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Measuring Emotion Regulation Ability across Negative and Positive Emotions: The Perth Emotion Regulation Competency Inventory (PERCI)

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Abstract

Emotion regulation problems underlie the abnormal levels of negative or positive emotion that characterise many forms of psychopathology. Several self-report measures of *emotion regulation* ability exist, but many are inconsistent with contemporary emotion regulation theory, and none comprehensively assess this construct across both negative and positive emotions. In this paper, we report our attempt to remedy these measurement limitations by developing and validating the Perth Emotion Regulation Competency Inventory (PERCI), a 32 item self-report questionnaire that measures emotion regulation ability as it is defined by the *extended process model of emotion regulation*. In Study 1, our confirmatory factor analyses in a sample of adults (N=231) suggested that the PERCI had a factor structure consistent with its theoretical basis and could separately measure people's ability to regulate their negative and positive emotions. All subscale and composite scores had high internal consistency reliability. Study 2 (N=1175) replicated these findings with respect to factor structure and internal consistency reliability, and correlational or regression analyses with measures of psychopathology, emotion regulation processes, alexithymia, and interpersonal attachment style also supported the validity of the PERCI. We conclude that the PERCI appears to have strong psychometric properties. Clinical and research implications are discussed.

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Emotions manifest as responses across three channels of the emotion system: the experiential (e.g., feeling of fear), behavioural (e.g., urge to run), and physiological channels (e.g., increased heart-rate; Evers et al., 2014). Emotions can be positively valenced, like happiness, or negatively valenced, like sadness (Bradley & Lang, 2007). People can attempt to alter the trajectory of their emotions and such attempts constitute *emotion regulation* (Gross, 2014; John & Eng, 2014; Preece et al., 2017; Rottenberg & Johnson, 2007).[24] In this paper, we document our development of a new self-report measure of emotion regulation, the Perth Emotion Regulation Competency Inventory (PERCI), which is based on the *extended process model of emotion regulation* (Gross, 2015a).

The extended process model is, presently, arguably the most developed model of emotion regulation. It was recently introduced by Gross (2015a) to provide clinicians and researchers with a theoretical framework that could successfully integrate and account for the current body of empirical findings in the emotion regulation field (e.g., Aldao & Christensen, 2015; Diaz & Eisenberg, 2015; Giuliani & Berkman, 2015; Gross, 2015b; Kuppens & Verduyn, 2015; Schmader & Mendes, 2015; Preece et al., 2017). We think the conceptual clarity afforded by this contemporary model, consequently, provides an excellent opportunity to now develop more optimised measures of emotion regulation. In the extended process model, the emotion regulation process is organised within a valuation systems framework; valuation systems being systems that consist of a four-stage *situation-attention-appraisal-response* sequence, whereby a person evaluates (valuates) a stimulus in terms of its meaning

[24] Authors often make a distinction between *intrinsic* emotion regulation (people regulating their own emotions) and *extrinsic* emotion regulation (people regulating others' emotions) (e.g., Gross, 2014). In this paper we focus on intrinsic emotion regulation and use the term emotion regulation to refer to intrinsic emotion regulation.

for his or her goals (Ochsner & Gross, 2014). Emotions are regulated when an emotional response becomes the stimulus (situation stage) that is the target of valuation, the person focuses his or her attention on the emotional response (attention stage), the emotional response is appraised in terms of what it is and whether it is a desired state (appraisal stage) and, based on this appraisal, a goal might then be activated to modify the emotion (response stage). Thus, within this framework, the response stage of this valuation system constitutes emotion regulation, defined as "the activation of a goal to modify an unfolding emotional response" (Gross, 2015b, p. 130). Applied to the three channels of the emotion system, people's ability to regulate their emotions therefore refers to their ability to successfully modify the trajectory of emotions with respect to their (1) *experiential*, (2) *behavioural* and (3) *physiological* manifestations, and (4) know when it is appropriate to *activate a goal* to modify emotions in the first place. We hereafter refer to these as the four components of the emotion regulation construct.

The emotion regulation construct is of substantial clinical interest, because abnormal levels of negative or positive emotion feature in the diagnostic criteria for many psychopathologies (American Psychiatric Association, 2013) and many authors consider such psychopathologies to be, in large part, disorders of emotion regulation (e.g., Campbell-Sills & Barlow, 2007; Cooper, Frone, Russell, & Mudar, 1995; Glenn & Klonsky, 2009; Gruber et al., 2012; Joorman & Gotlib, 2010; Rottenberg & Johnson, 2007; Svaldi et al., 2012; Werner & Gross, 2010). Clinicians and researchers therefore need to assess emotion regulation, and this is most commonly done using self-report measures. As we argue below, however, all available self-report measures have some notable limitations that restrict their capacity to produce an overall index of emotion regulation ability, often because they are inconsistent with contemporary emotion regulation theory, and/or they cannot comprehensively assess emotion regulation in a valence-specific manner (i.e., across both negative and positive

emotions). The PERCI is our attempt to remedy these measurement limitations. Prior to introducing the structure of the proposed PERCI, we briefly review the properties of existing self-report measures.

Existing self-report measures

Table 9.1

A List of the Existing Self-Report Questionnaires Designed to Assess Emotion Regulation

Name and type of measure
Process measures
Ways of Coping Checklist (WCC; Folkman & Lazarus, 1980)
COPE inventory (COPE; Carver et al., 1989)
Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)
Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski & Kraaij, 2007)
Emotion Regulation Profile-Revised (ERP-R; Nelis et al., 2011)
Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gullone & Taffe, 2012)
Regulation of Emotion Systems Survey (RESS; De France & Hollenstein, 2017)
Heidelberg Form for Emotion Regulation Strategies (HFERST; Izadpanah et al., 2017)
Competence measures
Generalized Expectancies for Negative Mood Regulation Scale (NMR; Catanzaro & Mearns, 1990)
Trait Meta-Mood Scale (TMMS; Salovey et al., 1995)
Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004)
Difficulties in Emotion Regulation Scale-Positive (DERS-positive; Weiss et al., 2015)
Revised Regulatory Emotional Self-Efficacy Scale (r-RESE; Zou et al., 2017)

Note. Process measures are those self-report measures designed to assess people's beliefs about how much they use a specific emotion regulation strategy. Competence measures are those self-report measures designed to assess people's beliefs about whether they are, overall, able to regulate their emotions successfully. This list of 13 self-report measures is based on our search of the peer-reviewed English language literature. Measures were identified if they appeared in our Google scholar searches using combinations of the terms "emotion regulation", "affect regulation", "coping", "questionnaire", "scale", "inventory", "measurement", and "assessment". The reference lists of articles that introduced new emotion regulation questionnaires were also inspected (e.g., Gratz & Roemer, 2004), as were the reference lists of recent review articles (e.g., John & Eng, 2014).

We identified 13 existing self-report measures that are either specifically designed to assess emotion regulation, or are designed to assess a broader construct but have some

emotion regulation subscales (see Table 9.1). Similar to the categorisation made by John and Eng (2014) in their review of emotion regulation measures, we think two different approaches to the measurement of emotion regulation are evident across these tools; we categorise eight as *process* measures and five as *competence* measures. Process and competence measures provide different, and complimentary, types of information about emotion regulation. Process measures assess the processes by which people regulate their emotions, that is, what specific emotion regulation strategies a person believes they use (e.g., cognitive reappraisal, expressive suppression; Gross & John, 2003). Process measures are therefore ideal for clinical and research questions requiring information about the frequency with which various strategies are used (e.g., Gross & John, 2003). They cannot, however, provide an overall index of emotion regulation ability because people utilise a wide range of emotion regulation strategies and it is difficult to capture all these strategies within a single measure. The appropriateness of a specific strategy also varies markedly depending on the context in which it is used, and many authors agree that successful emotion regulation relies on the *flexible* application of many strategies (i.e., strategy use should change across contexts; Aldao, Sheppes, & Gross, 2015; Bonanno & Burton, 2013; Levy-Gigi et al., 2016). Competence measures help to circumvent this context issue because they do not assess the use of specific strategies; they instead assess a person's beliefs about whether he or she is, overall, effective at regulating emotions. Competence measures therefore focus on the outcome of emotion regulation attempts, rather than the process, and theoretically should be ideal for clinical and research questions requiring an overall index of emotion regulation ability (e.g., Becerra et al., 2013; Edwards & Wupperman, 2017). Clinicians and researchers are, however, currently unable to derive such an index (or at best any derived index is sub-optimal) because the five competence measures that are presently available have some notable theoretical or psychometric limitations. Thus, the PERCI is designed to be a

competence measure with stronger psychometrics.

Limitations of existing competence measures. As aforementioned, we believe a key limitation of most existing competence measures is that they do not assess the emotion regulation construct across both *negative* and *positive* emotions. This restricts their measurement utility, because people regulate both negative and positive emotions (e.g., Becerra et al., 2017; Preece, Becerra, & Campitelli, 2018; Quoidbach et al., 2010) and some psychopathologies are characterised by abnormal levels of negative and/or positive emotion (e.g., depressive and bipolar disorders; American Psychiatric Association, 2013); information about both valence types is therefore needed for a comprehensive emotion regulation profile. Of the five existing competence measures, three assess only negative emotions (NRM, DERS, TMMS) and one assesses only positive emotions (DERS-positive). The r-RESE assesses both negative and positive emotions, but it assesses only half of the four components of the emotion regulation construct, and its subscales are not designed to be combined into a composite score as an overall index of emotion regulation ability.

Another limitation common to those competence measures developed prior to Gross's (2015a) extended process model (e.g., NMR, TMMS, DERS) is that they include some items that correspond to the *alexithymia* construct rather than the emotion regulation construct. Alexithymia is a trait comprised of three interrelated components: difficulty identifying one's own feelings (DIF); difficulty describing feelings (DDF); and an externally orientated thinking style (EOT) whereby one tends to not focus attention on their emotions (Preece et al., 2017). In other words, people with high levels of alexithymia have difficulty processing their emotions at the *attention* (EOT) and *appraisal* (DIF, DDF) stages of emotion valuation. Whilst empirical work suggests some variance in alexithymia may be a by-product of avoidant emotion regulation attempts (i.e., attentional deployment; Preece et al., 2017), much of the variance also reflects the underlying developmental level of people's emotion schemas

(i.e., those cognitive structures used to process emotions; Lane & Schwartz, 1987; Preece et al., 2017; Smith, Killgore, & Lane, 2017; Taylor et al., 1999). Because this latter variance is not attributable to "the activation of a goal to modify an unfolding emotional response" (i.e., emotion regulation in the extended process model; Gross, 2015b, p. 130), proponents of the extended process model do not consider alexithymia to be part of the emotion regulation construct (e.g., Barrett et al., 2001; Gross, 2014; John & Eng, 2014; Preece et al., 2017). Composite scores that include alexithymia items, consequently, cannot be used as pure markers of this emotion regulation construct.

The DERS is presently the most widely used competence measure, so we review this measure, and its positive emotion variant the DERS-positive, in more detail below.

Difficulties in Emotion Regulation Scale. The DERS is a 36 item self-report questionnaire developed by Gratz and Roemer (2004). All items refer to negative emotions and are answered on a 5-point Likert scale, with higher scores indicating a higher level of difficulties. The DERS has six subscales: the *Strategies* subscale, designed to measure difficulties down-regulating negative feelings (e.g., "When I'm upset, I believe that there is nothing I can do to make myself feel better"); *Goals*, designed to measure difficulties maintaining goal directed behaviour when experiencing negative feelings (e.g., "When I'm upset, I have difficulty getting work done"); *Impulse*, designed to measure difficulties inhibiting impulsive behaviours when experiencing negative feelings (e.g., "When I'm upset, I lose control over my behaviours"); *Non-acceptance*, designed to measure difficulty accepting negative feelings and a tendency for secondary negative emotions to arise as a result (e.g., "When I'm upset, I become embarrassed for feeling that way"); *Awareness*, designed to measure the EOT component of alexithymia (e.g., "I pay attention to how I feel" [reverse-scored]); and *Clarity*, designed to measure the DIF component of alexithymia (e.g., "I am confused about how I feel"). These six subscales were delineated by Gratz and Roemer

(2004) based on their exploratory factor analysis (EFA) of the DERS items in an initial validation sample of university students. Gratz and Roemer (2004) suggest that all six subscales can be summed into a *Total scale* score as an overall marker of emotion regulation difficulties.

When evaluated against the four-component definition of emotion regulation ability we outlined earlier, the *Strategies, Goals, Impulse,* and *Non-acceptance* subscales can be viewed as, roughly, corresponding to components of emotion regulation. *Strategies* is mainly a measure of regulating the *experiential* channel; *Goals* and *Impulse* are mainly measures of regulating the *behavioural* channel; and *Non-acceptance* is mainly, though in a somewhat abstract way,[25] a measure of people's ability to know when it is appropriate to *activate a goal* to regulate. The *Awareness* and *Clarity* subscales (i.e., measures of the EOT and DIF components of alexithymia; Preece et al., 2017), however, do not fit within this definition of emotion regulation. Indeed, in factor analytic studies of the DERS, these alexithymia subscales do not load on the same higher-order factor as the other DERS subscales (e.g., Bardeen et al., 2012; Lee et al., 2016; Osborne et al., 2017; Zelkowitz & Cole, 2016). Thus, whilst standard scoring of the DERS involves summing all subscales into a *Total scale* score, there is presently no statistical support for this practice (Lee et al., 2016). Clinicians and researchers who wish to measure emotion regulation in a manner consistent with the extended process model can, therefore, not use the DERS *Total scale* score.

We also think there are some validity issues with the DERS *Impulse* and *Strategies* subscale scores, because some of the items assigned to these subscales appear to have poor

[25] If a person is having a secondary negative reaction to an emotion, it seems likely that they must be intolerant of that original emotional state, and would therefore be likely to try to regulate the original emotion excessively or inappropriately. John and Eng (2014) have, however, critiqued the DERS *Non-acceptance* subscale, noting that it seems to more directly be a measure of "self-blaming". We agree with John and Eng's (2014) assessment, but we think that this subscale is still likely to tap the *activation of a goal* component of emotion regulation to some degree.

content validity. Items 3 and 19, for example, were assigned by Gratz and Roemer (2004; based on EFA results in their initial validation sample) to the *Impulse* subscale, but these items refer to regulating the *experiential* channel, not the *behavioural* channel (e.g., "I experience my emotions as overwhelming and out of control"); their content is therefore conceptually indistinguishable from the *Strategies* subscale (e.g., "When I'm upset, my emotions feel overwhelming"). Similarly, item 30 from the *Strategies* subscale refers to self-blaming and experiencing a secondary negative emotion ("When I'm upset, I start to feel very bad about myself"), and is therefore conceptually indistinguishable from the *Non-acceptance* subscale (e.g., "When I'm upset, I feel ashamed with myself for feeling that way"). Indeed, subsequent factor analytic studies have often found these items to cross-load across multiple factors (e.g., Weinberg & Klonsky, 2009). These DERS subscale scores, consequently, cannot be used as pure markers of the different components of emotion regulation. This is problematic, because laboratory-based psychophysiological studies show that activation patterns across the experiential, behavioural, and physiological channels of the emotion system often only modestly cohere (e.g., Evers et al., 2014); thus the capacity to derive subscale scores unique to each channel is desirable for maximum measurement accuracy.

Difficulties in Emotion Regulation Scale-Positive. This channel-specific measurement problem is also the principal shortcoming of the DERS-positive, a 15 item self-report questionnaire developed by Weiss et al. (2015). The DERS-positive focuses on the regulation of positive emotions and includes three subscales: *Impulse* (e.g., "When I'm happy, I have difficulty controlling my behaviours"), *Goals* (e.g., "When I'm happy, I have difficulty getting work done"), and *Non-acceptance* (e.g., "When I'm happy, I become angry with myself for feeling that way"). Thus, there is no equivalent to the *Strategies* subscale from the negative DERS, so the DERS-positive cannot measure people's ability to regulate

the experiential channel of the emotion system. The absence of this channel is limiting, because in clinical settings, it is often the patient's experience of their emotions that provides fruitful material for therapeutic discussion and intervention (e.g., Greenberg & Paivio, 2003). The DERS-positive and DERS also differ with respect to their total number of items (15 or 36 items) and whether they include alexithymia components or not, meaning that scores from these two DERS measures cannot be cleanly compared, nor can they be combined to produce an overall emotion regulation score generalised across both valence types.

Perth Emotion Regulation Competency Inventory

The PERCI is a 32-item self-report competence measure based on the extended process model (Gross, 2015a) that we developed to address these measurement limitations. The PERCI is designed to assess three of the four components of the emotion regulation construct and do so across both negative and positive emotions; it assesses the ability to modify the *experiential* and *behavioural* manifestations of emotions, as well as the ability to know when it is appropriate to *activate a goal* to regulate emotions in the first place. Like existing self-report measures, the PERCI does not directly assess regulation of the *physiological* channel, because we judged that this channel might be difficult to assess accurately via a self-report questionnaire (see Evers et al., 2014; Mauss et al., 2005).

The PERCI features eight subscales (see Table 9.2), four of which correspond to the regulation of *negative* emotions, and four of which correspond to the regulation of *positive* emotions. The emotional valence of each subscale is denoted in its name via the prefix "Negative" or "Positive". All subscales include four items, a number that we chose in order to maximise the brevity of the measure whilst still allowing for reliable latent factors to be derived (Little et al., 1999). Each item is comprised of a statement that respondents answer on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), according to how much they agree it is true of them. Higher scores indicate a higher level of emotion

regulation difficulties.

One set of subscales, namely the *Negative-Controlling experience* (e.g., “When I’m feeling bad, I don’t know what to do to feel better”) and the *Positive-Controlling experience* subscales (e.g., “When I’m feeling good, I have no control over whether that feeling stays or goes”), is designed to assess difficulties regulating the *experiential* manifestations of emotions. In line with people’s typical hedonic motivations to obtain pleasure and avoid pain (Gross, 2014; Larsen, 2000), the negative subscale asks about people’s ability to *down-regulate* their negative feelings, whilst the positive subscale asks about people’s ability to *up-regulate* positive feelings.

Two sets of subscales are designed to measure difficulties regulating the *behavioural* manifestations of emotions. We use two sets of subscales here to capture different aspects of behavioural control (see Eisenberg, Hofer, Sulik, & Spinrad, 2014; Amodio, Master, Yee, & Taylor, 2008). The *Negative-Inhibiting behaviour* (e.g., “When I’m feeling bad, I have trouble controlling my actions”) and *Positive-Inhibiting behaviour* subscales (e.g., “When I’m feeling good, my behaviour becomes out of control”) ask about people’s ability to *inhibit* dominant behavioural response tendencies when experiencing emotions, whereas the *Negative-Activating behaviour* (e.g., “When I’m feeling bad, I can’t complete tasks that I’m meant to be doing”) and *Positive-Activating behaviour* subscales (e.g., “When I’m feeling good, I have trouble getting anything done”) ask about people’s ability to *activate* non-dominant behavioural response tendencies when experiencing emotions.

The final set of subscales is designed to measure difficulties knowing when it is appropriate to *activate a goal* to regulate emotions. Specifically, the *Negative-Tolerating emotions* (e.g., “When I’m feeling bad, I must try to totally eliminate those feelings”) and *Positive-Tolerating emotions* subscales (e.g., “When I’m feeling good, I can’t allow those feelings to be there”) attempt to assess the degree to which people cannot tolerate emotions,

and thus are likely to activate goals to regulate them excessively or inappropriately (McHugh et al., 2013).

These PERCI subscales were, moreover, designed to be combined into several theoretically meaningful composite scores (see Table 9.2). As a marker of people's overall level of difficulty regulating negative emotions, all four negative subscales combine into a *Negative-Emotion Regulation* composite (16 items); as a marker of people's overall level of difficulty regulating positive emotions, all four positive subscales combine into *Positive-Emotion Regulation* composite (16 items); and as a marker of people's overall level of difficulty regulating emotions, generalised across both valence types, all eight subscales combine into a *General-Emotion regulation* composite (32 items).

Table 9.2

A List of the Subscale and Composite Scores that Can be Derived from the PERCI

Subscale/composite	No. of items	Possible score range	Content measured
			Subscales
Negative-Controlling experience	4	4-28	Difficulties controlling (down-regulating) the experiential manifestations of negative emotions; e.g., "When I'm feeling bad, I don't know what to do to feel better".
Negative-Inhibiting behaviour	4	4-28	Difficulties controlling the behavioural manifestations of negative emotions in terms of inhibiting dominant behavioural response tendencies when experiencing negative emotions; e.g., "When I'm feeling bad, I have trouble controlling my actions".
Negative-Activating behaviour	4	4-28	Difficulties controlling the behavioral manifestations of negative emotions in terms of activating non-dominant behavioural response tendencies when experiencing negative emotions; e.g., "When I'm feeling bad, I can't get motivated to do important things (work, chores, school etc.)".
Negative-Tolerating emotions	4	4-28	Difficulties tolerating negative emotions, and therefore difficulty knowing when it is appropriate to activate a goal to regulate these emotions; e.g., "When I'm feeling bad, I must try to totally eliminate those feelings".
Positive-Controlling experience	4	4-28	Difficulties controlling (up-regulating) the experiential manifestations of positive emotions; e.g., "I don't know what to do to create pleasant feelings in myself".
Positive-Inhibiting behaviour	4	4-28	Difficulties controlling the behavioural manifestations of positive emotions in terms of inhibiting dominant behavioural response tendencies when experiencing positive emotions; e.g., "When I'm feeling good, I can't keep control over myself (in terms of my behaviors)".
Positive-Activating behaviour	4	4-28	Difficulties controlling the behavioural manifestations of positive emotions in terms of activating non-dominant behavioural response tendencies when experiencing positive emotions; e.g., "When I'm feeling good, I have trouble completing tasks that I'm meant to be doing".
Positive-Tolerating emotions	4	4-28	Difficulties tolerating positive emotions, and hence difficulty knowing when it is appropriate to activate a goal to regulate these emotions; e.g., "When I'm feeling good, I believe those feelings are unacceptable".
			Composites
Negative-Emotion regulation	16	16-112	Overall level of difficulty regulating negative emotions; combination of all four negative subscales.
Positive-Emotion regulation	16	16-112	Overall level of difficulty regulating positive emotions; combination of all four positive subscales.
General-Facilitating hedonic goals[a]	20	20-140	Overall level of difficulty down-regulating negative emotions and up-regulating positive emotions and (i.e., obtaining pleasure and avoiding pain); combination of all four negative subscales and the *Positive-Controlling experience* subscale.
Positive-Containing emotions[a]	12	12-84	Overall level of difficulty down-regulating (i.e., containing) positive emotions. Combination of the *Positive-Inhibiting behaviour*, *Positive-Activating behaviour*, and *Positive-Tolerating emotions* subscales.
General-Emotion regulation	32	32-224	Overall level of difficulty regulating negative and positive emotions; combination of all eight subscales.

Note. [a]The *General-Facilitating hedonic goals* and *Positive-Containing emotions* composites are two alternate composite scores, which are proposed here based on the results of the factor analyses reported in this paper.

Psychometric studies of the Perth Emotion Regulation Competency Inventory

We report the results of the first two psychometric studies of the PERCI here. In Study 1, we describe the item selection process, and examine the factor structure and internal

consistency reliability of the measure. In Study 2, we replicate this examination of factor structure and internal consistency reliability in a different sample, and then examine concurrent and criterion validity.

Study 1

Method

Participants and procedure. Study 1's sample was comprised of 231 adults (65.4% female, M_{age} = 41.52 years, SD_{age} = 16.93, $range_{age}$ = 18-85).[26] All 231 participants indicated that they were English speaking residents of Australia and 73.6% reported Australia as their country of birth. For 32.9% their highest level of completed education was high school, for 29.9% it was a technical diploma, and for 36.8% it was a university degree. Participants were recruited via three avenues: an online survey recruiting company (Qualtrics panels), an advertisement on a social media website, and an advertisement on the university website of an undergraduate psychology course that students regularly accessed to download course content. About one quarter (25.5%) of the sample were current university students.

Participants completed the PERCI as part of an anonymous online survey. In Study 1, to provide us with a large pool of items to select from, the PERCI was administered in an over-inclusive 94-item "development" form. These 94 development items were written by us to reflect the eight PERCI subscales (about 11-12 items per subscale; these are listed in Appendix E). The first author initially wrote these 94 items, and they were subsequently edited and reviewed for clarity by the other authors. This item-development team included four psychologists with expertise in conducting clinical assessments and treating emotional disorders (first, second, third, and fifth authors), and one researcher with expertise in cross-cultural and social psychology (fourth author). All authors had prior experience constructing

[26] Some additional participants recruited in the same manner also completed the online survey, however their data were excluded because they failed an attention check question or completed the questionnaire impossibly quickly (i.e., at a rate of less than 2 seconds per question, suggesting inattentive responding).

psychometric scales for use in clinical and research settings. All authors agreed that, in terms of content validity, these large item sets for each hypothesised PERCI subscale appeared to assess their intended construct. Following the administration of these 94 items to the Study 1 sample, we conducted some *preliminary* EFAs and confirmatory factor analyses (CFAs) on various clusters of these items,[27] and based on these statistical analyses, we selected the best 32 items to form the final PERCI (results from these preliminary analyses are not reported in this paper, but some are provided in Appendix E). Item selection here was based on three criteria. Firstly, to enable both emotional valences to be assessed and compared, we wanted an equal number of items corresponding to negative or positive emotions (i.e., 16 items for each valence). Secondly, to capture the breadth of the construct's subdomains, and allow for reliable subscales to be derived, we wanted an equal number of items (i.e., 4 items) in each of the eight hypothesised subscales. Thirdly, retained items needed to load meaningfully (i.e., factor loadings $\geq$.40) on their intended factor in factor analysis, and not cross-load over multiple factors. Whilst 94 items were originally administered in the development pool for Study 1, in this paper we report the results of analyses that include *only* the 32 retained items.

Materials.

Perth Emotion Regulation Competency Inventory. The PERCI is a 32-item self-report measure of emotion regulation ability. Several subscale and composite scores can be derived (see Table 9.2). All items are answered on a 7-point Likert scale, with higher scores indicating a higher level of emotion regulation difficulties. The PERCI is freely available for

[27] Because at least 5 participants per variable in the analysis are typically needed for a robust factor analysis (Gorsuch, 1983; Kline, 1979), and we had 231 participants, in our *preliminary analyses* we examined smaller clusters of items, rather than analysing all 94 items together. We initially conducted two separate EFAs (see Appendix E), using either all the negatively valenced items (48 items), or all the positively valenced items (46 items). CFAs were also conducted on these two clusters of items, primarily to identify and eliminate those items with pronounced correlations between their error terms. Based on these analyses, we selected 16 negatively valenced items, and 16 positively valenced items, as good candidates to be retained in the final 32-item scale. Two more EFAs were then conducted on these smaller valence-specific item clusters. Following these preliminary analyses, in our *main analyses* we then conducted a series of CFAs using only these 32 items, the results of which are presented in Study 1.

use and is provided in Appendix A.

Analytic strategy.

Confirmatory factor analyses (CFAs) were conducted using AMOS 24, all other analyses used SPSS 24.

Factor structure. The factor structure of the PERCI was examined by conducting a series of CFAs (maximum likelihood estimation based on a Pearson covariance matrix). Several theoretically informed models of increasing complexity were examined (see Figure 9.1). Model 1 was a one-factor model where all 32 items were specified to load on a single "*General-Emotion regulation*" factor. Model 2 was a two-factor correlated model where items were separated based only on their valence; items were specified to load on separate "*Negative-Emotion regulation*" or "*Positive-Emotion regulation*" factors. Model 3 was a four-factor correlated model where items were separated based on their intended subscale component, but no valence distinction was made; items were specified to load on separate "*General-Controlling experience*", "*General-Inhibiting behaviour*", "*General-Activating behaviour*", or "*General-Tolerating emotions*" factors. Lastly, we tested several versions of Model 4, each of which included eight first-order factors that reflected the intended subscale structure of the PERCI (i.e., at the first-order level, items were specified to load on separate "*Negative-Controlling experience"*, *"Negative-Activating behaviour"*, "*Negative-Inhibiting behaviour"*, "*Negative-Tolerating emotions"*, *"Positive-Controlling experience"*, *"Positive-Activating behaviour"*, "*Positive-Inhibiting behaviour"* or *"Positive-Tolerating emotions"* factors). Model 4a was the simplest version, a correlated model with no higher-order structure imposed. Model 4b was a second-order version (Marsh & Hocevar, 1985), whereby all eight first-order factors were specified to load onto a single second-order "*General-Emotion regulation*" factor. Model 4c was also a second-order version, but the eight first-order factors were specified to load on one of two valence-specific second-order factors,

"*Negative-Emotion regulation*" or "*Positive-Emotion regulation*". Lastly, Model 4d was a third-order version, whereby the two valence-specific second-order factors were further specified to load onto a third-order "*General-Emotion regulation*" factor. Model 4d was the model that most closely reflected the subscale and composite score structure we designed the PERCI to have.

The goodness-of-fit of these models was judged based on the pattern of factor loadings and factor intercorrelations within each model, and three fit indexes: the comparative fit index (CFI), Tucker Lewis index (TLI), and root mean square error of approximation (RMSEA). CFI and TLI values $\geq$ .90 were judged to indicate acceptable fit, as were RMSEA values $\leq$ .08 (Bentler & Bonnet, 1980; Browne & Cudeck, 1992; Kline, 2005; Marsh et al., 2004). The Akaike information criterion (AIC) was also used to directly compare the fit of the various models; AIC penalises model complexity, and a lower value indicates a better fitting model (Byrne, 2013). Factor loadings $\geq$ .40 were considered meaningful loadings (Stevens, 1992).

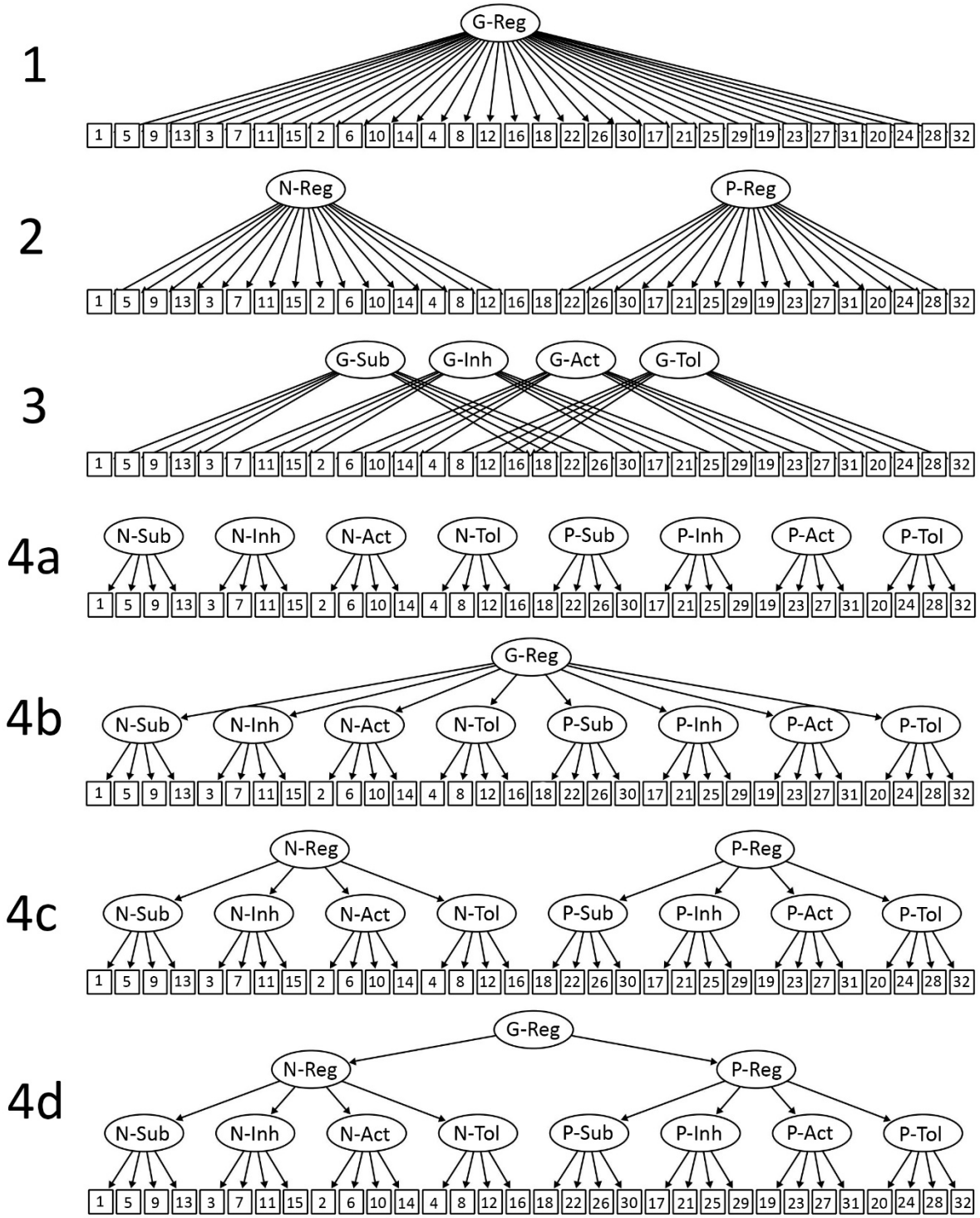

Figure 9.1. The assessed CFA models for the 32 item PERCI. Squares represent item numbers, ellipses represent latent factors. All items had an error term. In all models, factors were allowed to correlate. G-Reg = General-Emotion regulation, N-Reg = Negative-Emotion regulation, P-Reg = Positive-Emotion regulation, G-Sub = General-Controlling experience, G-Inh = General-Inhibiting behaviour, G-Act = General-Activating behaviour, G-Tol = General-Tolerating emotions, N-Sub = Negative-Controlling experience, N-Inh = Negative-Inhibiting behaviour, N-Act = Negative-Activating behaviour, N-Tol = Negative-Tolerating emotions, P-Sub = Positive-Controlling experience, P-Inh = Positive-Inhibiting behaviour, P-Act = Positive-Activating behaviour, P-Tol = Positive-Tolerating emotions.

Internal consistency reliability. Cronbach's alpha reliability coefficients were calculated for all subscale and composite scores. Internal reliability coefficients ≥.70 were considered acceptable, ≥.80 were considered good, and ≥.90 were considered excellent (Groth-Marnat, 2009).

Results and discussion

Factor structure. Models based on the intended eight subscale structure of the PERCI (i.e., Models 4a, 4c, and 4d) were the best fit to the data. For fit index values, factor loadings, and factor intercorrelations, see Tables 9.3, 9.4, and 9.5, respectively. A table displaying item intercorrelations is provided in Appendix E.

The 1-factor model (Model 1) was the worst solution and a poor fit, highlighting that the PERCI was measuring a multidimensional construct. Only making a distinction between negative and positive valence (Model 2) or only making a distinction between the subdomains of emotion regulation (without considering valence; Model 3) improved the factor solution, but overall fit remained poor in Models 2 and 3. Thus, statistically, it was necessary to make *both* these distinctions within the same model to maximise fit (i.e., Model 4a). Model 4a, which included the eight intended subscales as correlated first-order factors, was a good fit to the data according to all examined fit indexes. All items loaded strongly on their intended subscale factor (factor loadings > .40), and all factors within the same valence domain were significantly positively correlated with each other (estimated *r*s = .41 to .84, *p*s < .001).[28]

The higher-order structure of the PERCI also functioned as expected. Of the second-order models, Model 4c was a better fit than Model 4b, thus highlighting that, at the second-

[28] Some of the correlations between the specified first-order factors in Model 4a were quite high, however, in all cases combining these highly correlated factors together (i.e., into a single factor) worsened the fit of the factor solution (as indicated by CFI, AIC, etc.). Thus, there was statistical value in separating between all eight of the hypothesised subscales of the PERCI.

order level, there was statistical value in distinguishing between negative and positive valence. In Model 4c, all first-order factors loaded well on one of two valence-specific second-order factors, "*Negative-Emotion regulation*" or "*Positive-Emotion regulation*" (factor loadings > .40). These two valence-specific second-order factors were, furthermore, significantly positively correlated (estimated $r = .48$, $p < .001$), highlighting that people who reported difficulties regulating negative emotions also tended to report difficulties regulating positive emotions. Indeed, in the third-order model (Model 4d), these two valence-specific second-order factors both loaded well on the third-order "*General-Emotion regulation*" factor (factor loadings = .68 to .70). Model 4c and Model 4d produced the same fit index values, suggesting that the third-order "*General-Emotion regulation*" factor could successfully account for the relationship between the valence-specific second-order factors. Thus, overall, there was good statistical support for the intended subscale and composite score structure of the PERCI. Because we think deriving all these composite scores (*Negative-Emotion regulation, Positive-Emotion regulation, General-Emotion regulation*) makes theoretical sense and enhances the utility of the PERCI, the third-order Model 4d was our preferred solution in this data-set.

We note, however, that the goodness-of-fit of the higher-order Model 4d, whilst good, was slightly worse than that of the correlated version of this model (Model 4a). Modification indices suggested that this was largely due to the first-order "*Positive-Controlling experience*" factor cross-loading (factor loading = .56) on the second-order "*Negative-Emotion regulation*" factor. Allowing for this cross-loading in the model improved fit (see Table 9.3). This is likely because whilst the other three positive subscales are about difficulties down-regulating (i.e., containing) positive emotions, the *Positive-Controlling experience* subscale is about difficulties up-regulating positive emotions. Thus, like the four negative subscales (and in turn the *Negative-Emotion regulation* second-order factor), the

Positive-Controlling experience subscale shares a focus on facilitating hedonic goals (i.e., trying to obtain pleasure and avoid pain; Gross, 2014). Our analyses hence suggest that, alongside the aforementioned composites, two additional composite scores might usefully be derived; a *General-Facilitating hedonic goals* composite (20 items; comprised of the four negative subscales and the *Positive-Controlling experience* subscale), and a *Positive-Containing emotions* composite (12 items; comprised of the *Positive-Activating behaviour*, *Positive-Inhibiting behaviour*, and *Positive-Tolerating emotions* subscales). A description of these two alternate composite scores is presented in Table 9.2, and descriptive statistics and Cronbach's alpha reliability coefficients for them are provided in Table 9.6.

Table 9.3

Goodness-of-Fit Values for the Examined Confirmatory Factor Analysis Models for the PERCI in Study 1 and Study 2

Model	χ^2 (*df*)	CFI	TLI	RMSEA (90% CI)	AIC
			Study 1		
1	3874.744 (464)	.431	.391	.179 (.174-.184)	4002.744
2	2650.018 (463)	.635	.609	.143 (.138-.149)	2780.018
3	2914.456 (458)	.590	.556	.153 (.147-.158)	3054.456
4a	768.859 (436)	.944	.937	.058 (.051-.064)	952.859
4b	1121.795 (456)	.889	.879	.080 (.074-.086)	1265.795
4c	916.781 (455)	.923	.916	.066 (.060-.073)	1062.781
4c (cl)	864.397 (454)	.932	.925	.063 (.056-.069)	1012.397
4d	916.781 (455)	.923	.916	.066 (.060-.073)	1062.781
4d (cl)	864.397 (454)	.932	.925	.063 (.056-.069)	1012.397
			Study 2		
1	13077.030 (464)	.526	.494	.152 (.150-.154)	13205.030
2	8502.209 (463)	.698	.677	.122 (.119-.124)	8632.209
3	9426.290 (458)	.663	.635	.129 (.127-.131)	9566.290
4a	1910.493 (436)	.945	.937	.054 (.054-.051)	2094.493
4b	3350.626 (456)	.891	.882	.074 (.071-.076)	3494.626
4c	2514.131 (455)	.923	.916	.062 (.060-.064)	2660.131
4c (cl)	2250.449 (454)	.933	.926	.058 (.056-.060)	2398.449
4d	2514.131 (455)	.923	.916	.062 (.060-.064)	2660.131
4d (cl)	2250.449 (454)	.933	.926	.058 (.056-.060)	2398.449

Note. For all examined models, χ^2 $p < .001$. Models labelled with "cl" had a cross-loading allowed whereby the first-order *Positive-Controlling experience* factor was allowed to cross-load on the second-order *Negative-Emotion regulation* factor. CFI = comparative fit index, TLI = Tucker Lewis index, RMSEA = root mean square error of approximation, AIC = Akaike information criterion, CI = confidence interval.

Table 9.4

Standardised Factor Loadings from Confirmatory Factor Analyses of the 32 PERCI Items (Model 4d) in Study 1 and Study 2

Item/factor	Study 1	Study 2
Negative-Emotion regulation		
Negative-Controlling experience	.84[a]	.91[a]
1-When I'm feeling bad (feeling an unpleasant emotion), I don't know what to do to feel better.	.76	.79
5-When I'm feeling bad, I'm powerless to change how I'm feeling.	.83	.83
9-When I'm feeling bad, I don't have many strategies (e.g., activities or techniques) to help get rid of that feeling.	.77	.80
13-When I'm feeling bad, I have no control over the strength and duration of that feeling.	.84	.81
Negative-Activating behaviour	.75[a]	.82[a]
2-When I'm feeling bad, those feelings stop me from getting work done.	.79	.83
6-When I'm feeling bad, I can't complete tasks that I'm meant to be doing.	.90	.88
10- When I'm feeling bad, I can't get motivated to do important things (work, chores, school etc.).	.89	.89
14- When I'm feeling bad, I have trouble getting anything done.	.95	.93
Negative-Inhibiting behaviour	.83[a]	.90[a]
3- When I'm feeling bad, I do stupid things.	.84	.79
7- When I'm feeling bad, my behaviour becomes out of control.	.88	.87
11- When I'm feeling bad, I have trouble controlling my actions.	.90	.90
15- When I'm feeling bad, I have strong urges to do risky things.	.81	.75
Negative-Tolerating emotions	.59[a]	.44[a]
4- When I'm feeling bad, I believe I need to get rid of those feelings at all costs.	.84	.71
8- When I'm feeling bad, I can't allow those feelings to be there.	.87	.80
12- When I'm feeling bad, I must try to totally eliminate those feelings.	.83	.82
16- When I'm feeling bad, I believe those feelings are unacceptable.	.65	.73
Positive-Emotion regulation		
Positive-Controlling experience	.52[a]	.65[a]
18- When I'm feeling good, I don't have many strategies (e.g., activities or techniques) to increase the strength of that feeling.	.82	.66
22- I don't know what to do to create pleasant feelings in myself.	.72	.75
26- When I'm feeling good, I have no control over whether that feeling stays or goes.	.64	.76
30- When I'm feeling good, I don't have any useful ways to help myself keep feeling that way.	.88	.87
Positive-Activating behaviour	.88[a]	.89[a]
19- When I'm feeling good, I have trouble completing tasks that I'm meant to be doing.	.88	.75
23- When I'm feeling good, I end up neglecting my responsibilities (work, chores, school etc.).	.85	.83
27- When I'm feeling good, I have difficulty staying focused during important stuff (at work or school, etc.).	.91	.84
31- When I'm feeling good, I have trouble getting anything done.	.90	.85
Positive-Inhibiting behaviour	.94[a]	.91[a]
17- When I'm feeling good (feeling a pleasant emotion), I do stupid things.	.82	.68
21- When I'm feeling good, my behaviour becomes out of control.	.91	.81
25- When I'm feeling good, I have strong urges to do risky things.	.74	.81
29- When I'm feeling good, I can't keep control over myself (in terms of my behaviours).	.92	.81
Positive-Tolerating emotions	.75[a]	.76[a]
20- When I'm feeling good, part of me hates those feelings.	.75	.75
24- When I'm feeling good, I can't allow those feelings to be there.	.86	.81
28- When I'm feeling good, I believe those feelings are unacceptable.	.86	.83
32- When I'm feeling good, I must try to eliminate those feelings.	.89	.82

Note. [a]Factor loading of first-order factor on valence-specific second-order factor. Model 4d was comprised of 8 first-order factors (the intended subscales), subsumed under 2 valence-specific second-order factors (*Negative-Emotion regulation*, *Positive-Emotion regulation*), which were in turn subsumed under 1 third-order *General-Emotion regulation* factor. In Study 1 the loadings of the second-order *Negative-Emotion regulation* and *Positive-Emotion regulation* factors on the third-order general factor were .70 and .68, respectively. In Study 2 these loadings were .66 and .88, respectively. All loadings were statistically significant, $p<.001$. The average skewness of the 32 PERCI items was .77 in Study 1 and .72 in Study 2. The average kurtosis was .33 in Study 1 and .44 in Study 2.

Table 9.5

Estimated Factor Intercorrelations from Confirmatory Factor Analyses of the PERCI (Model 4a) in Study 1 and Study 2

Factor (F)	F1	F2	F3	F4	F5	F6	F7	F8
F1 Negative-Controlling experience	-	.80***	.77***	.43***	.75***	.40***	.38***	.42***
F2 Negative-Inhibiting behaviour	.67***	-	.74***	.39***	.56***	.56***	.43***	.40***
F3 Negative-Activating behaviour	.67***	.60***	-	.34***	.54***	.36***	.36***	.22***
F4 Negative-Tolerating emotions	.52***	.49***	.46***	-	.29***	.25***	.20***	.24***
F5 Positive-Controlling experience	.69***	.47***	.46***	.22**	-	.52***	.54***	.55***
F6 Positive-Inhibiting behaviour	.31***	.53***	.20**	.10	.45***	-	.83***	.68***
F7 Positive-Activating behaviour	.28***	.45***	.22**	.09	.41***	.84***	-	.68***
F8 Positive-Tolerating emotions	.33***	.41***	.13	.23**	.49***	.70***	.64***	-

Note. $p<.001$***, $p<.01$**, $p<.05$*. Correlations below the diagonal are from Study 1, those above the diagonal are from Study 2. Model 4a was comprised of the eight PERCI subscales as correlated first-order factors.

Descriptive statistics and internal consistency reliability. Descriptive statistics and Cronbach's alpha reliability coefficients for all PERCI subscale and composite scores are displayed in Table 9.6. All PERCI subscales had good to excellent internal consistency reliability (α = .85-.94) and all composite scores had excellent internal consistency reliability (α = .92-.94).

Table 9.6

Descriptive Statistics and Cronbach's Alpha (α) Reliability Coefficients for the PERCI in Study 1 and Study 2

	Total				Females		Males	
	M	*SD*	range	α	M	SD	M	SD
				Study 1				
Subscales								
Negative-Controlling experience	14.80	5.81	4-28	.87	15.13	5.84	14.19	5.74
Negative-Inhibiting behaviour	12.52	6.17	4-28	.92	12.86	6.26	11.89	5.98
Negative-Activating behaviour	17.04	6.41	4-28	.93	17.99	6.27	15.25	6.32
Negative-Tolerating emotions	15.70	5.70	4-28	.87	15.58	5.84	15.93	5.46
Positive-Controlling experience	12.37	5.59	4-28	.85	12.44	5.77	12.23	5.29
Positive-Inhibiting behaviour	8.20	4.83	4-28	.90	8.04	4.92	8.49	4.68
Positive-Activating behaviour	8.17	4.56	4-28	.94	7.99	4.63	8.50	4.42
Positive-Tolerating emotions	6.83	4.14	4-28	.90	6.50	4.08	7.45	4.21
Composites								
Negative-Emotion regulation	60.06	19.33	17-112	.93	61.56	19.40	57.25	19.00
Positive-Emotion regulation	35.57	15.28	16-109	.92	34.99	15.31	36.66	15.26
General-Facilitating hedonic goals	72.43	22.84	21-137	.93	74.00	22.84	69.48	22.69
Positive-Containing emotions	23.20	11.92	12-84	.94	22.54	11.98	24.44	11.79
General-Emotion regulation	95.63	30.00	33-201	.94	96.54	29.80	93.91	30.47
				Study 2				
Subscales								
Negative-Controlling experience	13.74	6.20	4-28	.88	13.93	6.32	13.30	5.91
Negative-Inhibiting behaviour	12.04	6.49	4-28	.90	12.27	6.51	11.52	6.43
Negative-Activating behaviour	16.10	6.97	4-28	.94	16.81	6.90	14.50	6.86
Negative-Tolerating emotions	15.21	5.69	4-28	.85	14.89	5.81	15.95	5.34
Positive-Controlling experience	12.36	5.77	4-28	.84	12.21	5.92	12.70	5.40
Positive-Inhibiting behaviour	8.33	4.73	4-28	.86	7.92	4.56	9.25	4.98
Positive-Activating behaviour	8.55	4.77	4-28	.89	8.41	4.78	8.85	4.73
Positive-Tolerating emotions	7.07	4.44	4-28	.87	6.77	4.41	7.77	4.42
Composites								
Negative-Emotion regulation	57.09	20.43	16-112	.93	57.90	20.88	55.26	19.27
Positive-Emotion regulation	36.31	16.01	16-112	.92	35.31	15.98	38.57	15.87
General-Facilitating hedonic goals	69.45	24.25	20-140	.94	70.11	24.95	67.96	22.53
Positive-Containing emotions	23.95	12.16	12-84	.93	23.10	11.97	25.87	12.38
General-Emotion regulation	93.40	32.21	32-224	.95	93.21	32.66	93.83	31.20

Note. Study 1 sample N = 231 (65.4% female); Study 2 sample N = 1175 (69.4% female).

Study 2

Method

Participants and procedure. To replicate and extend the results of Study 1, the PERCI was subsequently administered in its final 32-item form to a new group of

participants. Study 2's sample was comprised of 1175 adults (69.4% female, M_{age} = 43.22 years, SD_{age} = 16.58, $range_{age}$ = 18-88).[29] This large data-set was comprised of unpublished data from three smaller emotion processing projects that our group conducted in 2017; in each project, the PERCI was administered in its 32-item form in an anonymous online survey as part of a battery of psychological questionnaires. All 1175 participants indicated they were English speaking residents of Australia, with 75.6% born in Australia. The highest level of completed education for 35.1% was high school, for 32.7% it was a technical diploma, and for 31.2% it was a university degree. Participants were recruited via three avenues: an online survey recruiting company (Qualtrics panels), an advertisement on a social media website, and via a computerised system at our university where undergraduate psychology students participate in research in exchange for course credit. About one fifth (20.1%) of the sample were current university students.

Materials. All Study 2 participants completed the PERCI, and so that we could examine its concurrent and criterion validity, some of these participants also completed established measures of other constructs that are theoretically related to emotion regulation ability. We administered a process measure of *emotion regulation strategies* to 748 participants (Emotion Regulation Questionnaire [ERQ]; Gross & John, 2003). Some emotion regulation strategies, if used habitually, can be more maladaptive than others (Gross & John, 2003), so we expected that people reporting poor emotion regulation ability on the PERCI would also report using more maladaptive emotion regulation strategies on the ERQ. An *alexithymia* measure was administered to 748 participants (Perth Alexithymia Questionnaire [PAQ]; Preece, Becerra, Robinson, Dandy, & Allan, 2018a). Because people with high levels of alexithymia have trouble processing their emotions (Preece et al., 2017), alexithymia is a

[29] Some additional participants recruited in the same manner also completed the online survey, however their data were excluded because they failed an attention check question or completed the questionnaire impossibly quickly (i.e., at a rate of less than 2 seconds per question, suggesting inattentive responding).

"crucial rate-limiting factor" for successful emotion regulation (Gross, 2014, p. 13), so we expected poor emotion regulation ability to be associated with high levels of alexithymia on the PAQ. A measure of *psychopathology symptoms* was administered to 1175 participants (Depression Anxiety Stress Scales-21 [DASS-21]; Lovibond & Lovibond, 1995). Emotion regulation problems are a risk factor for depressive and anxiety disorders (Campbell-Sills & Barlow, 2007), so we expected high PERCI scores to be associated with more severe depression, anxiety, and stress symptoms on the DASS-21. A measure of *attachment security* in close relationships was administered to 279 participants (Experiences in Close Relationships-Relationship Structures Questionnaire [ECR-RS]; Fraley, Heffernan, Vicary, & Brumbaugh, 2011). The quality of the attachment relationship between a child and their caregiver is fundamental to the development of a child's ability to self-sooth and regulate their own emotions (and people's attachment styles are relatively stable over time; Fraley et al., 2011; Shaver & Mikulincer, 2014; Zimmermann, 1999), so we expected high PERCI scores to be associated with more insecure attachment styles on the ECR-RS (i.e., high levels of attachment-related anxiety and avoidance).

Emotion Regulation Questionnaire. The ERQ (Gross & John, 2003) is a 10-item self-report measure of a person's usage of two emotion regulation strategies: *Cognitive reappraisal* (6 items; e.g., "When I want to feel less negative emotion, I change the way I'm thinking about the situation") and *Expressive suppression* (4 items; e.g., "I keep my emotions to myself"). Items are answered on a 7-point Likert scale, with higher scores indicating greater usage of that strategy. Cognitive reappraisal is usually associated with adaptive outcomes, and expressive suppression is usually associated with maladaptive outcomes; thus, an ERQ profile comprised of high *Expressive scores* and low *Cognitive reappraisal* scores is usually suggestive of emotion regulation difficulties (Gross & John, 2003). The ERQ has demonstrated good validity and reliability (Gross & John, 2003).

Perth Alexithymia Questionnaire. The PAQ (Preece, Becerra, Robinson, Dandy, & Allan, 2018a) is a 24-item self-report measure of alexithymia. It assesses people's level of difficulty focusing *attention* on and accurately *appraising* their own negative and positive emotions. Five subscale scores can be derived: *Negative-Difficulty identifying feelings* (N-DIF; 4 items, e.g., "When I'm feeling bad, I can't tell whether I'm sad, angry, or scared"), *Positive-Difficulty identifying feelings* (P-DIF; 4 items, e.g., "When I'm feeling good, I get confused about what emotion it is"), *Negative-Difficulty describing feelings* (N-DDF; 4 items, e.g., "When I'm feeling bad, I can't find the right words to describe those feelings"), *Positive-Difficulty describing feelings* (P-DDF; 4 items, e.g., "When I'm feeling good, I can't talk about those feelings in much depth or detail"), and *General-Externally orientated thinking* (G-EOT; 8 items, e.g., "I don't pay attention to my emotions"). These subscales can also be combined into several theoretically meaningful composite scores (see Preece, Becerra, Robinson, Dandy, & Allan, 2018a), including summing all 24 items into an *Alexithymia* composite (ALEXI) as an overall marker of alexithymia. Each item is answered on a 7-point Likert scale, with higher scores indicating higher levels of alexithymia. The PAQ has demonstrated good validity and reliability (Preece, Becerra, Robinson, Dandy, & Allan, 2018a).

Depression Anxiety Stress Scales-21. The DASS-21 is a 21-item self-report measure of depression, anxiety and stress symptoms experienced in the past week. Three subscale scores can be derived as markers of *Depression* (7 items; e.g., "I felt that life was meaningless"), *Anxiety* (7 items; e.g., "I felt I was close to panic"), and *Stress* (7 items; e.g., "I found it hard to wind down") symptomatology, and all items can be summed into a *Total scale* score representing overall levels of psychological distress. Items are answered on a 4-point Likert scale according to how frequently a symptom has been experienced in the past week. Higher scores indicate higher levels of symptomatology. The DASS-21 has

demonstrated good validity and reliability (Lovibond & Lovibond, 1995).

Experiences in Close Relationships-Relationship Structures Questionnaire. The ECR-RS (Fraley et al., 2011) is a 9-item self-report measure of people's attachment style in close relationships. There are five versions of the questionnaire, each asking about a different attachment figure; namely, the examinee's relationship with their *mother*, *father*, *romantic partner*, *best friend*, or *others in general*. We administered all five versions of the ECR-RS (45 items total). For each relationship assessed, two scale scores can be derived. An *Attachment-related avoidance* score (6 items; e.g., "I don't feel comfortable opening up to this person") that measures discomfort depending on others, and an *Attachment-related anxiety* score (3 items; e.g., "I often worry that this person does not really care for me") that measures concern about the availability and responsiveness of others. Each item is answered on a 7-point Likert scale, with higher scores indicating higher levels of attachment insecurity. The ECR-RS has demonstrated good validity and reliability (Fraley et al., 2011).

Analytic strategy. The factor structure and internal consistency reliability of the PERCI were examined in the same manner as Study 1. Concurrent validity was examined by calculating Pearson correlations between PERCI scores and ERQ, ECR-RS, PAQ, and DASS-21 scores. We also conducted three multiple regression analyses to further examine the criterion validity of the PERCI. In each analysis, the PERCI *Negative-Emotion regulation* and *Positive-Emotion regulation* composites were used as the predictor variables, and the *Depression*, *Anxiety*, or *Stress* scores from the DASS-21 were used as the dependent variables. We were interested here in whether both PERCI valence-specific composites would be significant predictors of DASS-21 scores, thus emphasising the clinical relevance of assessing emotion regulation across both valence types.

Results and discussion

Factor structure. Our CFA results replicated those of Study 1. Models based on the

intended eight subscale structure of the PERCI (i.e., Models 4a, 4c, and 4d) were again the best solutions, with these models displaying good fit according to CFI, TLI and RMSEA. For fit index values, factor loadings, and factor intercorrelations, see Table 9.3, 9.4 and 9.5, respectively. A table displaying item intercorrelations is provided in Appendix E.

In our preferred model (Model 4d), all items loaded well on their intended subscale/first-order factor (factor loadings = .66 to .89), all first-order factors loaded well on their valence-specific second-order factor (factor loadings = .44 to .91), and both second-order factors loaded well on the third-order *General-Emotion regulation* factor (factor loadings = .66 to .88). Like in Study 1, the *Positive-Controlling experience* first-order factor cross-loaded (loading = .55) on the *Negative-Emotion regulation* factor. Thus, the PERCI displayed the same theoretically consistent factor structure in this second data-set.

Descriptive statistics and internal consistency reliability. Descriptive statistics and Cronbach's alpha reliability coefficients for the PERCI subscale and composite scores are displayed in Table 9.6 (descriptive statistics and reliability coefficients for the other administered measures are provided in Appendix E). All PERCI subscales had good to excellent internal consistency reliability (α = .84-.94) and all composite scores had excellent internal consistency reliability (α = .92-.95).

Concurrent and criterion validity. Correlations between the PERCI and the ERQ, ECR-RS, PAQ and DASS-21 were consistent with our expectations. A table containing all Pearson correlations is provided in Appendix E. Overall emotion regulation difficulties, as assessed by the PERCI *General-Emotion regulation* composite, were significantly ($p < .05$) associated with: higher usage of expressive suppression (r = .23, r^2 = .05, $p < .001$), less usage of cognitive reappraisal (r = -.25, r^2 = .06, $p < .001$); more attachment-related anxiety with respect to one's mother (r = .21, r^2 = .05, $p < .001$), father (r = .22, r^2 = .05, $p < .001$), romantic partner (r = .38, r^2 = .14, $p < .001$), best friend (r = .34, r^2 = .12, $p < .001$) and

others in general (r = .53, r^2 = .28, p < .001), more attachment-related avoidance with respect to one's father (r = .13, r^2 = .02, p = .037), romantic partner (r = .18, r^2 = .03, p = .003), best friend (r = .16, r^2 = .03, p = .008) and others in general (r = .25, r^2 = .06, p < .001); higher levels of alexithymia (r = .66, r^2 = .43, p < .001); and higher levels of depression (r = .63, r^2 = .40, p < .001), anxiety (r = .58, r^2 = .33, p < .001) and stress (r = .57, r^2 = .33, p < .001).

Multiple regression analyses, similarly, indicated that the PERCI *Negative-Emotion regulation* and *Positive-Emotion regulation* composites were both significant and unique predictors of psychopathology symptoms, together accounting for 43.3% of the variance in DASS-21 depression scores (R^2 = .433, F [2, 1172] = 446.795, p < .001), 35.9% of the variance in anxiety scores (R^2 = .359, F [2, 1172] = 327.884, p < .001), and 36.9% of the variance in stress scores (R^2 = .369, F [2, 1172] = 342.357, p < .001). Standardised beta coefficients ranged from .53 to .58 for the *Negative-Emotion regulation* composite (ps < .001), and .06 to .12 for the *Positive-Emotion regulation* composite (ps $\leq$ .04).

General discussion

Our purpose in this paper was to document the development of the PERCI and examine its psychometric properties across two studies. In both studies, the PERCI performed well on every marker of validity and reliability that we tested.

The factor structure of the PERCI was replicable and consistent with its theoretical basis (Gross, 2015a). All 32 items loaded cleanly onto one of eight first-order factors, which corresponded to the eight subscales we designed the measure to have. These eight first-order factors, in turn, loaded well onto two valence-specific second-order factors (the *Negative-Emotion regulation* and *Positive-Emotion regulation* composites) and these second-order factors loaded well onto a broader third-order general factor (the *General-Emotion regulation* composite). Our factor analytic results therefore confirmed that the regulation of negative

emotions and the regulation of positive emotions, as measured by the PERCI, were parts of a common latent structure. One area of complexity in the factor structure was the cross-loading of the *Positive-Controlling experience* subscale on the second-order *Negative-Emotion regulation* composite, however, we consider this a potential strength of the measure rather than a weakness. The strength is that it provides statistical evidence for the deriving of two more alternate composites; the *General-Facilitating hedonic goals* and *Positive-Containing emotions* composites. These alternate composites highlight that, alongside making a distinction based on valence, it could sometimes be useful to also make a distinction based on the intention of emotion regulation attempts (i.e., whether those attempts are trying to maximise pleasant experiences or trying to contain them; see also, Zou et al., 2017). The valence-specific composites and the alternate composites could therefore be useful for answering different types of clinical and research questions. Indeed, in both data-sets, all composite and subscale scores had high levels of internal consistency reliability. Thus, the PERCI did appear to robustly measure the emotion regulation construct at different levels of specificity or abstraction.

The validity of the PERCI was further supported via its pattern of correlations with other measures of related constructs. People who reported more emotion regulation difficulties on the PERCI also tended to report using maladaptive regulation strategies more often (ERQ), had higher levels of alexithymia (PAQ), were more insecurely attached in their close relationships (ECR-RS), and experienced higher levels of depression, anxiety and stress symptoms (DASS-21). The PERCI *Negative-Emotion regulation* and *Positive-Emotion regulation* composites were, moreover, both significant predictors of these psychopathology symptoms. Compared to the *Positive-Emotion regulation* composite, the *Negative-Emotion regulation* composite was the stronger predictor of depression, anxiety and stress symptoms, but we expect that the predictive strength of the *Positive-Emotion regulation* composite will

increase in future work when broader measures of psychopathology are used (i.e., measures that include psychiatric symptoms primarily characterised by difficulties containing positive emotions, such as manic symptoms; Gruber et al., 2008). Our conclusions about the PERCI's clinical relevance from these data must also be tentative given that we did not use a clinical sample, but our findings are consistent with contemporary models of psychopathology (e.g., Ellard et al., 2010; Fairholme et al., 2010; Rottenberg & Johnson, 2007; Werner & Gross, 2010) that emphasise that deficits in the regulation of both negative and positive emotions underlie a range of psychiatric presentations. The PERCI therefore provides a more complete emotion regulation profile than those existing competence measures that focus only on one emotional valence.

We think the introduction of the PERCI therefore has several important implications for clinicians and researchers. First and foremost, for those who use the extended process model as their theoretical framework, the PERCI now allows clinicians and researchers to derive an overall index of emotion regulation ability using a self-report questionnaire. Previously the DERS *Total scale* score was most commonly relied upon for this task (e.g., Becerra et al., 2013; Edwards & Wupperman, 2017), however, as aforementioned, the DERS has some notable theoretical and psychometric limitations. Because the PERCI appears to resolve these limitations by having a clearer subscale structure, separating the measurement of emotion regulation from the measurement of alexithymia, and integrating the assessment of negative and positive valences, we think the PERCI now provides a stronger measure of emotion regulation ability. This should help enhance the quality of emotion regulation research moving forward and allow for the relationship between emotion regulation and other constructs to be explored in a more nuanced manner.

Pending validation in clinical samples, the PERCI profiles of psychiatric patients could, for example, enhance theoretical understanding of the relationship between emotion

regulation and various psychopathologies. Future research could examine whether certain diagnostic categories have characteristic elevations on particular sets of PERCI subscales, as such profiles might help guide case conceptualisations and treatment planning (e.g., Becerra et al., 2013; Ellard et al., 2010). Treatment programs for affective, anxiety, personality, eating, and substance use disorders have, for example, often focused on improving people's ability to regulate their emotions (e.g., Ellard et al., 2010; Linehan, 1993), but as Gross (2014, p. 14) notes, "much remains to be learned about exactly how each type of intervention influences particular aspects of emotion regulation". Using the PERCI as a pre- and post-treatment outcome measure could help clinicians and researchers evaluate the impact of these interventions more accurately. Future use of the PERCI alongside process measures of emotion regulation is also likely to be helpful, in terms of further establishing which sets of emotion regulation strategies characterise good or poor emotion regulation ability (e.g., De France & Hollenstein, 2017; Izadpanah et al., 2017).

Limitations and some future directions

We think the development of the PERCI makes a useful contribution, but some limitations of our two studies should be noted that will require further research. Firstly, we designed the PERCI to be used in nonclinical, clinical, adult, and adolescent populations, but we have so far only examined its psychometric performance in adults from the general community; its performance in clinical and adolescent samples still needs to be determined. Secondly, we only examined the concurrent and criterion validity of the PERCI against other self-report measures. A natural progression for future studies would be to examine how PERCI scores relate to observer-rated measures or behavioral markers of other relevant constructs. It would also be useful for future research to explore the discriminant validity of the PERCI against measures of personality and behaviour that are not specific to emotions and emotion regulation (e.g., Costa & McCrae, 2010). Fourthly, we did not examine the test-

retest reliability of the PERCI, so future studies are needed to determine how consistent its scores are over time. Fifthly, like other existing self-report measures, the PERCI does not directly assess the physiological channel of the emotion system; for clinical or research questions specific to the physiological channel, established laboratory-based psychophysiological methods (see Evers et al., 2014; Mauss et al., 2005) are therefore likely to be more suitable than the PERCI.

Conclusions

Our data suggest that the PERCI has good validity and reliability as a self-report measure of emotion regulation ability. Strengths include its capacity to assess the emotion regulation construct across both negative and positive emotions, and its alignment with the extended process model (Gross, 2015a). Whilst future research is needed to confirm these findings across different population types, on present evidence, the PERCI appears to be a promising new tool for emotion regulation assessments.

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Table 1E

A List of the 94 PERCI Development Pool Items Administered in Study 1

Item/intended subscale
Negative-Controlling experience
-When I'm feeling bad, I don't know what to do to feel better.*
-When I'm feeling bad, I'm powerless to change how I'm feeling.*
-When I'm feeling bad, those emotions feel overwhelming no matter what I do.
-When I'm feeling bad, I don't know how to reduce the strength and duration of that feeling.
-When I'm feeling bad, it seems like there is nothing I can do about it.
-When I'm feeling bad, I have no control over whether that feeling stays or goes.
-When I'm feeling bad, I can't find useful ways to improve how I feel.
-When I'm feeling bad, I don't have many strategies (e.g., activities or techniques) to help get rid of that feeling.*
-When I'm feeling bad, I have no control over the strength and duration of that feeling.*
-When I'm feeling bad, I can't stop those feelings from becoming overwhelming.
-I can't control when I will feel unpleasant emotions.
Negative-Inhibiting behaviour
-When I'm feeling bad, I often do things without thinking and then regret it afterward.
-When I'm feeling bad, those feelings make me lose control over my behaviours.
-When I'm feeling bad, I do stupid things.*
-When I'm feeling bad, my behaviour becomes out of control.*
-When I'm feeling bad, it's hard for me to control how I express those emotions.
-When I'm feeling bad, I have trouble controlling my actions.*
-When I'm feeling bad, I'm more impulsive than usual.
-When I'm feeling bad, I can't control my behaviours.
-When I'm feeling bad, it shows on my face even if I try to hide it.
-When I'm feeling bad, I have strong urges to do risky things.*
-When I'm feeling bad, I can't keep control over myself (in terms of my behaviours).
Negative-activating behaviour
-When I'm feeling bad, those feelings stop me from getting work done.*
-When I'm feeling bad, I end up neglecting my responsibilities (work, chores, school etc.).
-When I'm feeling bad, I have trouble getting anything done.*
-When I'm feeling bad, those feelings stop me from doing things that I value in life.
-When I'm feeling bad, I can't complete tasks that I'm meant to be doing.*
-When I'm feeling bad, I can't get motivated to do important things (work, chores, school etc.).*
-When I'm feeling bad, I can't stay focused during important stuff (at work or school, etc.).
-When I'm feeling bad, I can't concentrate.
-When I'm feeling bad, I can't stay on task (at work or school, etc.).
-When I'm feeling bad, those feelings stop me from doing important activities.
-When I'm feeling bad, I can't behave as though I feel ok.
-When I'm feeling bad, I can't behave like everything is normal.
Negative-Tolerating emotions
-When I'm feeling bad, I believe those feelings are dangerous.
-When I'm feeling bad, I can't tolerate feeling that way.
-When I'm feeling bad, I hate those feelings.
-When I'm feeling bad, I believe I need to get rid of those feelings at all costs.*
-When I'm feeling bad, I simply can't stand those feelings.
-When I'm feeling bad, I must try to totally eliminate those feelings.*
-When I'm feeling bad, I can't allow those feelings to be there.*

-When I’m feeling bad, I believe it’s wrong to feel that way.
-When I’m feeling bad, I can’t accept those emotions as they are.
-When I’m feeling bad, I believe it’s not normal for people to have those feelings.
-When I’m feeling bad, I believe those feelings are stupid.
-When I’m feeling bad, I believe that I shouldn’t be having those feelings.
-When I’m feeling bad, I believe those feelings are unacceptable.*
-When I’m feeling bad, I must try to totally get rid of those feelings.

Positive-Controlling experience
-When I’m feeling good, I believe that feeling will go away quickly no matter what I do.
-When I’m feeling good, I have no control over whether that feeling stays or goes.*
-When I’m feeling good, I don’t have any useful ways to improve the strength of that feeling.
-When I’m feeling good, I don’t have many strategies (e.g., activities or techniques) to help maintain those feelings.
-I don’t know what to do to create pleasant feelings in myself.*
-When I’m feeling good, I can’t stop that feeling from quickly disappearing.
-When I’m feeling good, the strength of that feeling isn’t something I can control.
-When I’m feeling good, I don’t have any useful ways to help myself keep feeling that way.*
-When I’m feeling good, it’s hard for me to maintain those feelings for long.
-When I’m feeling good, I don’t have many strategies (e.g., activities or techniques) to increase the strength of that feeling.*
-I don’t have many strategies (e.g., activities or techniques) to create pleasant feelings in myself.

Positive-Inhibiting behaviour
-When I’m feeling good, I often do things without thinking and then regret it afterward.
-When I’m feeling good, those feelings make me lose control over my behaviours.
-When I’m feeling good, I do stupid things.*
-When I’m feeling good, I have trouble controlling my actions.
-When I’m feeling good, my behaviour becomes out of control.*
-When I’m feeling good, it’s hard for me to control how I express those emotions.
-When I’m feeling good, I’m more impulsive than usual.
-When I’m feeling good, I can’t keep control over myself (in terms of my behaviours).*
-When I’m feeling good, I have strong urges to do risky things.*
-When I’m feeling good, I can’t control my behaviours.
-When I’m feeling good, it shoes on my face even if I try to hide it.

Positive-Activating behaviour
-When I’m feeling good, those feelings stop me from getting work done.
-When I’m feeling good, I end up neglecting my responsibilities (work, chores, school etc.).*
-When I’m feeling good, I have trouble completing tasks that I’m meant to be doing.*
-When I’m feeling good, I have trouble staying focused during important stuff (at work or school, etc.).*
-When I’m feeling good, those feelings stop me from doing things that I value in life.
-When I’m feeling good, I have trouble getting motivated to do important things (work, chores, school etc.).
-When I’m feeling good, I have trouble getting anything done.*
-When I’m feeling good, I can’t stay on task (at work or school, etc.).
-When I’m feeling good, those feelings stop me from doing important activities.
-When I’m feeling good, I have trouble concentrating.

Positive-Tolerating emotions
-When I’m feeling good, I believe those feelings are dangerous.
-When I’m feeling good, I believe I need to get rid of those feelings.
-When I’m feeling good, I believe it’s wrong to feel that way.
-When I’m feeling good, I can’t tolerate feeling that way.
-When I’m feeling good, I believe I shouldn’t be having those feelings.

-When I’m feeling good, part of me hates those feelings.*
-When I’m feeling good, I can’t allow those feelings to be there.*
-When I’m feeling good, I believe those feelings are stupid.
-When I’m feeling good, I hate myself for feeling that way.
-When I’m feeling good, I can’t accept those emotions as they are.
-When I’m feeling good, I must try to eliminate those feelings.*
-When I’m feeling good, I believe those feelings are unacceptable.*
-When I’m feeling good, I believe it’s not normal for people to have those feelings.
-When I’m feeling good, I can’t stand those feelings.

Note. *Item retained in final 32-item PERCI

Table 2E

Factor Loadings from an Exploratory Factor Analysis of the 48 Negatively Valenced Items in the PERCI Development Pool Administered in Study 1

Item	F1	F2	F3	F4
When I'm feeling bad, I don't know what to do to feel better.*	-.002	-.052	-.014	**-.826**
When I'm feeling bad, those feelings stop me from getting work done.*	**.644**	-.023	-.029	-.229
When I'm feeling bad, I often do things without thinking and then regret it afterward.	.076	.083	**.452**	-.292
When I'm feeling bad, I believe those feelings are dangerous.	-.036	.134	**.482**	-.308
When I'm feeling bad, I'm powerless to change how I'm feeling.*	-.087	.030	.172	**-.753**
When I'm feeling bad, I end up neglecting my responsibilities (work, chores, school etc.).	**.675**	-.143	.174	-.131
When I'm feeling bad, those feelings make me lose control over my behaviours.	.114	-.062	**.676**	-.197
When I'm feeling bad, I can't tolerate feeling that way.	.186	.358	-.009	-.362
When I'm feeling bad, those emotions feel overwhelming no matter what I do.	.192	.084	.051	**-.673**
When I'm feeling bad, I have trouble getting anything done.*	**.820**	.001	.059	-.086
When I'm feeling bad, I do stupid things.*	.132	.023	**.744**	-.031
When I'm feeling bad, I hate those feelings.	.218	.361	-.142	-.322
When I'm feeling bad, I don't know how to reduce the strength and duration of that feeling.	.175	.025	-.031	**-.774**
When I'm feeling bad, those feelings stop me from doing things that I value in life.	**.643**	.041	.034	-.227
When I'm feeling bad, my behaviour becomes out of control.*	-.058	-.030	**.852**	-.128
When I'm feeling bad, I believe I need to get rid of those feelings at all costs.*	.111	**.800**	.006	.123
When I'm feeling bad, it seems like there is nothing I can do about it.	.098	.082	.092	**-.683**
When I'm feeling bad, I can't complete tasks that I'm meant to be doing.*	**.801**	.070	.116	.019
When I'm feeling bad, it's hard for me to control how I express those emotions.	.221	.043	.126	**-.488**
When I'm feeling bad, I simply can't stand those feelings.	.258	**.564**	-.230	-.289
When I'm feeling bad, I have no control over whether that feeling stays or goes.	.132	-.021	.151	**-.697**
When I'm feeling bad, I can't get motivated to do important things (work, chores, school etc.).*	**.862**	-.017	-.029	-.128
When I'm feeling bad, I have trouble controlling my actions.*	.009	-.029	**.828**	-.120
When I'm feeling bad, I must try to totally eliminate those feelings.*	.154	**.829**	-.052	.152
When I'm feeling bad, I can't find useful ways to improve how I feel.	.140	.102	.100	**-.626**
When I'm feeling bad, I can't stay focused during important stuff (at work or school, etc.).	**.797**	.006	.090	-.086
When I'm feeling bad, I'm more impulsive than usual.	.201	.109	**.704**	.139
When I'm feeling bad, I can't allow those feelings to be there.*	.124	**.789**	.037	.087
When I'm feeling bad, I don't have many strategies (e.g., activities or techniques) to help get rid of that feeling.*	.092	.032	.075	**-.630**
When I'm feeling bad, I can't concentrate.	**.719**	.107	-.004	-.102
When I'm feeling bad, I can't control my behaviours.	-.017	.024	**.875**	-.046
When I'm feeling bad, I believe it's wrong to feel that way.	-.166	**.716**	.090	-.138
When I'm feeling bad, I have no control over the strength and duration of that feeling.*	.100	.131	.078	**-.665**
When I'm feeling bad, I can't stay on task (at work or school, etc.).	**.823**	.026	.134	.014
When I'm feeling bad, it shows on my face even if I try to hide it.	.255	.100	.230	.001
When I'm feeling bad, I can't accept those emotions as they are.	.092	**.543**	.092	-.191

When I'm feeling bad, I can't stop those feelings from becoming overwhelming.	.299	.168	.014	**-.531**
When I'm feeling bad, those feelings stop me from doing important activities.	**.798**	.070	.159	.018
When I'm feeling bad, I have strong urges to do risky things.*	.146	.089	**.719**	.064
When I'm feeling bad, I believe it's not normal for people to have those feelings.	-.083	**.440**	.235	-.133
I can't control when I will feel unpleasant emotions.	.318	.021	.100	-.350
When I'm feeling bad, I can't behave as though I feel ok.	.261	.173	.285	-.011
When I'm feeling bad, I can't keep control over myself (in terms of my behaviours).	.023	.046	**.861**	.033
When I'm feeling bad, I believe those feelings are stupid.	-.163	**.533**	.142	-.231
When I'm feeling bad, I can't behave like everything is normal.	.309	.133	.333	.032
When I'm feeling bad, I believe that I shouldn't be having those feelings.	-.094	**.667**	.146	-.158
When I'm feeling bad, I believe those feelings are unacceptable.*	-.198	**.729**	.164	-.119
When I'm feeling bad, I must try to totally get rid of those feelings.	.016	**.921**	-.038	.054

Note. *Item retained in final 32-item PERCI. Factor loadings ≥.40 are in boldface. Exploratory factor analyses (principal axis factoring) were conducted separately on the 48 negatively valenced PERCI items administered in Study 1, using direct oblimin rotation specified to extract four factors. The four extracted factors corresponded cleanly to the four negatively valenced subscales that we designed the measure to have; F1 = Negative-Activating behaviour, F2 = Negative-Tolerating emotions, F3 = Negative-Inhibiting behaviour, F4 = Negative-Controlling experience. These four factors accounted for 67.42% of the variance in item scores. The correlations between the factors were as follows: F1-F2 = .39, F1-F3 = .49, F1-F4 = -.57, F2-F3 = .45, F2-F4 = -.49, F3-F4 = -.52.

Table 3E

Factor Loadings from an Exploratory Factor Analysis of the 46 Positively Valenced Items in the PERCI Development Pool Administered in Study 1

Item	F1	F2	F3	F4
When I'm feeling good, I believe that feeling will go away quickly no matter what I do.	.172	**.484**	-.239	-.111
When I'm feeling good, those feelings stop me from getting work done.	.064	-.059	-.259	**.631**
When I'm feeling good, I often do things without thinking and then regret it afterward.	**.577**	.111	.046	.108
When I'm feeling good, I believe those feelings are dangerous.	.382	.077	**-.424**	.177
When I'm feeling good, I have no control over whether that feeling stays or goes.*	-.002	**.715**	.053	.029
When I'm feeling good, I end up neglecting my responsibilities (work, chores, school, etc.).*	.189	-.013	-.127	**.667**
When I'm feeling good, those feelings make me lose control over my behaviours.	**.780**	-.065	-.092	.112
When I'm feeling good, I believe I need to get rid of those feelings.	.191	-.073	**-.587**	.305
When I'm feeling good, I don't have any useful ways to improve the strength of that feeling.	-.113	**.638**	-.099	.286
When I'm feeling good, I have trouble completing tasks that I'm meant to be doing.*	.100	.049	-.084	**.750**
When I'm feeling good, I do stupid things.*	**.705**	.047	-.081	.066
When I'm feeling good, I believe it's wrong to feel that way.	.082	.121	**-.599**	.221
When I'm feeling good, I don't have many strategies (e.g., activities or techniques) to help maintain those feelings.	-.023	**.751**	-.053	.116
When I'm feeling good, I have difficulty staying focused during important stuff (at work or school, etc.).*	.301	.044	-.021	**.634**
When I'm feeling good, I have trouble controlling my actions.	**.720**	-.009	-.093	.148
When I'm feeling good, I can't tolerate feeling that way.	.283	.006	**-.556**	.210
I don't know what to do to create pleasant feelings in myself.*	-.037	**.767**	-.102	-.138
When I'm feeling good, those feelings stop me from doing things that I value in life.	.375	-.044	-.425	.307
When I'm feeling good, my behaviour becomes out of control.*	**.830**	-.023	-.191	-.026
When I'm feeling good, I believe that I shouldn't be having those feelings.	.066	.329	**-.674**	-.084
When I'm feeling good, I can't stop that feeling from quickly disappearing.	.233	**.626**	-.170	-.172
When I'm feeling good, I have trouble getting motivated to do important things (work, chores, school etc.).	.182	.024	-.168	**.668**
When I'm feeling good, it's hard for me to control how I express those emotions.	.072	**.469**	-.014	.342
When I'm feeling good, part of me hates those feelings.*	.041	.304	**-.653**	-.022
When I'm feeling good, the strength of that feeling isn't something I can control.	-.059	**.759**	.120	.059
When I'm feeling good, I have trouble getting anything done.*	.076	.076	-.098	**.771**
When I'm feeling good, I'm more impulsive than usual.	**.495**	.229	.257	.099
When I'm feeling good, I can't allow those feelings to be there.*	.101	.090	**-.702**	.193
When I'm feeling good, I don't have any useful ways to help myself keep feeling that way.*	-.039	**.802**	-.025	.087
When I'm feeling good, I can't stay on task (at school or work, etc.).	.292	.025	-.051	**.595**
When I'm feeling good, I can't keep control over myself (in terms of my behaviours).*	**.817**	.019	-.013	.099
When I'm feeling good, I believe those feelings are stupid.	.085	.207	**-.637**	.146
When I'm feeling good, it's hard for me to maintain those feelings for long.	.191	**.750**	-.085	-.119
When I'm feeling good, those feelings stop me from doing important activities.	**.467**	-.067	-.228	.358
When I'm feeling good, I have strong urges to do risky things.*	**.793**	-.036	.014	.000
When I'm feeling good, I hate myself for feeling that way.	-.048	.336	**-.637**	.093

When I'm feeling good, I don't have many strategies (e.g., activities or techniques) to increase the strength of that feeling.*	-.063	**.797**	.006	.100
When I'm feeling good, I have trouble concentrating.	.120	.116	.114	**.703**
When I'm feeling good, I can't control my behaviours.	**.769**	.031	-.076	.076
When I'm feeling good, I can't accept those emotions as they are.	.234	.244	**-.492**	.025
I don't have many strategies (e.g., activities or techniques) to create pleasant feelings in myself.	.185	**.693**	-.034	-.102
When I'm feeling good, it shows on my face even if I try to hide it.	.086	.082	.242	.112
When I'm feeling good, I must try to eliminate those feelings.*	.164	-.009	**-.706**	.167
When I'm feeling good, I believe those feelings are unacceptable.*	.151	.131	**-.689**	.030
When I'm feeling good, I believe it's not normal for people to have those feelings.	.116	.012	-.346	.120
When I'm feeling good, I can't stand those feelings.	.108	-.045	**-.745**	.245

Note. *Item retained in final 32-item PERCI. Factor loadings $\geq$.40 are in boldface. Exploratory factor analyses (principal axis factoring) were conducted separately on the 46 positively valenced PERCI items administered in Study 1, using direct oblimin rotation specified to extract four factors. The four extracted factors corresponded cleanly to the four positively valenced subscales that we designed the measure to have; F1 = Positive-Inhibiting behaviour, F2 = Positive-Controlling experience, F3 = Positive-Tolerating emotions, F4 = Positive-Activating behaviour. These four factors accounted for 67.89% of the variance in item scores. The correlations between the factors were as follows: F1-F2 = .44, F1-F3 = -.42, F1-F4 = .73, F2-F3 = -.30, F2-F4 = .32, F3-F4 = -.30.

Table 4E

Factor Loadings from Exploratory Factor Analyses of the 16 Retained Negatively Valenced PERCI Items in the Study 1 and Study 2 Samples

	Study 1 (*N*=231)				Study 2 (*N*=1175)			
Item number/subscale	F1	F2	F3	F4	F1	F2	F3	F4
Negative-Controlling experience								
1	.06	-.07	.04	**.82**	-.05	-.02	.01	**-.84**
5	-.04	.03	-.13	**.76**	-.02	.03	.05	**-.80**
9	.09	.04	-.04	**.66**	.09	.02	-.03	**-.76**
13	.12	.16	.00	**.67**	.20	.05	.15	**-.49**
Negative-Activating behaviour								
2	**.71**	-.01	.04	.15	.01	-.03	**.82**	-.03
6	**.82**	.09	-.14	-.05	.03	.05	**.87**	.02
10	**.86**	-.01	-.01	.06	-.05	.01	**.85**	-.10
14	**.92**	.00	-.05	.01	.06	.00	**.89**	.01
Negative-Inhibiting behaviour								
3	.15	.03	**-.75**	-.00	**.67**	-.01	.22	.04
7	-.07	-.02	**-.86**	.10	**.87**	-.00	-.05	-.06
11	-.03	-.04	**-.87**	.10	**.79**	-.00	-.01	-.15
15	.13	.06	**-.79**	-.12	**.78**	.04	.00	.05
Negative-Tolerating emotions								
4	.04	**.85**	-.02	-.06	-.03	**.69**	.08	-.00
8	.01	**.83**	-.00	.06	-.00	**.82**	-.03	.04
12	.06	**.86**	.09	-.02	-.01	**.83**	-.05	-.03
16	-.12	**.52**	-.19	.19	.04	**.70**	.00	-.02

Note. Factor loadings ≥.40 are in boldface. Exploratory factor analyses (principal axis factoring) were conducted separately in both samples on 16 negatively valenced PERCI items, using direct oblimin rotation specified to extract four factors. In both samples, the four extracted factors corresponded cleanly to the four negatively valenced subscales that we designed the measure to have. These 16 items were selected as the 16 negatively valenced items to be retained in the PERCI. These four factors accounted for 78.12% of the variance in item scores in the study 1 sample, and 76.15% in the study 2 sample. The correlations between the factors in the study 1 sample were as follows: F1-F2 = .40, F1-F3 = -.52, F1-F4 = .57, F2-F3 = -.46, F2-F4 = .42, F3-F4 = -.57. In the study 2 sample they were: F1-F2 = .38, F1-F3 = .70, F1-F4= -.72, F2-F3= .33, F2-F4= -.40, F3-F4= -.71.

Table 5E

Factor Loadings from an Exploratory Factor Analysis of the 16 Retained Positively Valenced PERCI Items in the Study 1 and Study 2 Samples

	Study 1 (*N*=231)				Study 2 (*N*=1175)			
Item number/subscale	F1	F2	F3	F4	F1	F2	F3	F4
Positive-Controlling experience								
18	.05	**.79**	.04	-.05	.05	**.66**	.01	-.05
22	-.18	**.73**	-.10	-.06	-.09	**.72**	-.15	.00
26	.14	**.64**	.02	.07	-.01	**.71**	.03	.14
30	.02	**.83**	-.03	-.05	.10	**.87**	.04	-.06
Positive-Activating behaviour								
19	**.75**	.05	-.05	-.10	**.58**	.04	-.07	.11
23	**.71**	-.02	-.08	-.14	**.65**	.01	-.07	.15
27	**.72**	.04	-.00	-.22	**.83**	.08	.10	.07
31	**.87**	.05	-.11	.04	**.89**	-.03	-.11	-.08
Positive-Inhibiting behaviour								
17	.10	.05	-.07	**-.68**	.03	.05	.06	**.68**
21	-.11	-.01	-.12	**-.93**	-.00	-.03	-.10	**.79**
25	.09	.01	.04	**-.69**	.06	-.03	-.04	**.78**
29	.12	.05	.05	**-.83**	.22	.08	-.12	**.49**
Positive-Tolerating emotions								
20	-.02	.15	**-.73**	.04	-.02	.15	**-.60**	.13
24	.18	.00	**-.75**	-.00	-.01	.05	**-.72**	.11
28	-.05	-.01	**-.89**	-.04	.04	-.02	**-.86**	-.05
32	.08	-.10	**-.83**	-.08	.09	-.02	**-.81**	-.03

Note. Factor loadings ≥.40 are in boldface. Exploratory factor analyses (principal axis factoring) were conducted separately in both samples on 16 positively valenced PERCI items, using direct oblimin rotation specified to extract four factors. In both samples, the four extracted factors corresponded cleanly to the four positively valenced subscales that we designed the measure to have. These 16 items were selected as the 16 positively valenced items to be retained in the PERCI. These four factors accounted for 78.20% of the variance in item scores in the study 1 sample, and 72.51% in the study 2 sample. The correlations between the factors in the study 1 sample were as follows: F1-F2 = .30, F1-F3 = -.50, F1-F4 = -.75, F2-F3 = -.45, F2-F4 = -.37, F3-F4 = .62. In the study 2 sample they were: F1-F2 = .48, F1-F3 = -.59, F1-F4= .74, F2-F3= -.48, F2-F4= .45, F3-F4= -.56.

Table 6E

Item Intercorrelations for the 32 PERCI Items in Study 1 and Study 2

Item number	Item number																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	-	.52	.49	.24	.69	.50	.50	.22	.67	.53	.53	.23	.60	.53	.43	.26	.20	.34	.24	.34	.21	.60	.27	.29	.23	.42	.26	.27	.29	.47	.25	.24
2	.49	-	.59	.25	.52	.76	.51	.16	.48	.74	.54	.18	.54	.76	.43	.20	.22	.25	.20	.19	.20	.39	.21	.11	.21	.34	.23	.13	.25	.31	.19	.11
3	.43	.44	-	.27	.50	.59	.67	.19	.50	.56	.69	.23	.55	.60	.63	.25	.36	.26	.26	.29	.33	.38	.30	.22	.34	.33	.29	.20	.37	.34	.25	.20
4	.22	.30	.37	-	.28	.29	.27	.54	.27	.27	.26	.60	.29	.24	.22	.52	.10	.09	.07	.11	.06	.15	.11	.09	.13	.16	.08	.07	.14	.11	.09	.10
5	.66	.47	.47	.32	-	.58	.55	.24	.66	.56	.59	.28	.67	.57	.44	.30	.23	.37	.24	.36	.24	.59	.27	.33	.22	.45	.23	.28	.30	.46	.22	.26
6	.43	.68	.56	.40	.44	-	.56	.24	.50	.77	.57	.24	.58	.82	.46	.27	.24	.23	.23	.20	.22	.40	.27	.16	.23	.37	.28	.12	.27	.32	.22	.11
7	.38	.34	.72	.33	.52	.49	-	.26	.56	.52	.80	.25	.60	.56	.66	.27	.31	.25	.26	.30	.36	.40	.32	.28	.35	.39	.31	.25	.38	.36	.26	.26
8	.28	.29	.41	.71	.37	.43	.36	-	.25	.20	.26	.66	.23	.21	.22	.60	.13	.12	.13	.19	.15	.23	.18	.20	.18	.18	.11	.13	.17	.14	.13	.19
9	.63	.38	.47	.29	.59	.48	.45	.38	-	.57	.61	.28	.62	.54	.46	.27	.23	.37	.23	.32	.21	.58	.27	.30	.23	.41	.25	.26	.28	.48	.23	.25
10	.44	.70	.49	.33	.45	.81	.39	.35	.52	-	.59	.23	.60	.85	.46	.26	.25	.29	.23	.23	.23	.46	.31	.17	.24	.42	.28	.15	.27	.38	.25	.15
11	.43	.41	.74	.34	.56	.49	.82	.37	.44	.46	-	.29	.65	.62	.65	.29	.36	.28	.28	.32	.36	.46	.35	.31	.38	.41	.31	.26	.41	.39	.29	.27
12	.22	.26	.30	.71	.30	.38	.27	.73	.28	.30	.29	-	.32	.23	.25	.57	.15	.15	.10	.17	.14	.21	.17	.17	.15	.19	.11	.11	.17	.15	.12	.15
13	.61	.47	.44	.38	.69	.54	.51	.44	.64	.57	.49	.41	-	.64	.51	.31	.26	.32	.26	.30	.28	.53	.30	.26	.27	.49	.29	.20	.33	.44	.23	.19
14	.47	.76	.56	.33	.47	.85	.44	.35	.49	.84	.46	.34	.54	-	.53	.27	.27	.28	.27	.25	.27	.47	.32	.18	.28	.41	.30	.15	.33	.38	.26	.15
15	.32	.36	.73	.37	.45	.54	.69	.36	.38	.50	.72	.32	.42	.49	-	.30	.40	.24	.31	.40	.44	.40	.40	.31	.48	.37	.37	.27	.43	.36	.32	.28
16	.34	.28	.43	.56	.42	.33	.42	.56	.34	.24	.39	.48	.44	.32	.43	-	.19	.17	.12	.19	.16	.27	.18	.20	.18	.24	.14	.17	.19	.21	.12	.15
17	.06	.09	.40	.03	.23	.16	.45	.13	.26	.15	.38	.07	.21	.14	.40	.24	-	.27	.42	.34	.56	.24	.37	.37	.60	.30	.45	.31	.51	.30	.46	.30
18	.47	.28	.29	.06	.43	.25	.33	.13	.43	.32	.34	.03	.41	.30	.27	.17	.34	-	.33	.31	.22	.49	.28	.31	.23	.48	.28	.24	.23	.60	.28	.26
19	.09	.16	.29	-.02	.20	.10	.32	.07	.19	.13	.31	-.01	.21	.13	.31	.13	.65	.34	-	.47	.54	.31	.63	.44	.50	.32	.62	.40	.50	.32	.63	.41
20	.20	.14	.32	.14	.33	.20	.43	.23	.34	.21	.37	.19	.33	.18	.37	.41	.43	.32	.34	-	.51	.46	.49	.60	.42	.39	.40	.62	.46	.39	.45	.58
21	.11	.10	.33	.00	.27	.18	.46	.10	.26	.15	.39	.05	.22	.15	.36	.25	.74	.31	.63	.47	-	.31	.58	.45	.68	.35	.54	.42	.65	.31	.52	.45
22	.50	.37	.36	.13	.47	.39	.41	.24	.49	.39	.35	.17	.48	.42	.32	.32	.26	.62	.20	.38	.27	-	.35	.40	.27	.57	.33	.35	.36	.65	.29	.35
23	.09	.18	.34	.09	.18	.15	.37	.16	.21	.16	.36	.07	.21	.18	.38	.26	.61	.29	.74	.37	.61	.13	-	.51	.58	.35	.70	.44	.58	.37	.70	.45
24	.11	.11	.18	.10	.27	.07	.31	.17	.20	.08	.27	.08	.25	.09	.22	.38	.50	.36	.54	.64	.60	.29	.54	-	.48	.36	.42	.67	.49	.34	.47	.67
25	.15	.16	.44	.05	.24	.23	.47	.11	.25	.20	.42	.00	.21	.20	.47	.25	.63	.30	.52	.32	.66	.17	.60	.46	-	.35	.58	.41	.63	.33	.55	.43
26	.38	.39	.26	.14	.44	.30	.31	.23	.39	.43	.37	.19	.44	.35	.26	.16	.25	.50	.25	.37	.24	.46	.23	.25	.18	-	.42	.31	.44	.66	.34	.30
27	.09	.19	.34	.03	.26	.19	.40	.08	.29	.21	.39	.03	.21	.21	.38	.13	.69	.32	.79	.38	.69	.17	.77	.53	.59	.32	-	.42	.61	.43	.74	.40
28	.14	.05	.28	.10	.31	.13	.41	.19	.26	.10	.33	.12	.26	.14	.30	.34	.52	.32	.44	.70	.55	.35	.43	.71	.39	.24	.45	-	.48	.36	.49	.71
29	.11	.12	.37	.02	.29	.17	.45	.08	.24	.17	.39	.00	.22	.14	.36	.19	.73	.33	.68	.41	.84	.22	.67	.55	.67	.29	.74	.48	-	.42	.62	.50
30	.40	.31	.29	.08	.48	.29	.34	.22	.39	.35	.34	.07	.44	.33	.28	.20	.36	.71	.34	.41	.37	.62	.30	.41	.28	.58	.34	.38	.38	-	.42	.35
31	.09	.19	.31	.02	.24	.17	.36	.11	.24	.20	.32	.04	.22	.20	.33	.16	.60	.31	.81	.43	.62	.19	.77	.56	.54	.29	.82	.45	.68	.35	-	.55
32	.06	.05	.23	.04	.26	.08	.35	.17	.17	.04	.29	.10	.21	.06	.27	.34	.57	.31	.53	.62	.63	.26	.52	.78	.42	.21	.53	.77	.53	.34	.52	-

Note. Correlations below the diagonal are from Study 1, those above the diagonal are from Study 2. In Study 1 correlations > .12 were statistically significant ($p < .05$), in Study 2 correlations > .05 were statistically significant ($p < .05$).

Table 7E

Descriptive Statistics and Cronbach's Alpha Reliability Coefficients for the DASS-21, PAQ, ERQ and ECR-RS Administered in Study 2

Measure	*M*	*SD*	Range	α
DASS-21 (*n*=1175)				
Depression	5.41	5.57	0-21	.93
Anxiety	4.11	4.58	0-21	.88
Stress	6.46	5.17	0-21	.91
Total scale	15.99	13.96	0-63	.96
PAQ (*n*=748)				
N-DIF	13.38	6.41	4-28	.89
P-DIF	11.30	5.76	4-28	.89
N-DDF	15.35	6.88	4-28	.91
P-DDF	12.97	6.12	4-28	.90
G-EOT	28.97	11.19	8-56	.90
G-DIF	23.68	11.28	8-56	.92
G-DDF	28.32	12.16	8-56	.93
N-DAF	28.73	12.71	8-56	.94
P-DAF	24.27	11.39	8-56	.94
G-DAF	52.99	22.58	16-112	.96
ALEXI	81.97	30.91	24-168	.96
ERQ (*n*=748)				
Reappraisal	28.80	7.19	6-42	.89
Suppression	15.78	5.28	4-28	.78
ECR-RS (*n*=279)				
Mother-avoidance	19.19	9.87	6-42	.93
Mother-anxiety	5.6	4.26	3-21	.90
Father-avoidance	23.78	9.80	6-42	.92
Father-anxiety	6.74	5.09	3-21	.95
Partner-avoidance	12.79	7.10	6-40	.90
Partner-anxiety	8.51	5.87	3-21	.93
Friend-avoidance	13.83	6.36	6-37	.88
Friend-anxiety	6.91	4.54	3-21	.94
General-avoidance	18.18	7.28	6-40	.89
General-anxiety	10.26	5.37	3-21	.93

Note. DASS-21 = Depression Anxiety Stress Scales-21, PAQ = Perth Alexithymia Questionnaire, ERQ = Emotion Regulation Questionnaire, ECR-RS = Experiences in Close Relationships-Relationship Structures Questionnaire, N-DIF = Negative-Difficulty identifying feelings, P-DIF = Positive-Difficulty identifying feelings, N-DDF = Negative-Difficulty describing feelings, P-DDF = Positive-Difficulty describing feelings, G-EOT = General-Externally orientated thinking, G-DIF = General-Difficulty identifying feelings, G-DDF = General-Difficulty describing feelings, N-DAF = Negative-Difficulty appraising feelings, P-DAF = Positive-Difficulty appraising feelings, G-DAF = General-Difficulty appraising feelings, ALEXI = Alexithymia composite.

Table 8E

Pearson Correlations Between the PERCI and ERQ, PAQ, ECR-RS and DASS-21 in Study 2

Scale/ subscale	PERCI												
	Subscales								Composites				
	Negative-Controlling experience	Negative-Inhibiting behaviour	Negative-Activating behaviour	Negative-Tolerating emotions	Positive-Controlling experience	Positive-Inhibiting behaviour	Positive-Activating behaviour	Positive-Tolerating emotions	Negative-Emotion regulation	Positive-Emotion regulation	General-facilitating hedonic goals	Positive-Containing emotions	General-Emotion regulation
ERQ													
Reappraisal	-.34***	-.29***	-.23***	.14***	-.29***	-.09*	-.13***	-.13***	-.24***	-.20***	-.27***	-.13***	-.25***
Suppression	.18***	.10**	.08*	.17***	.19***	.16***	.20***	.29***	.16***	.25***	.18***	.24***	.23***
PAQ													
N-DIF	.65***	.61***	.59***	.31***	.45***	.42***	.40***	.38***	.69***	.50***	.69***	.45***	.68***
P-DIF	.51***	.53***	.39***	.21***	.48***	.50***	.52***	.55***	.52***	.62***	.56***	.59***	.64***
N-DDF	.64***	.51***	.55***	.29***	.47***	.32***	.32***	.32***	.63***	.44***	.65***	.36***	.62***
P-DDF	.51***	.44***	.37***	.24***	.49***	.40***	.41***	.45***	.49***	.54***	.53***	.48***	.58***
G-EOT	.36***	.26***	.23***	.25***	.34***	.26***	.26***	.37***	.34***	.37***	.37***	.33***	.40***
G-DIF	.63***	.62***	.54***	.28***	.51***	.49***	.49***	.50***	.66***	.60***	.68***	.56***	.72***
G-DDF	.62***	.51***	.50***	.29***	.51***	.38***	.39***	.41***	.60***	.52***	.63***	.44***	.64***
N-DAF	.68***	.59***	.59***	.31***	.48***	.39***	.38***	.37***	.69***	.49***	.70***	.42***	.68***
P-DAF	.53***	.50***	.40***	.23***	.51***	.47***	.49***	.52***	.53***	.60***	.57***	.55***	.63***
G-DAF	.65***	.58***	.54***	.29***	.53***	.45***	.46***	.47***	.65***	.58***	.68***	.52***	.70***
ALEXI	.60***	.52***	.47***	.31***	.51***	.42***	.43***	.48***	.60***	.56***	.63***	.50***	.66***
ECR-RS													
Mother anx	.18**	.15*	.12	.17**	.28***	.05	.07	.20**	.18**	.20**	.22***	.12	.21***
Mother avo	.12	-.02	.01	-.01	.17**	-.02	-.04	.09	.03	.07	.06	.00	.05
Father anx	.18**	.17**	.11	.14*	.26***	.12*	.09	.24***	.18**	.23***	.21***	.17**	.22***
Father avo	.14*	.07	.12*	.05	.18**	.03	.03	.04	.12*	.10	.14*	.04	.13*
Partner anx	.32***	.32***	.25***	.26***	.33***	.21***	.24***	.18**	.35***	.32***	.37***	.26***	.38***
Partner avo	.15*	.10	.12*	.09	.20***	.09	.16**	.08	.14*	.18**	.16**	.14*	.18**
Friend anx	.26***	.29***	.19**	.19**	.34***	.19**	.23***	.30***	.28***	.34***	.31***	.28***	.34***
Friend avo	.13*	.07	.02	.09	.21**	.12	.11	.23***	.09	.21***	.13*	.18**	.16**
General anx	.49***	.43***	.35***	.37***	.49***	.28***	.28***	.27***	.49***	.44***	.52***	.34***	.53***
General avo	.29***	.14*	.11	.16**	.34***	.13*	.08	.17**	.21***	.24***	.25***	.14*	.25***
DASS-21													
Total	.64***	.64***	.59***	.28***	.50***	.31***	.29***	.34***	.68***	.45***	.69***	.36***	.65***
Depression	.65***	.58***	.58***	.26***	.54***	.27***	.27***	.33***	.65***	.45***	.68***	.33***	.63***
Anxiety	.53***	.58***	.49***	.29***	.39***	.31***	.28***	.33***	.59***	.41***	.59***	.35***	.58***
Stress	.56***	.61***	.54***	.21***	.41***	.27***	.26***	.26***	.61***	.38***	.61***	.30***	.57***

Note.***p<.001, **p<.01, *p<.05. N-DIF = Negative-Difficulty identifying feelings, P-DIF = Positive-Difficulty identifying feelings, N-DDF = Negative-Difficulty describing feelings, P-DDF = Positive-Difficulty describing feelings, G-EOT = General-Externally orientated thinking, G-DIF = General-Difficulty identifying feelings, G-DDF = General-Difficulty describing feelings, N-DAF = Negative-Difficulty appraising feelings, P-DAF = Positive-Difficulty appraising feelings, G-DAF = General-Difficulty appraising feelings, ALEXI = Alexithymia composite, anx = attachment related anxiety, avo = attachment related avoidance.