceived difficulty with overall emotion regulation (Becerra et al., 2020; Preece et al., 2022). There thus appears promising support for the relationship between emotion beliefs and emotion regulation patterns. However, to date, most existing studies have only examined a small range of emotion regulation strategies, particularly cognitive reappraisal, and expressive suppression (e.g., Berglund et al., 2023; Deplancke et al., 2022). In real life, people typically use a much wider range of strategies to regulate their emotions (Gross & Jazaieri, 2014), so it is important to examine these links with a wider breadth of strategies.

Furthermore, much of the current research preceded Ford and Gross's (2019) theoretical framework, and therefore does typically not consider beliefs about the usefulness of emotions or beliefs across both valence domains (Becerra et al., 2020). As such, the exact nature of the relationship between emotion beliefs and emotion regulation is still not well understood (Preece et al., 2022). Moreover, whether controllability and usefulness beliefs co-occur and how they interact to influence emotion regulation patterns also remains under-explored (Ford & Gross, 2019). For example, individuals who believe emotions are both uncontrollable and useless might engage in different emotion regulation strategies than those individuals who believe emotions are uncontrollable yet useful, or controllable yet useless (Ford & Gross, 2019). Enhancing our understanding of the link between specific emotion beliefs and patterns in emotion regulation strategy-use may help optimise treatments aimed at improving emotion dysregulation and ensuing emotional disorder symptoms (Preece et al., 2022).

The Present Study

Our aim was to examine the links between emotion beliefs and use of a wider range of emotion regulation strategies (i.e., the selection stage of the emotion regulation process). We utilised the Emotion Beliefs Questionnaire (EBQ; Becerra et al., 2020), as this recently developed measure specifically aligns with Ford and Gross's (2019) theoretical framework. This allowed us to comprehensively examine how beliefs about the controllability and

usefulness of positive and negative emotions related to the use of specific emotion regulation strategies. We further utilised Latent Profile Analysis (LPA) to explore how certain emotion beliefs (or combinations of emotion beliefs) might uniquely characterise patterns in emotion regulation strategy use.

Method

Participants and Procedure

Our sample comprised of 579 students from an Australian university, who received course credit for survey completion. The sample mean age was 22.69 years (SD = 6.13, range = 16 – 50). For gender, 75.10% of participants were female, 22.50% were male, and 2.40% were another gender. Most participants was born in Australia (69.78%) and did not have history of a formal mental health disorder diagnosis (59.90%). Participants completed demographic questions, as well as measures of their emotion beliefs and emotion regulation, as part of a larger battery of psychometric questionnaires in an anonymous online survey.

Measures

The Emotion Beliefs Questionnaire.

The EBQ (Becerra et al., 2020) is a 16-item self-report measure of beliefs about the controllability and usefulness of emotions. Both of these beliefs can be assessed for negative and positive emotions separately, meaning four subscale scores can be obtained: *negative-controllability (e.g., "It doesn't matter how hard people try, they cannot change their negative emotions"), positive-controllability (e.g., "People cannot change their positive emotions"), negative-usefulness (e.g., "Negative emotions are harmful"), and positive-usefulness (e.g., "People don't need their positive emotions").* Items are answered on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree), with higher scores indicating stronger beliefs that emotions are uncontrollable and useless. The EBQ has demonstrated good reliability and validity (Becerra et al., 2020), and all subscales had good internal consistency in our sample (α = .82-.88).

The Emotion Regulation Questionnaire.

The ERQ (Gross & John, 2003) is a 10-item self-report measure of how frequently people use cognitive reappraisal *(e.g., "I control my emotions by changing the way I think about the situation I'm in")* and expressive suppression *(e.g., "I keep my emotions to*

myself"). Items are answered on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree), and higher scores indicate more use of said strategy. Previous research has demonstrated the ERQ has good reliability and validity (Preece et al., 2021). Both subscale scores had good internal consistency in our sample (α = .81-.90).

The Cognitive Emotion Regulation Questionnaire-Short.

The CERQ-Short (Garnefski & Kraaij, 2006) is an 18-item self-report measure of cognitive-focused emotion regulation strategies one may use when dealing with an unpleasant event. There are nine subscales that can be derived, however the current study only used the following five: *self-blame (e.g., "I think that basically the cause must lie within myself"), acceptance (e.g., "I think that I have to accept that this has happened"), rumination (e.g., "I am preoccupied with what I think and feel about what I experienced"), catastrophising (e.g., "I keep thinking about how terrible it is what I have experienced"), and blaming others (e.g., "I feel that basically the cause lies with others").* We did not include the other four subscales to minimise redundancy in the analysis, as they focus on aspects of cognitive reappraisal, which we measured using the ERQ (Gross & John, 2003). Items are answered on a 5-point Likert scale (1 = almost never, 5 = almost always), with higher scores reflecting more use of said strategy. The CERQ-Short has previously demonstrated good reliability and validity (Garnefski & Kraaij, 2006). The *rumination* subscale had low internal consistency in our sample (α = .58), whilst the remaining subscales had good internal consistency (α = .73-.82).

The Behavioral Emotion Regulation Questionnaire.

The BERQ (Kraaij & Garnefski, 2019) is a 20-item self-report measure of behavioural-focused emotion regulation strategies one may use when dealing with an unpleasant event. The five subscales are: *seeking distraction (e.g., "I engage in other, unrelated activities"), withdrawal (e.g., "I isolate myself"), actively approaching (e.g., "I try to do something about it"), seeking social support (e.g., "I look for someone to comfort me"), and ignoring (e.g. "I repress it and pretend it never happened").* Items are answered on a 5-point Likert scale (1 = almost never, 5 = almost always), higher scores indicate more use of that strategy. The BERQ has been shown to have good reliability and validity (Kraaij & Garnefski, 2019), and all subscale scores demonstrated good internal consistency in our sample (α = .77-.90).

Analytic Strategy

We used IBM SPSS (Version 28) to calculate Pearson's bivariate correlations to determine raw associations between the variables. We then conducted a latent profile analysis using *R* software with the TidyLPA package (Rosenberg et al., 2018), to examine subgroups of participants with similar patterns across the included variables (Tein et al., 2013). Our LPA included 16 variables: the four EBQ subscales and the subscales of the ERQ, CERQ-S, and BERQ. We used TidyLPA's default model type (equal variances, covariances fixed to zero; Rosenberg et al., 2018) to test solutions for one to 15 profiles. To determine the optimal solution (i.e., number of profiles) to explain the data, we evaluated the fit of each model type using five common fit index values: the Bayesian Information Criterion (BIC), the Akaike Information Criterion (AIC), the Classification Likelihood Criterion (CLC), the Appropriate Weight of Evidence Criterion (AWE), and the Kullback Information Criterion (KIC; Akogul & Erisoglu, 2017). A lower value on each of these fit indices indicates a better fitting model (Tein et al., 2013). Whilst all five fit indices were examined, BIC was prioritised, as it has been shown to be the top-performing indicator (Nylund et al., 2007). Entropy values, which range from 0 to 1, were also considered, with higher values indicating a better classification certainty (values above .80 are considered acceptable; Tein et al., 2013). Each profile solution was finally evaluated for generalisability, whereby all profiles in a solution must contain at least 5% of the sample to be considered acceptable (Ferguson et al., 2020).

Results

Correlation Matrix

Descriptive statistics and reliability coefficients are presented in Table S4.1 of the Supplementary Materials, and the Pearson's bivariate correlation matrix is presented in Table 4.1. We found significant correlations ($p < .05$) between negative-controllability (i.e., beliefs that negative emotions are uncontrollable) and all emotion regulation strategies besides rumination and seeking distraction. Notably, beliefs about negative emotions being uncontrollable were most strongly associated with higher use of expressive suppression and ignoring. In terms of positive-controllability, we found significant correlations ($p < .05$) between this belief domain and all strategies except for rumination, seeking distraction, and seeking social support. Beliefs about positive emotions being uncontrollable were most strongly associated with higher use of expressive suppression and ignoring. Negative-usefulness (i.e., beliefs that negative emotions are useless) was significantly correlated (p

< .05) with expressive suppression, acceptance, catastrophising, blaming others, and ignoring. Beliefs about negative emotions being useless were most strongly associated with higher use of expressive suppression and blaming others. Positive-usefulness was significantly correlated (p < .05) with all strategies except cognitive reappraisal, self-blame, seeking distraction, and actively approaching. Beliefs about positive emotions being useless were most strongly associated with higher use of expressive suppression and blaming others.

Table 4.1

Pearson Correlation Matrix for All Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. EBQ negative-controllability	-																	
2. EBQ positive-controllability	.81**	-																
3. EBQ negative-usefulness	.62**	.60**	-															
4. EBQ positive-usefulness	.70**	.67**	.62**	-														
5. ERQ cognitive reappraisal	-.17**	-.11*	.01	-.04	-													
6. ERQ expressive suppression	.30**	.26**	.24**	.27**	.12**	-												
7. CERQ self-blame	.14**	.10*	-.01	.03	-.10*	.21**	-											
8. CERQ acceptance	-.17**	-.17**	-.11**	-.16**	.27**	.03	.15**	-										
9. CERQ rumination	-.03	-.05	-.08	-.10*	.05	.01	.35**	.38*	-									
10. CERQ catastrophising	.22**	.15**	.12**	.09*	-.13**	.20**	.45**	-.00	.43**	-								
11. CERQ blaming others	.26**	.20**	.23**	.27**	.04	.11**	.06	-.03	.11**	.32**	-							
12. BERQ seeking distraction	-.03	-.01	.01	-.03	.30**	.20**	.06	.23**	.07	.03	.08	-						
13. BERQ withdrawal	.26**	.20**	.03	.10*	-.15**	.46**	.34**	-.01	.28**	.39**	.10*	.18**	-					
14. BERQ actively approaching	-.13**	-.10*	-.03	.01	.37**	-.10*	-.12**	.30**	.09*	-.09*	.13**	.29**	-.16**	-				
15. BERQ seeking social support	-.11**	-.08	-.04	-.10*	.13**	-.39**	-.05	.15**	.19**	.07	.11**	.13**	-.16**	.35**	-			
16. BERQ ignoring	.28**	.23**	.18**	.20**	-.06	.54**	.25**	.01	.03	.23**	.16**	.42**	.50**	-.15**	-.17**	-		
17. Age	-.15**	-.15**	-.13**	-.09*	.10*	-.09*	-.03	.03	-.03	-.18**	-.08	-.09*	-.08	.08	.09*	-.05	-	
18. Gender	.10*	.11*	.06	.02	.02	-.10*	-.05	-.12*	.10*	.09*	-.06*	-.05	.10*	-.10*	.15**	.02	-.10*	-

Note. **p < .01, *p < .05. EBQ = Emotion Beliefs Questionnaire, CERQ = Cognitive emotion Regulation Questionnaire, BERQ = Behavioural Emotion Regulation Questionnaire, ERQ = Emotion Regulation Questionnaire. Gender was coded 1 = male, 2 = female (the 14 participants with a gender other than male or female were excluded from the correlations between gender and all other variables). Higher scores on the EBQ indicate stronger beliefs that emotions are uncontrollable and useless.

Latent Profile Analysis

Our LPA indicated that the data were best represented by a seven-profile solution (see Table S4.2 for fit indices of all tested models). The seven profiles varied in their levels of maladaptive emotion beliefs and emotion regulation strategy use patterns (see Figure 4.1).

Two profiles (LP1 [$n = 76$] and LP6 [$n = 58$]) both had elevated levels of maladaptive emotion beliefs, whilst varying in their levels of emotion regulation strategy usage. LP1 had the most maladaptive beliefs in the sample, spanning all belief and valence domains, with particularly strong beliefs about positive emotions being useless. LP1 was characterised by average usage of most emotion regulation strategies, besides high use of blaming others and ignoring, and low use of acceptance. In contrast, LP6 had average levels of beliefs about positive and negative emotions being useless, but did have elevated beliefs about positive and negative emotions being uncontrollable. LP6 was characterised by more extremes in strategy use; high use of expressive suppression, self-blame, catastrophising, and withdrawal, and low use of cognitive reappraisal, actively approaching, and seeking social support.

Three profiles (LP2 [$n = 34$], LP3[$n = 59$], and LP4 [$n = 147$]) had more average levels of maladaptive emotion beliefs. LP2 had relatively consistent levels of beliefs about emotions, besides elevated beliefs about negative emotions being useless. LP2 was characterised by high usage of all strategies, both adaptive and maladaptive, with particularly high use of cognitive reappraisal, blaming others, seeking distraction, actively approaching, and seeking social support. LP3 and LP4 also had generally consistent levels of beliefs across the four EBQ subscales. LP3 was characterised by high use of expressive suppression, seeking distraction, and ignoring, and low use of rumination, actively approaching, and seeking social support. LP4 had a more even usage of all strategies, with particularly low use of seeking distraction and ignoring.

The remaining two profiles (LP5 [$n = 151$] and LP7 [$n = 54$]) had the lowest maladaptive emotion beliefs. LP5 appeared to have the most adaptive strategy use profile, as it was characterised by high use of cognitive reappraisal, acceptance, actively approaching, and seeking social support, and low use of expressive suppression, self-blame, catastrophising, withdrawal, and ignoring. Conversely, LP7 had a similarly adaptive belief profile to LP5, but quite a maladaptive emotion regulation pattern; it was characterised by elevated use of self-blame, rumination, catastrophising, and withdrawal.

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Figure 4.1

Visual Representation of the Seven-Profile Solution from the Latent Profile Analysis
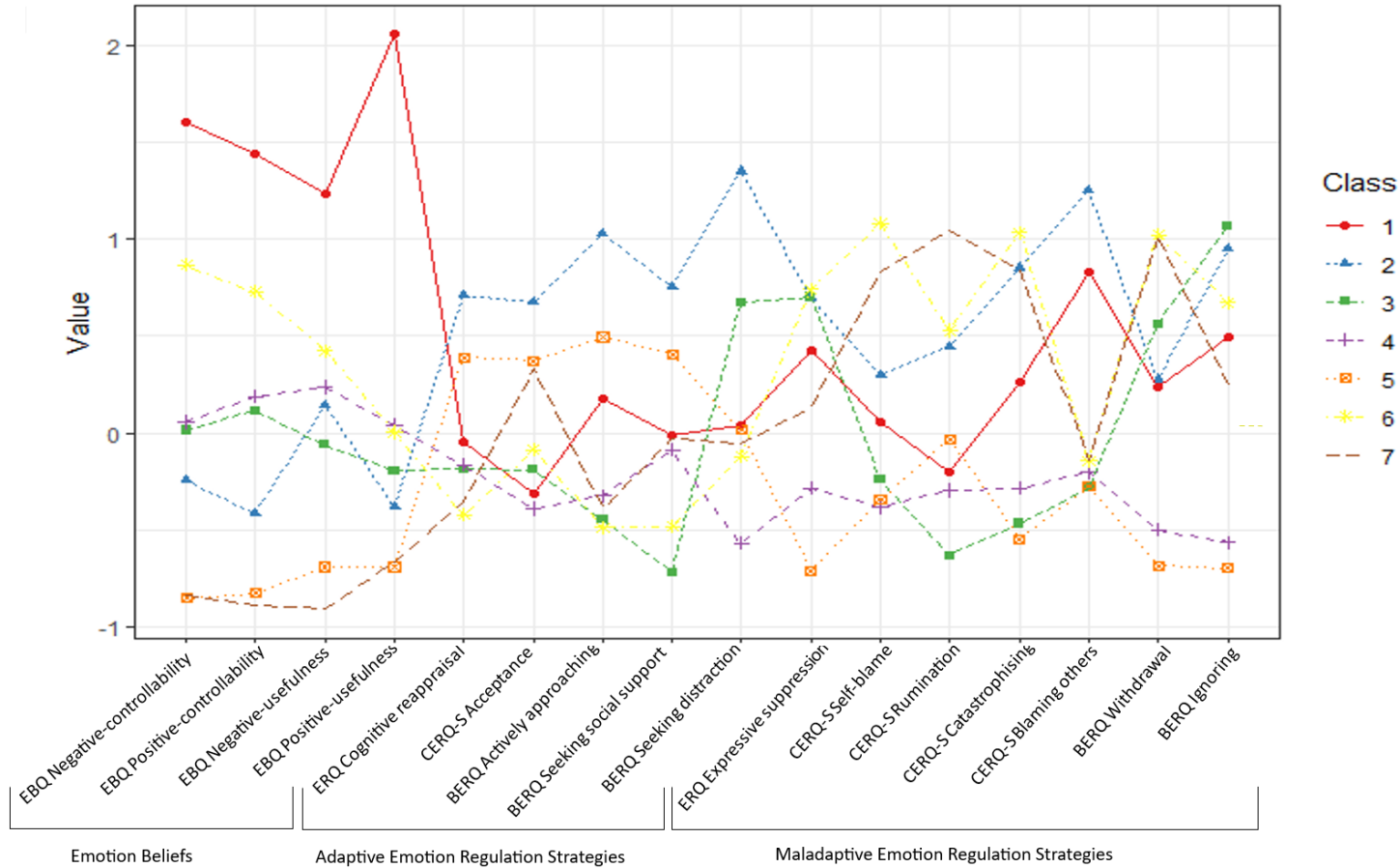
Note. Scores are standardised values (z-scores), where 0 = mean sample score, and 1 value above or below = one standard deviation above or below the mean. Higher scores on the EBQ indicate stronger beliefs that emotions are uncontrollable and useless. Although we acknowledge the context-specificity of emotion regulation, strategies are grouped 'adaptive' or 'maladaptive' here based on broad consensus in previous literature.

Discussion

The aim of this study was to explore the relationship between emotion beliefs and patterns of emotion regulation strategy use. Overall, our results demonstrated that higher levels of maladaptive beliefs about emotions (i.e., stronger beliefs that emotions are uncontrollable and useless) are generally associated with maladaptive emotion regulation patterns, although the LPA demonstrated wide variability here.

Links Between Emotion Beliefs and Emotion Regulation Strategies

Consistent with previous research, stronger beliefs about emotions being uncontrollable and useless were associated with greater use of some maladaptive emotion regulation strategies (e.g., expressive suppression), and lower use of some adaptive emotion regulation strategies (e.g., acceptance; Trincas et al., 2016). Importantly, whilst past work has typically only focused on controllability beliefs for negative emotions, and a small number of emotion regulation strategies, we extended this to also explore beliefs across both valence domains, including usefulness beliefs, and captured a wider breadth of strategies.

We found that associations between emotion beliefs and emotion regulation were present across all belief domains and with many emotion regulation strategies. Specifically, believing positive or negative emotions are uncontrollable or useless was associated with lower use of acceptance, and greater use of expressive suppression, catastrophising, blaming others, and ignoring. Some belief-specific associations were present too. Greater use of self-blame, and lower use of cognitive reappraisal and actively approaching were all associated with beliefs about emotions being uncontrollable (across both valence domains) but were not associated with usefulness beliefs. These associations demonstrate that believing emotions are uncontrollable is not globally linked to less emotion regulation strategy use as one might speculate (since regulation would be perceived as less achievable; Ford and Gross, 2019). Rather, it appears this belief might contribute to greater use of disengagement-oriented strategies (e.g., ignoring).

One explanation for this might be that lower-effort strategies are preferred, since higher-effort engagement-oriented strategies (e.g., actively approaching the issue) may be evaluated at the selection stage of the emotion regulation process as pointless, and thus less likely to be used (Hong & Kangas, 2022). Stronger beliefs about emotions being useless were similarly associated with greater use of disengagement-oriented strategies, potentially because individuals may want to down-regulate these 'bad' emotions by blocking them out,

rather than focusing attention toward them through more effortful regulation strategies (Trincas et al., 2016). Although we have speculated the directionality of these associations in line with Ford and Gross's (2019) theorising, it is likely that the nature of this relationship is bidirectional (Deplancke et al., 2022). For example, recurrent difficulty regulating emotions might intensify one's emotional states, contributing to stronger, and subjectively accurate, beliefs about emotions being uncontrollable or useless (Trincas et al., 2016).

Although the correlations demonstrated general patterns of association between stronger maladaptive emotion beliefs and maladaptive emotion regulation strategy use, the results of the LPA demonstrated that this pattern was not consistent for all participants. Across the three groups of profiles (elevated, average, and low maladaptive beliefs), despite holding similar beliefs about emotions, profiles within each group had different patterns of emotion regulation strategy use. Profiles with stronger beliefs about emotions being uncontrollable and useless typically had more maladaptive patterns of emotion regulations (e.g., LP6), although this pattern was not as extreme for the most severe maladaptive emotion belief profile (i.e., LP1). Furthermore, there was more variability in the emotion regulation patterns of profiles with average or low levels of maladaptive beliefs (e.g., LP2 and LP3), and our data also suggests that for some individuals, maladaptive patterns of emotion regulation can still be present even when holding adaptive beliefs about emotion (i.e., LP7).

One possible explanation for this is that individuals here believe other people's emotions are controllable and useful, but not their own, given the EBQ measures people's beliefs about emotions *in general*, rather than beliefs about their *own* emotions (Becerra et al., 2020). Another possible explanation could be that whilst individuals here believe their emotions are indeed controllable, they may also potentially believe emotions can only be controlled using maladaptive emotion regulation strategies. Other factors such as social context also play a large role in emotion regulation strategy selection, meaning putatively 'maladaptive' strategies might still be adaptively used in certain contexts (e.g., suppressing our emotions around people we do not trust; English et al., 2017). The current study examined emotion regulation patterns generally, rather than context-specifically. Future research should thus consider the influence of social context when examining this relationship.

Implications for Theory and Practice

Theoretically, our findings support Ford and Gross's (2019) framework of emotion beliefs, by demonstrating the importance of examining both controllability *and* usefulness beliefs, across both emotional valence domains, when considering how beliefs relate to emotion regulation. Whilst further work in clinical samples is needed, our pattern of results might suggest that interventions aimed at improving emotion regulation could benefit from including a focus on targeting emotion beliefs, to ensure these are not acting as a barrier to therapeutic change (Hong & Kangas, 2022). Our finding that profiles with similar emotion beliefs still had wide variability in their emotion regulation patterns suggests that it may be important to individually assess for potentially maladaptive emotion beliefs in the treatment of emotion regulation difficulties. As per the precision psychiatry approach, rather than assuming clients holding certain emotion beliefs will also use certain emotion regulation strategies (and vice versa), clinicians should consider individual differences in how these variables manifest and interact, as these differences may require slightly modified intervention focuses (Heckler et al., 2020).

Limitations and Future Directions

Whilst we believe this study has important implications, some limitations should be addressed in future. First, our data were cross-sectional, meaning we cannot determine directionality or causality. Although emotion beliefs are theorised to underlie emotion regulation, Ford and Gross (2018) also highlight that these variables are likely to interact, and this relationship may be bidirectional. It is also possible that the reverse direction of association may be influential here; for example, individuals who use habitually rely on ineffective, disengagement-oriented emotion regulation strategies may have less success regulating their emotions, and subsequently develop the belief that their emotions are uncontrollable. Longitudinal or experimental work, and methodologies such as ecological momentary assessment may allow future researchers to gain a more nuanced understanding of how specific emotion regulation strategies are related to specific emotion beliefs, beyond the correlational associations explored in this study. Such future studies should also consider examining the relationship between emotion beliefs and emotion regulation alongside other variables that may influence the emotion regulation process, such as self-efficacy (Bigman et al., 2016).Second, we utilised a sample of university students in a Western country, who were predominantly young adults and female. Future research should consider the replicability of

our findings in more demographically diverse samples, as the relationship between emotion beliefs and emotion regulation may function differently in clinical or cross-cultural populations (Hong & Kangas, 2022). Third, our study was not context-specific, and as such we inferred whether the included emotion regulation strategies were 'adaptive' or 'maladaptive' based on general consensus in previous research (e.g., Trincas et al., 2016). Given that the suitability of an emotion regulation strategy is context-dependent (Gross, 2015), an important future direction will be to consider how emotion beliefs relate to one's ability to flexibly use appropriate emotion regulation strategies in various contexts.

Conclusion

Our data indicate important links between beliefs about the controllability and usefulness of negative and positive emotions and patterns of emotion regulation strategy use. Emotion dysregulation-focused interventions may therefore benefit from broadening their scope to include the assessment and targeting of maladaptive emotion beliefs, which may play an important role in the facilitation or hinderance of emotion regulation patterns.

Chapter 5: General Discussion

The overall aim of this thesis was to broaden our understanding of the nature of emotion beliefs, and how they relate to emotion regulation and symptoms of emotional disorders. This aim was addressed by first systematically examining the latent structure of the emotion beliefs construct via the Emotion Beliefs Questionnaire (EBQ; Becerra et al., 2020) in *Study 1*, then utilising this same measure to examine how emotion beliefs relate to symptoms of depression, anxiety, and stress in *Study 2*, and emotion regulation strategy use in *Study 3*. Given that the majority of previous research in this field precedes Ford and Gross's (2019) theoretical framework and its mapping within the EBQ, these three studies provide a useful contribution to this emerging field.

Key Findings

Study 1 provided support for Ford and Gross's (2019) theoretical framework, which delineates between beliefs about the controllability *and* usefulness of positive *and* negative emotions, as the CFAs supported the EBQ's four-factor subscale structure (i.e., negative-controllability, positive-controllability, negative-usefulness, and positive-usefulness). Despite each belief domain being statistically separable, all four factors were positively correlated, and each of these first-order factors could collectively load onto a general higher-order factor. These findings thus demonstrate that whilst controllability and usefulness beliefs are individually important, they also appear to be interconnected parts of a broader multidimensional emotion belief construct. Overall, the findings of *Study 1* also supported the psychometric utility of the EBQ (Becerra et al., 2020) for measuring beliefs about emotions; the intended four-factor structure was invariant across different gender, age, and education categories, all subscales and composite scores had good to excellent levels of internal consistency, and also demonstrated good validity by correlating in expected ways with conceptually related measures. Thus, having further established the latent structure of the emotion beliefs construct, and determined that the EBQ is a psychometrically sound tool to measure this, we continued to use this same measure of emotion beliefs for the remaining two studies.

Whilst *Study 1* focused on increasing our understanding of the nature and structure of the emotion beliefs construct, the remaining two studies sought to understand how emotion beliefs are associated with other theoretically-related emotional variables. *Study 2* demonstrated that stronger maladaptive emotion beliefs (i.e., stronger beliefs that positive and

negative emotions are uncontrollable and useless) were associated with more severe symptoms of depression, anxiety, and stress. This finding thus represents a novel extension of past research in the field, which often preceded Ford and Gross's (2019) framework and typically focused only on controllability beliefs (e.g., Tamir et al., 2007) or only on beliefs about the negative emotional valence domain (e.g., Manser et al., 2012). *Study 3* revealed that higher levels of maladaptive emotion beliefs were generally associated with more maladaptive patterns of emotion regulation strategy use. This was consistent with previous research (e.g., Deplancke et al., 2022; Trincas et al., 2016), although again, this finding extends upon previous research by broadening this scope to include a focus on usefulness beliefs, and beliefs about positive emotions, and also mapping a much broader range of emotion regulation strategies than has previously been explored. As such, *Study 2* and *Study 3* support Ford and Gross's (2019) theorising that emotion beliefs might play a role in long-term psychological health, likely via their influence on emotion regulation, and demonstrate that the full breadth of emotion beliefs (i.e., both controllability *and* usefulness beliefs, across positive *and* negative valence domains) should be considered here.

Theoretical Implications

The three complementary studies in this thesis each provide empirical support for various aspects of Ford and Gross's (2019) theoretical framework. Gross's (2015) *process model of emotion regulation* specifies how a pivotal part of the process of emotion regulation is for individuals to first perceive an emotion and then appraise what it is and what it means for their goals. Beliefs about emotions are theorised to operate here, at the appraisal stage, which is crucial for successful progression through subsequent emotion regulation stages (Gross, 2015). Theoretically, the findings of this thesis are broadly consistent with this proposition, as we found stronger beliefs about emotions being uncontrollable and useless were significantly associated with both poorer self-perceived emotion regulation competency, and more maladaptive, disengagement-oriented patterns of emotion regulation strategy use. Furthermore, each of the three studies in this thesis used different datasets and yet consistently demonstrated the importance of considering the full breadth of emotion beliefs (i.e., both controllability and usefulness beliefs, across both valence domains) when considering how beliefs about emotions relate to the examined emotional outcomes, which we believe bolsters the robustness of this support for Ford and Gross's (2019) framework. As has been explained throughout this thesis, although the directionality of the observed associations here have been interpreted in line with Gross's (2015) and Ford and Gross's

(2019) frameworks, the studies within this thesis are correlational, and future longitudinal and experimental work is thus needed to confirm the directionality of these findings.

Clinical Implications

The results of this thesis may have important clinical implications for therapeutic interventions targeting emotion dysregulation and symptoms of depression, anxiety, and stress. Across all three studies, we found evidence that emotion beliefs may be important in conceptualising emotional disorder symptoms and patterns emotion regulation patterns. If replicated in clinical samples, it then follows that it may also be beneficial to routinely assess for and treat maladaptive emotion beliefs in clients presenting with such issues. Comprehensive and psychometrically sound measures of emotion beliefs, such as the EBQ (Becerra et al., 2020) would be a useful assessment option here. Regarding treatment, existing therapeutic interventions such as Cognitive Behaviour Therapy approaches commonly focus on enhancing emotion regulation ability and improving generally unhelpful beliefs about the self, world, and others (Beck, 1964). However, it is less common for such approaches to specifically target and treat unhelpful beliefs about emotions. The results of the current thesis suggest it may be beneficial to include such a focus, to ensure maladaptive emotion beliefs are not a hindering therapeutic change (Hong & Kangas, 2022). For example, clinicians may find it difficult to motivate clients to engage in more effortful engagement-oriented emotion regulation strategies if those clients hold underlying beliefs about their emotions being uncontrollable and useless. It may be beneficial to instead have a preliminary focus on psychoeducation aimed at enhancing such clients' foundational beliefs about the controllability and usefulness of emotions, as this could promote better appraisal of emotions and contribute to more adaptive downstream emotion regulation decisions (Ford and Gross, 2019).

Some existing interventions, such as the unified protocol approach (Barlow et al., 2010), do incorporate a focus on treating maladaptive beliefs about emotions, to improve emotion dysregulation and emotional disorder symptoms. Modules within this therapeutic approach involve increasing client's awareness of their ability to change their emotional responses (i.e., controllability beliefs) and teaching clients that all emotions have a functional and adaptive purpose in life (i.e., usefulness beliefs; Barlow et al., 2010). Furthermore, the modules of the unified protocol approach can be reordered and personalised to target the core strengths and weaknesses of individual clients (Sauer-Zavala et al., 2019). This means

clinicians could initially assess for maladaptive emotion beliefs to identify those clients who would benefit from beginning therapy with modules aimed at improving beliefs around the controllability and usefulness of emotions. As such, it appears studies like these might help to optimise the treatment of emotion regulation difficulties and common emotional disorder symptoms, by guiding the inclusion of assessments and interventions specifically aimed at revealing and targeting maladaptive emotion beliefs.

Limitations and Future Directions

Although this thesis makes a useful contribution to the literature, some limitations could be addressed in future work. First, the data for all three studies in this thesis were cross-sectional, thus inhibiting conclusions about directionality or causality. Although we can use Ford and Gross's (2019) framework to speculate the temporal order of these associations (i.e., emotion beliefs should influence the process of emotion regulation, which should influence the development and maintenance of emotional disorders) it is also important to again acknowledge that the process of emotion regulation is cyclical and unfolds over time, therefore this relationship is likely to also be cyclical and bidirectional (Ford & Gross, 2019). Thus, to fully understand the directionality of these relationships, future research should consider longitudinal or experimental work. Such research is presently limited, although preliminary findings have demonstrated that participants are more successful in regulating negative emotional responses after being experimentally manipulated to expect that their regulatory effort will be successful (Bigman et al., 2016), thus providing further evidence for the role of emotion beliefs in shaping emotion regulation. Second, the data for all three studies were collected using traditional self-report survey measures, whereby participants answer questions retrospectively, based on their generalised experiences. Future work using methodologies such as ecological momentary assessment will be beneficial in understanding how emotion beliefs interact with other emotional variables in naturalistic environments across different time periods (Hong & Kangas, 2022). Third, all three studies used university student or general community samples, with participants who were predominantly White and from Western countries, limiting the generalisability of our findings. The extent to which emotion beliefs are associated with emotional outcomes might be different in cross-cultural or clinical populations (Hong & Kangas, 2022), so future work should consider the replicability of our findings in more diverse samples. Fourth, emotion belief valence was measured at a global positive or negative level in all three studies. Since Ford and Gross (2019) theorise that emotion beliefs could vary across distinct emotions (e.g., sadness, anger,

fear), future work should consider examining beliefs about specific types of emotions, to test whether individuals hold this finer emotion belief differentiation. Similarly, although Ford and Gross (2019) specify multiple subordinate categories along which emotion beliefs may vary, emotional valence was the only subordinate category examined in the current thesis. The EBQ (Becerra et al., 2020) focuses only on valence, because valence is theorised by Ford and Gross (2019) to be a particularly important subordinate category by which individuals might differentiate their emotion beliefs. Despite this, future work should still consider examining beliefs about emotions in the context of other subordinate categories put forward in Ford and Gross's (2019) framework, such as beliefs about emotions in specific context or towards specific targets.

Conclusion

Like most psychological phenomena, the nature and influence of emotion beliefs is complicated, and will require ongoing research to fully comprehend. The introduction of Ford and Gross's (2019) theoretical framework, and the EBQ (Becerra et al., 2020) which attempts to operationalise its components psychometrically, have provided promising new directions for future research in this field. We hope that this thesis has begun to illustrate how comprehensive and important research into the emotion beliefs field can be.

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Supplementary Materials

Supplementary Tables for Study 1

Table S2.1

Standardised Factor Loadings from Confirmatory Factor Analysis of the EBQ (Model 6)

Item/factor		Factor loading
Negative-Controllability		1.00[a]
1	Once people are experiencing negative emotions, there is nothing they can do about modifying them.	.73
5	It doesn't matter how hard people try, they cannot change their negative emotions.	.81
9	People cannot control their negative emotions.	.78
13	People cannot learn techniques to effectively control their negative emotions.	.77
Positive-Controllability		.97[a]
2	People cannot control their positive emotions.	.70
6	People cannot learn techniques to effectively control their positive emotions.	.76
10	It doesn't matter how hard people try, they cannot change their positive emotions.	.78
14	Once people are experiencing positive emotions, there is nothing they can do about modifying them.	.74
Negative-Usefulness		.57[a]
3	There is very little use for negative emotions.	.70
7	People don't need their negative emotions.	.77
11	Negative emotions are harmful.	.76
15	The presence of negative emotions is a bad thing for people.	.80
Positive-Usefulness		.81[a]
4	Positive emotions are very unhelpful to people.	.60
8	There is very little use for positive emotions.	.84
12	People don't need their positive emotions.	.86
16	Positive emotions are harmful.	.73

Note. [a] = Loading of first-order factor onto higher-order factor (Model 7). All factor loadings were statistically significant ($p < .001$).

Table S2.2

Estimated Factor Intercorrelations from Confirmatory Factor Analyses of the EBQ

Model/Factor	F1	F2	F3	F4
Model 2				
F1 Negative Valence	-	-	-	-
F2 Positive Valence	.95	-	-	-
Model 3				
F1 General-Controllability	-	-	-	-
F2 General-Usefulness	.88	-	-	-
Model 4				
F1 Negative-Controllability	-	-	-	-
F2 Positive-Controllability	.97	-	-	-
F3 General-Usefulness	.89	.86	-	-
Model 5				
F1 General-Controllability	-	-	-	-
F2 Negative-Usefulness	.59	-	-	-
F3 Positive-Usefulness	.81	.36	-	-
Model 6				
F1 Negative-Controllability	-	-	-	-
F2 Positive-Controllability	.97	-	-	-
F3 Negative-Usefulness	.55	.62	-	-
F4 Positive-Usefulness	.82	.77	.36	-

Note. For all intercorrelations, $p < .001$.

Table S2.3

Descriptive Statistics for the EBQ, Stratified by Age and Gender

	EBQ Subscales												EBQ Composites					
	Neg-Con		Pos-Con		Neg-Use		Pos-Use		Gen-Con		Gen-Use		Total	
	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*
Age														
18 – 24 (*N* = 188)	12.48	5.61	12.72	5.56	14.42	6.14	10.55	5.87	25.20	10.60	24.97	10.04	50.18	19.33
25 – 34 (*N* = 197)	12.05	5.93	12.01	5.59	14.65	5.95	10.76	5.96	24.06	11.06	25.41	10.19	49.47	20.21
35 – 44 (*N* = 175)	10.59	5.51	11.11	5.42	14.03	6.10	9.62	5.49	21.70	10.56	23.66	9.28	45.35	18.63
45 – 54 (*N* = 191)	10.94	5.76	11.39	5.66	14.50	6.42	8.97	5.22	22.34	10.79	23.48	9.69	45.81	18.97
55 – 64 (*N* = 194)	9.00	5.00	10.04	5.15	13.97	6.49	7.55	4.29	19.04	9.57	21.52	8.45	40.56	16.56
65 + (*N* = 230)	8.30	4.44	9.63	4.77	13.57	6.65	7.66	4.33	17.93	8.72	21.23	8.76	39.16	16.05
Gender														
Male (*N* = 555)	11.05	5.82	11.50	5.64	14.64	6.26	10.17	5.65	22.54	10.98	24.81	9.74	47.36	19.45
Female (*N* = 615)	9.98	5.33	10.75	5.26	13.78	6.32	8.21	4.91	20.73	10.04	21.99	9.13	42.73	17.82
Non-binary (*N* = 5)	9.60	1.14	9.40	2.41	10.80	6.94	6.40	2.30	19.00	3.32	17.20	5.93	36.20	8.29

Note. EBQ = Emotion Beliefs Questionnaire. Neg-Con = Negative-Controllability, Pos-Con = Positive-Controllability, Neg-Use = Negative-Usefulness, Pos-Use = Positive-Usefulness, Gen-Con = General-Controllability, Gen-Use = General-Usefulness.

Table S2.4

Descriptive Statistics, Cronbach's Alpha, and McDonald's Omega Reliability Statistics for the ERQ, PERCI, and DASS-21

	Total sample (N = 1175)					Males (N = 555)		Females (N =615)		Non-Binary (N = 5)	
	M	*SD*	*Range*	*α*	*ω*	*M*	*SD*	*M*	*SD*	*M*	*SD*
ERQ											
Cognitive Reappraisal	26.48	8.68	6 – 42	.91	.91	26.10	8.79	26.83	8.56	25.20	9.88
Expressive Suppression	14.91	5.78	4 – 28	.80	.80	15.64	5.67	14.28	5.79	12.60	8.26
PERCI											
Subscales											
Negative-Controlling Experience	12.86	6.70	4 – 28	.89	.89	13.01	6.54	12.69	6.83	17.60	6.58
Negative-Inhibiting Behaviour	11.39	6.82	4 – 28	.91	.91	12.22	6.90	10.59	6.64	16.80	7.69
Negative-Activating Behaviour	13.95	7.35	4 – 28	.92	.92	13.69	7.17	14.11	7.48	22.00	7.48
Negative-Tolerating Emotions	13.91	6.52	4 – 28	.88	.88	14.45	6.54	13.42	6.49	16.00	4.18
Positive-Controlling Experience	12.11	6.37	4 – 28	.86	.86	12.35	6.24	11.82	6.41	22.00	6.60
Positive-Inhibiting Behaviour	9.61	5.82	4 – 28	.89	.89	10.51	6.07	8.75	5.45	15.20	5.67
Positive-Activating Behaviour	9.66	5.90	4 – 28	.90	.90	10.20	5.87	9.15	5.88	13.20	6.61
Positive-Tolerating Emotions	9.06	5.96	4 – 28	.91	.91	9.81	6.27	8.37	5.59	10.60	6.34
Composites											
Negative-Emotion Regulation	52.11	23.89	16 – 112	.95	.95	53.37	23.84	50.81	23.85	72.40	22.94
Positive-Emotion Regulation	40.44	21.32	16 – 112	.95	.95	42.87	22.05	38.08	20.32	61.00	21.12
General-Emotion Regulation	92.30	41.74	32 – 224	.97	.97	96.06	42.33	88.58	40.77	132.80	41.29
DASS-21											
Subscales											
Depression	6.32	6.42	0 – 21	.94	.94	6.65	6.40	5.98	6.40	11.60	8.73
Anxiety	5.36	5.67	0 – 21	.90	.90	5.72	5.78	4.99	5.53	10.80	7.46
Stress	6.27	6.03	0 – 21	.92	.92	6.72	6.10	5.84	5.91	10.40	7.83
Composite											
Total Scale	17.95	17.21	0 – 63	.97	.97	19.09	17.42	16.81	16.86	32.80	23.75

Note. ERQ = Emotion Regulation Questionnaire, PERCI = Perth Emotion Regulation Competency Inventory, DASS-21 = Depression Anxiety Stress Scales-21.

Table S2.5

Normative Reference Data for Interpreting EBQ Scores, Stratified by Age and Gender

	EBQ Subscales								EBQ Composites					
	Neg-Con		Pos-Con		Neg-Use		Pos-Use		Gen-Con		Gen-Use		Total	
	High Score	Low Score	High Score	Low Score	High Score	Low Score	High Score	Low Score	High Score	Low Score	High Score	Low Score	High Score	Low Score
General Community	≥ 16	≤ 5	≥ 17	≤ 6	≥ 21	≤ 8	≥ 14	≤ 4	≥ 32	≤ 11	≥ 33	≤ 14	≥ 64	≤ 26
Age														
18 – 24 (*N* = 188)	≥ 18	≤ 7	≥ 18	≤ 7	≥ 21	≤ 8	≥ 16	≤ 5	≥ 36	≤ 15	≥ 35	≤ 15	≥ 70	≤ 31
25 – 34 (*N* = 197)	≥ 18	≤ 6	≥ 18	≤ 6	≥ 20	≤ 9	≥ 17	≤ 5	≥ 35	≤ 13	≥ 36	≤ 15	≥ 70	≤ 29
35 – 44 (*N* = 175)	≥ 16	≤ 5	≥ 17	≤ 6	≥ 20	≤ 8	≥ 15	≤ 4	≥ 32	≤ 11	≥ 33	≤ 14	≥ 64	≤ 27
45 – 54 (*N* = 191)	≥ 17	≤ 5	≥ 17	≤ 6	≥ 21	≤ 8	≥ 14	≤ 4	≥ 33	≤ 12	≥ 33	≤ 14	≥ 65	≤ 27
55 – 64 (*N* = 194)	≥ 14	≤ 4	≥ 15	≤ 5	≥ 21	≤ 7	≥ 12	≤ 4	≥ 29	≤ 9	≥ 30	≤ 13	≥ 57	≤ 24
65 + (*N* = 230)	≥ 13	≤ 4	≥ 14	≤ 5	≥ 20	≤ 7	≥ 12	≤ 4	≥ 27	≤ 9	≥ 30	≤ 12	≥ 55	≤ 23
Gender														
Male (*N* = 555)	≥ 17	≤ 5	≥ 17	≤ 6	≥ 21	≤ 8	≥ 16	≤ 5	≥ 34	≤ 12	≥ 35	≤ 15	≥ 67	≤ 28
Female (*N* = 615)	≥ 15	≤ 5	≥ 16	≤ 6	≥ 20	≤ 7	≥ 13	≤ 4	≥ 31	≤ 11	≥ 31	≤ 13	≥ 61	≤ 25
Non-binary (*N* = 5)	≥ 11	≤ 9	≥ 12	≤ 7	≥ 18	≤ 4	≥ 9	≤ 4	≥ 22	≤ 16	≥ 23	≤ 11	≥ 44	≤ 28

Note. ≤ = less than or equal to. High and low scores are determined by calculating 1 standard deviation above or below the mean (as reported in Table S1). Scores are rounded to the nearest whole number, as the EBQ is scored using whole numbers. 'General community' scores are derived using mean and standard deviations from total sample scores (*N* = 1175).

Supplementary Tables for Study 2

Table S3.1

Fit Index Values for Latent Profile Analysis Solutions

Profiles	AIC	BIC	CLC	KIC	AWE	Entropy
1	18853.15	18921.11	18827.15	18870.15	19057.07	1.000
2	17159.29	17266.08	17117.04	17184.29	17481.13	0.875
3	16364.94	16510.57	16306.72	16397.94	16804.42	0.890
4	15889.26	16073.72	15815.01	15930.26	16446.44	0.874
5	15667.78	15891.08	15577.50	15716.78	16342.67	0.857
6	15429.08	15691.22	15322.78	15486.08	16221.65	0.851
7	15390.47	15691.44	15268.18	15455.47	16300.70	0.855
8	15253.72	15593.52	15115.44	15326.72	16281.61	0.861
9	15196.60	15575.24	15042.29	15277.60	16342.19	0.847
10	15181.54	15599.02	15011.22	15270.54	16444.82	0.838

Note. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. CLC = Classification Likelihood Criterion. KIC = Kullback Information Criterion. AWE = Appropriate Weight of Evidence Criterion.

Supplementary Tables for Study 3

Table S4.1

Descriptive and Reliability Statics for Study Variables

Variable	M	*SD*	Range	α
EBQ				
Negative-controllability	9.24	4.30	4 - 25	.86
Positive-controllability	9.88	4.34	4 - 24	.84
Negative-usefulness	10.34	4.61	4 - 25	.82
Positive-usefulness	7.56	4.18	4 - 25	.88
Total scale score	37.02	15.12	16 - 98	.94
ERQ				
Cognitive reappraisal	26.54	6.93	6 - 42	.90
Expressive suppression	15.10	5.43	4 - 28	.81
CERQ-Short				
Self-blame	5.76	1.97	2 - 10	.77
Acceptance	6.84	1.88	2 - 10	.81
Rumination	6.58	1.79	2 - 10	.58
Catastrophising	5.64	2.03	2 - 10	.82
Blaming others	4.48	1.68	2 - 10	.73
BERQ				
Seeking distraction	11.79	3.27	4 - 20	.77
Withdrawal	11.50	4.21	4 - 20	.89
Actively approaching	11.32	3.47	4 - 20	.88
Seeking social support	11.81	4.19	4 - 20	.90
Ignoring	10.02	3.97	4 - 20	.87

Note. M = Mean. *SD* = Standard Deviation. α = Cronbach's alpha. EBQ = Emotion Beliefs Questionnaire. CERQ = Cognitive emotion Regulation Questionnaire. BERQ = Behavioural Emotion Regulation Questionnaire. ERQ = Emotion Regulation Questionnaire.

Table S4.2

Fit Index Values for Latent Profile Analysis Solutions

Profiles	AIC	BIC	CLC	KIC	AWE	Entropy
1	26338.079	26477.641	26276.079	26373.079	26775.203	1.00
2	25174.068	25387.771	25077.900	25226.068	25844.643	0.916
3	24640.562	24928.408	24510.285	24709.562	25544.532	0.861
4	24345.616	24707.604	24181.359	22431.616	25482.850	0.871
5	24104.554	24540.684	23906.253	24207.554	25474.115	0.850
6	23983.409	24493.681	23751.130	24103.409	25587.233	0.860
7	23875.105	24459.520	23608.841	24012.105	25712.198	0.868
8	23744.040	24402.597	23443.788	23898.040	25814.406	0.874
9	23689.299	24421.998	23355.026	23860.299	25992.970	0.863
10	23587.822	24394.663	23219.537	23775.822	26124.790	0.857
11	23545.792	24426.775	23143.510	23750.792	26316.040	0.859
12	23500.207	24455.332	23063.931	23722.207	26503.733	0.862
13	23452.429	24481.696	22982.173	23691.429	26689.219	0.872
14	23395.204	24498.613	22890.952	23651.204	26865.274	0.874
15	23363.813	24541.365	22825.551	23636.813	27067.179	0.869

Note. AIC = Akaike Information Criterion. BIC = Bayesian Information Criterion. CLC = Classification Likelihood Criterion. KIC = Kullback Information Criterion. AWE = Appropriate Weight of Evidence Criterion.

Fit indices indicated the data were best represented by a 14-profile solution, however this solution (and the 13-, 12- 11-, 10-, nine- and eight-profile solutions) contained profiles consisting of less than 5% of the sample. The seven-profile solution was thus deemed the best solution, because all profiles contained more than 5% of the data, it had the optimal BIC of the remaining solutions, and it had an acceptable entropy value.

Appendices

Appendix A: Ethics and Participant Information Form for Study 1
Participant Information Form

Project title: Emotional processing and psychological difficulties

Name of Researchers:
Associate Professor Rodrigo Becerra, Dr David Preece, and Anna Hanran-Smith.

This study is being conducted as a part of an ongoing investigation at the University of Western Australia's School of Psychological Science.

Invitation
You are invited to participate in our research project that looks at the role of emotional processing in some psychological difficulties.

What is the project about?
The aim of this project is to study psychological difficulties and mental health from an emotional perspective. Difficulties in processing emotions appear to be present in numerous psychological difficulties and diagnoses. We are interested in several emotional processing areas, including difficulties identifying emotions, general beliefs about emotions, reactivity to emotions, and the regulation of emotions. There are numerous psychological difficulties associated with these emotional processing difficulties (e.g., depression, anxiety, disordered eating, bipolar proneness, personality difficulties, obsessive tendencies, etc.). However, the exact way these two areas are associated is still unclear and therefore merits further research. The current project aims to address this gap and test contemporary theory by assessing the contribution of these emotional processing areas into psychological difficulties.

What does participation in this project involve?
In this online survey, participants will be required to complete a series of questionnaires to measure the central variables implicated in emotional processing and psychological difficulties. Completion of the survey should take approximately 30 minutes.

Voluntary Participation and Withdrawal from the Study
Participation in this study is entirely voluntary and you may withdraw from the survey at any time without consequences or prejudice. If you wish to withdraw from the study after you have pressed "submit" please contact Qualtrics. Qualtrics will contact us so we can delete the information from the databse. In the event of withdrawal, all information relating to your participation in the project will be destroyed unless otherwise agreed.

Your privacy:
All data relating to this investigation will be kept in a de-identified format, and will not be shared without your permission, unless required by law. Data will be stored in a password protected computer in a locked office at UWA for a minimum of seven years.

Possible Risks and their Management:
All questionnaires administered in this study are standardised tools often used in research settings. The risks associated with this study are expected to be low. In case of discomfort or any reactions you may experience, it is convenient to speak to your psychologist about this. If you do not have a psychologist, you can organize an appointment with your GP to discuss a referral. You can also contact any of the services or helplines listed at the end of this letter.

Possible Benefits:
This study may provide further support for contemporary theories, which recognise emotional difficulties as risk factors for psychological difficulties. Although you might not benefit directly from participating in this study, this information may provide a valuable contribution to the development of more effective psychological intervention plans and case conceptualisations, therefore addressing the demand for more effective treatment outcomes.

Contacts
If you would like to discuss any aspect of this study, including outcomes when they become available, please feel free to contact Assoc Prof. Rodrigo Becerra on + 61 8 6488 1739 (email: rodrigo.becerra@uwa.edu.au). If you are experiencing distress in your life and would like formal assistance, the websites of Mental Health America (mentalhealthamerica.net) and the National Alliance on Mental Illness (nami.org) have information about confidential counselling services.

Ethics Approval
Approval to conduct this research has been provided by the University of Western Australia (2021/ET000948), in accordance with its ethics review and approval procedures. Any person considering participation in this research project, or agreeing to participate, may raise any questions or issues with the researchers at any time. In addition, any person not satisfied with the response of researchers may raise ethics issues or concerns, and may make any complaints about this research project by contacting the Human Ethics office at UWA on (08) 6488 4703 or by emailing to humanethics@uwa.edu.au. All research participants are entitled to retain a copy of any Participant Information Form and/or Participant Consent Form relating to this research project.

Appendix B: Ethics and Participant Information Form for Study 2

HREC Project Number: HREC2019-0587
Project Title: Exploring emotions and mental health
Principal Investigator: Dr David Preece (Curtin University,
Australia)
Co-Investigators: A/Prof Penelope Hasking (Curtin University), Dr Mark Boyes
(Curtin University)

Please ensure you read this information sheet carefully.

What's involved?
We are looking for **current university students** to participate in our study on
emotions. This study involves completing an **online survey**, so that we can learn
about the links between emotional functioning, well-being, and mental health. We wi
ask you to complete a series of standardised questionnaires. These questionnaires
ask about (1) how you think about, experience, and express your emotions, (2) your
mental health and well-being, and (3) whether you have self-injured or think about
self-injury. We also ask you to provide some demographic information (e.g., your
age, gender, etc.).

The survey will take **approximately 60 minutes** to complete. If you start the study
and later decide to withdraw your participation that's fine; you don't need to do
anything, just close the browser window and don't finish the survey. Once you start
the survey, you have 2 weeks to complete it; if you return to the survey from the
same computer within 2 weeks, you will be able to resume from where you left off.

Why should I participate?
This research program will help us to better understand the possible links between
emotional functioning, well-being, mental health, and self-injury. This will help to
inform clinicians and researchers about how to better assess and treat mental healtl
problems.

Reimbursement
Participants completing the survey as part of the Curtin Psychology Student
Participation Pool (SONA system) will receive 4 points of course credit. Other
participants will not receive any reimbursement.

Possible risks and upsetting questions
Your thoughtful and honest responses to the survey are important to us, so please
take your time and answer the questions carefully and completely. All the
questionnaires in this survey are standardised, and regularly administered in
research and clinical settings. There is some risk that some participants might
experience some discomfort when reflecting on their well-being or emotional states.
If you are experiencing distress in your life and would like formal support, a list of
useful resources/support services can be found here: List of resources . If you are
a Curtin University student, you can also access the free Curtin University
Counselling Service through the following link (http://life.curtin.edu.au/health-and-
wellbeing/counselling_services.htm).

Confidentiality
If you are a Curtin University student, we do ask you to provide your name in the

survey (so that we can award your research credit points), however, this identifying information will be removed from the data-set for analysis and archiving. Any publications (e.g., in academic journals) resulting from this research project will not include any personally identifiable information.

Use and Storage of data
Results of the study will be published in academic journals and presented at international conferences. Data may be used to support student research projects (e.g. theses). Data you provide in this study may be used in future research. Data collected will be stored in accordance with Curtin University regulations, kept on University premises, in a password protected file for 7 years and then destroyed.

Feedback and Contacts
A summary of the findings from this research project will be available in June 2020, and can be provided to participants on request by contacting the research team.

For more information about this research project, feel free to contact the researchers:
Dr David Preece: David.Preece@curtin.edu.au
A/Prof Penelope Hasking: Penelope.Hasking@curtin.edu.au
Dr Mark Boyes: Mark.Boyes@curtin.edu.au

Ethics approval
All research in Australia involving humans is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number HRE2019-0587). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix C: Ethics and Participant Information Form for Study 3

HREC Project Number: HREC2022-0242
Project Title: Exploring emotions, thoughts, behaviours, and psychological difficulties
Principal Investigator: Dr David Preece (Curtin University, Australia)
Co-Investigators: Prof Peter McEvoy, Prof Warren Mansell, Prof Wai Chen (Curtin University)

Please ensure you read this information sheet carefully.

What's involved?
We are looking for **current university students** to participate in our study. This study involves completing an **online survey**, so that we can learn about the links between emotions, thoughts, behaviours, and psychological difficulties/well-being. We will ask you to complete a series of standardised questionnaires. These questionnaires ask about your emotions (e.g., reactivity of emotions, awareness of emotions, regulation of emotions), thoughts/beliefs (e.g., your views about yourself and the world, your beliefs about emotions), behaviours (e.g., impulsivity, avoidance, approaching problems), level of psychological difficulties (e.g., low mood, anxiety, alcohol use), and well-being (e.g., positive affect and satisfaction with life). We also ask you to provide some demographic information (e.g., your age, gender, etc.). You can do the online survey on the computer or a mobile phone, but we strongly recommend a computer, as it makes it quicker/easier.

The survey will take **approximately 90 minutes** to complete. If you start the study and later decide to withdraw your participation that's fine; you don't need to do anything, just close the browser window and don't finish the survey. Once you start the survey, you have 2 weeks to complete it; if you return to the survey from the same computer within 2 weeks, you will be able to resume from where you left off.

Why should I participate?
This research program will help us to better understand the possible links between emotions, thoughts, behaviours, and psychological difficulties/well-being. This will help to inform clinicians and researchers about how to better assess and treat mental health problems.

Reimbursement
Participants completing the survey as part of the Curtin Psychology Student Participation Pool (SONA system) will receive 6 points of course credit.

Possible risks and upsetting questions
Your thoughtful and honest responses to the survey are important to us, so please take your time and answer the questions carefully and completely. All the questionnaires in this survey are standardised, and regularly administered in research and clinical settings. There is some risk that some participants might experience some discomfort when reflecting on their well-being or emotional states. If you are experiencing distress in your life and would like formal support, a list of useful resources/support services can be found here: List of resources . As a Curtin University student, you can also access the free Curtin University Counselling Service. Contact details for the Curtin University Counselling Service are: Ph 08

9266 7850; website: http://life.curtin.edu.au/health-and-wellbeing/counselling_services.htm; email: counselling@curtin.edu.au (office hours: 8:30am-5pm).

Confidentiality

We do ask you to provide your name and student ID number in the survey (so that we can award your research credit points), however, this identifying information will be removed from the data-set and replaced by a random ID code for analysis and archiving. As such, the data will be de-identified, and can be classified overall as 're-identifiable' data (as identifying information is originally asked for, but then replaced by a random ID code). Any publications (e.g., in academic journals) resulting from this research project will not include any personally identifiable information.

Use and Storage of data

Results of the study will be published in academic journals and presented at international conferences. Data may be used to support student research projects (e.g. theses). Data you provide in this study may be used in future research. Data collected will be stored in accordance with Curtin University regulations, kept on University premises, in a password protected file for at least 7-25 years. Once the data is deemed no longer useful for research purposes (and after 7-25 years) it will then be destroyed.

Feedback and Contacts

A summary of the findings from this research project will be available in June 2023, and can be provided to participants on request by contacting the research team. At the start of the questionnaire, available via the link provided, there is a checkbox to indicate you have understood the information provided here in the information sheet.

For more information about this research project, feel free to contact the researchers:
Dr David Preece: David.Preece@curtin.edu.au
Prof Peter McEvoy: Peter.Mcevoy@curtin.edu.au
Prof Warren Mansell: Warren.Mansell@curtin.edu.au
Prof Wai Chen: Wai.Chen@curtin.edu.au

Ethics approval

All research in Australia involving humans is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number HRE2022-0242). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix D: Measures

Note: The *Behavioural Emotion Regulation Questionnaire* and *Cognitive Emotion Regulation Questionnaire-Short* are not included here as they are not publicly available download or reprint.

Emotion Beliefs Questionnaire

This questionnaire asks about your beliefs about emotions **in general**. Some questions ask about negative emotions (e.g., sadness, fear, and anger). Other questions ask about positive emotions (e.g., happiness, joy, and amusement). For each statement, please rate **how much you agree or disagree** that the statement is true *in general*. Circle one answer for each statement.

		Strongly disagree	----	----	Neither agree nor disagree	----	----	Strongly agree
1	Once people are experiencing negative emotions, there is nothing they can do about modifying them.	1	2	3	4	5	6	7
2	People cannot control their positive emotions.	1	2	3	4	5	6	7
3	There is very little use for negative emotions.	1	2	3	4	5	6	7
4	Positive emotions are very unhelpful to people.	1	2	3	4	5	6	7
5	It doesn't matter how hard people try, they cannot change their negative emotions.	1	2	3	4	5	6	7
6	People cannot learn techniques to effectively control their positive emotions.	1	2	3	4	5	6	7
7	People don't need their negative emotions.	1	2	3	4	5	6	7
8	There is very little use for positive emotions.	1	2	3	4	5	6	7
9	People cannot control their negative emotions.	1	2	3	4	5	6	7
10	It doesn't matter how hard people try, they cannot change their positive emotions.	1	2	3	4	5	6	7
11	Negative emotions are harmful.	1	2	3	4	5	6	7
12	People don't need their positive emotions.	1	2	3	4	5	6	7
13	People cannot learn techniques to effectively control their negative emotions.	1	2	3	4	5	6	7
14	Once people are experiencing positive emotions, there is nothing they can do about modifying them.	1	2	3	4	5	6	7
15	The presence of negative emotions is a bad thing for people.	1	2	3	4	5	6	7
16	Positive emotions are harmful.	1	2	3	4	5	6	7

Depression Anxiety Stress Scale 21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.
The rating scale is as follows:

0 Did not apply to me at all - NEVER

1 Applied to me to some degree, or some of the time - SOMETIMES

2 Applied to me to a considerable degree, or a good part of time - OFTEN

3 Applied to me very much, or most of the time - ALMOST ALWAYS

FOR OFFICE USE

#	Statement	N	S	O	AA	D	A	S
1	I found it hard to wind down	0	1	2	3	▪	▪	
2	I was aware of dryness of my mouth	0	1	2	3	▪		▪
3	I couldn't seem to experience any positive feeling at all	0	1	2	3		▪	▪
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3	▪		▪
5	I found it difficult to work up the initiative to do things	0	1	2	3		▪	▪
6	I tended to over-react to situations	0	1	2	3	▪	▪	
7	I experienced trembling (eg, in the hands)	0	1	2	3	▪		▪
8	I felt that I was using a lot of nervous energy	0	1	2	3	▪	▪	
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3	▪		▪
10	I felt that I had nothing to look forward to	0	1	2	3		▪	▪
11	I found myself getting agitated	0	1	2	3	▪	▪	
12	I found it difficult to relax	0	1	2	3	▪	▪	
13	I felt down-hearted and blue	0	1	2	3		▪	▪
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3	▪	▪	
15	I felt I was close to panic	0	1	2	3	▪		▪
16	I was unable to become enthusiastic about anything	0	1	2	3		▪	▪
17	I felt I wasn't worth much as a person	0	1	2	3		▪	▪
18	I felt that I was rather touchy	0	1	2	3	▪	▪	
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3	▪		▪
20	I felt scared without any good reason	0	1	2	3	▪		▪
21	I felt that life was meaningless	0	1	2	3		▪	▪
	TOTALS							

Perth Emotion Regulation Competency Inventory

PERCI

Name: **Date:**

This questionnaire asks about how you manage and respond to your emotions. Please score the following statements according to **how much you agree or disagree that the statement is true of you**. Circle one answer for each statement.

The first half of the questionnaire asks about _bad_ or _unpleasant_ emotions, this means emotions like sadness, anger, or fear. The second half asks about _good_ or _pleasant_ emotions, this means emotions like happiness, amusement, or excitement.

		Strongly disagree	----	----	Neither agree nor disagree	----	----	Strongly agree
1	When I'm feeling _bad_ (feeling an unpleasant emotion), I don't know what to do to feel better.	1	2	3	4	5	6	7
2	When I'm feeling bad, those feelings stop me from getting work done.	1	2	3	4	5	6	7
3	When I'm feeling bad, I do stupid things.	1	2	3	4	5	6	7
4	When I'm feeling bad, I believe I need to get rid of those feelings at all costs.	1	2	3	4	5	6	7
5	When I'm feeling bad, I'm powerless to change how I'm feeling.	1	2	3	4	5	6	7
6	When I'm feeling bad, I can't complete tasks that I'm meant to be doing.	1	2	3	4	5	6	7
7	When I'm feeling bad, my behavior becomes out of control.	1	2	3	4	5	6	7
8	When I'm feeling bad, I can't allow those feelings to be there.	1	2	3	4	5	6	7
9	When I'm feeling bad, I don't have many strategies (e.g., activities or techniques) to help get rid of that feeling.	1	2	3	4	5	6	7
10	When I'm feeling bad, I can't get motivated to do important things (work, chores, school etc.).	1	2	3	4	5	6	7
11	When I'm feeling bad, I have trouble controlling my actions.	1	2	3	4	5	6	7
12	When I'm feeling bad, I must try to totally eliminate those feelings.	1	2	3	4	5	6	7
13	When I'm feeling bad, I have no control over the strength and duration of that feeling.	1	2	3	4	5	6	7
14	When I'm feeling bad, I have trouble getting anything done.	1	2	3	4	5	6	7
15	When I'm feeling bad, I have strong urges to do risky things.	1	2	3	4	5	6	7
16	When I'm feeling bad, I believe those feelings are unacceptable.	1	2	3	4	5	6	7

		Strongly disagree	----	----	Neither agree nor disagree	----	----	Strongly agree
17	When I'm feeling *good* (feeling a pleasant emotion), I do stupid things.	1	2	3	4	5	6	7
18	When I'm feeling good, I don't have many strategies (e.g., activities or techniques) to increase the strength of that feeling.	1	2	3	4	5	6	7
19	When I'm feeling good, I have trouble completing tasks that I'm meant to be doing.	1	2	3	4	5	6	7
20	When I'm feeling good, part of me hates those feelings.	1	2	3	4	5	6	7
21	When I'm feeling good, my behavior becomes out of control.	1	2	3	4	5	6	7
22	I don't know what to do to create pleasant feelings in myself.	1	2	3	4	5	6	7
23	When I'm feeling good, I end up neglecting my responsibilities (work, chores, school etc.).	1	2	3	4	5	6	7
24	When I'm feeling good, I can't allow those feelings to be there.	1	2	3	4	5	6	7
25	When I'm feeling good, I have strong urges to do risky things.	1	2	3	4	5	6	7
26	When I'm feeling good, I have no control over whether that feeling stays or goes.	1	2	3	4	5	6	7
27	When I'm feeling good, I have difficulty staying focused during important stuff (at work or school, etc.).	1	2	3	4	5	6	7
28	When I'm feeling good, I believe those feelings are unacceptable.	1	2	3	4	5	6	7
29	When I'm feeling good, I can't keep control over myself (in terms of my behaviors).	1	2	3	4	5	6	7
30	When I'm feeling good, I don't have any useful ways to help myself keep feeling that way.	1	2	3	4	5	6	7
31	When I'm feeling good, I have trouble getting anything done.	1	2	3	4	5	6	7
32	When I'm feeling good, I must try to eliminate those feelings.	1	2	3	4	5	6	7

Emotion Regulation Questionnaire

Instructions and Items

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

```
1-----------------2-----------------3-----------------4-----------------5----------------6-----------------7
strongly                                            neutral                                       strongly
disagree                                                                                          agree
```

1. _____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.

2. _____ I keep my emotions to myself.

3. _____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.

4. _____ When I am feeling *positive* emotions, I am careful not to express them.

5. _____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.

6. _____ I control my emotions by *not expressing them*.

7. _____ When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.

8. _____ I control my emotions by *changing the way I think* about the situation I'm in.

9. _____ When I am feeling *negative* emotions, I make sure not to express them.

10. _____ When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Note

Do not change item order, as items 1 and 3 at the beginning of the questionnaire define the terms "positive emotion" and "negative emotion".

Scoring (no reversals)

Reappraisal Items: 1, 3, 5, 7, 8, 10; Suppression Items: 2, 4, 6, 9.