DO COGNITIVE REAPPRAISAL AND EXPRESSIVE SUPPRESSION MEDIATE THE

EFFECT OF EMOTION MOTIVES ON MOOD OUTCOMES?

BY

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Abstract

The present investigation was designed to assess whether the emotion regulation strategies of expressive suppression and cognitive reappraisal would mediate the relationships between emotion motives (trying to experience and trying to avoid experiencing positive and negative emotions) and mood outcomes (subjective happiness and depressive symptoms). A sample of 257 first-year psychology students completed questionnaires on emotion regulation and levels of subjective happiness and depressive symptom levels in a concurrent study. As predicted, trying to experience positive emotions positively predicted use of cognitive reappraisal, which, in turn, predicted greater levels of subjective happiness and lower levels of depressive symptoms and trying to avoid experiencing negative emotions positively predicted use of expressive suppression, which, in turn, predicted greater levels of depressive symptoms and lower levels of subjective happiness. In one other mediational pathway, the motive of trying to experience negative emotions positively predicted use of expressive suppression, which was associated with lower levels of subjective happiness and greater levels of depressive symptoms. These results add to the existing emotion regulation research literature by shedding light on what motivates the use of adaptive and maladaptive emotion regulation strategies. In sum, individuals' hedonic motives encouraged adaptive emotion regulation efforts, whereas, individuals' contra-hedonic motives encouraged the use of maladaptive emotion regulation efforts. These findings will be of assistance to clinicians in the development of interventions to improve emotion regulation problems in clients.

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In this literature review I will outline what emotion regulation is and what researchers believe to be the main reasons for engaging in it. For instance, it is believed that emotions are mainly regulated for hedonic purposes (i.e. to upregulate positive and downregulate negative emotions). I will then present other research which highlights the limitations of this hedonic function of emotion regulation by showing that emotions can be regulated for other purposes than to increase pleasant and to decrease unpleasant emotions (i.e. to achieve better performance on a particular task, or to respect cultural expectations around difficult situations). After this section, I will describe the different strategies that are commonly used to achieve desired emotional outcomes, and which ones are more adaptive than others, with a focus on cognitive reappraisal and expressive suppression.

In the final section of the literature review, I will build a case for the present research investigation. In particular, it will be noted that there is a lack of research on the association between people's reasons (motives) for engaging in emotion regulation and the particular strategies that people use to achieve particular desired emotional outcomes. Then I will argue that two emotion regulation strategies sensibly predict two commonly assessed mood outcomes (i.e. levels of subjective happiness and depressive symptoms).

Defining emotion regulation

Emotions offer vital signals of our state in the world, such as feeling satisfied after a nourishing meal or being angry when treated rudely in traffic. However, people do not generally feel and express their emotions spontaneously, automatically, and uncritically. The active control and management of an emotional response is called *emotion regulation*, a process that is broadly defined as the use of various strategies to control and regulate which

emotions we have, when we have them and how they are experienced and expressed (Gross, 1998).

According to the process model of emotion regulation there are five points in the generation of an emotional response where it can be regulated (Gross, 1998). These stages involve selecting or modifying a situation (first and second stages), altering our attention and appraisals (third and fourth stages) and modifying our response (fifth stage). Although the emotion can be regulated at any point, the earlier in the process it is regulated the more likely it is to be successful (as I will outline in more detail further along in the thesis).

The topic of emotion regulation (ER) has experienced a dramatic rise in attention over the last few decades, with citations of "Emotion regulation" in PsycINFO rising from 4 in 1990 to over 20,360 eighteen years later (Gross, 2008). But despite a growth in popularity, there exists confusion over how ER is related to important life outcomes (such as subjective happiness and depressive symptoms). The situation is due in part to the fact that emotion regulation is often constrained by the context in which the emotion occurs, which includes cultural values, beliefs, and attitudes about emotions themselves. Further, emotion regulation has largely been viewed in terms of how it can maximize pleasure and minimize pain, with no or little attention given to the diverse motives that drive the regulation process. And last, research has overlooked the long-term benefits of feeling certain negative emotions that conflict with immediate hedonic interests (e.g. motivating oneself to feel fear in order to study for an important exam rather than going to a party with friends), which may lead to greater levels of subjective happiness in the long term, but is difficult to explain vis-à-vis a strict hedonic account of emotion regulation. At present, it is not clear how particular emotion motives affect the way in which emotions are regulated, and how this process then leads to the experience of mood outcomes like depressive symptoms and subjective happiness.

Clearing up the confusion concerning the motivating factors that drive emotion regulation is an important goal of many researchers as it is now widely recognised that poor emotion regulation is a transdiagnostic feature of many psychological disorders (Kring & Sloan, 2010). Therefore, understanding the motivational dynamics that underlie and constrain emotion regulation is not only important for mental health clinicians in clinical settings, but also researchers in the area of academic psychology who want to better understand its role in well-being.

What drives the emotion regulation process?

A defining feature of current theories of emotion regulation is that the process is goal focused or aimed at the attainment of a particular desired emotional outcome (Gross, 2014). In particular, Gross (2014) notes that "emotion regulation has three core features which are the emotion regulation *goal* - what people are trying to accomplish, *strategy* - the particular processes that are engaged in order to achieve the goal and *outcome* – the consequences of trying to achieve a particular emotional goal using that particular strategy."

Delineation of what Gross terms as 'goals' has not received much research attention, however this striving for a particular emotional outcome is generally believed to be guided by hedonic motives, where organisms have evolved to seek pleasure and avoid pain (Baumeister, 2005). Thus, in the emotional domain, people generally prefer to downregulate (i.e. diminish in intensity and duration) negative emotions such as anger, sadness and anxiety, and to upregulate positive emotions like love, interest and joy (Gross, Richards, & John, 2006; Quoidbach, Berry, Hansenne, & Mikolajczak, 2010). Therefore, it is largely assumed that emotion regulation is mainly used to increase experiences of positive emotions and to decrease experiences of negative ones (Larsen, 2000; Tice, Baumeister, & Zhang, 2004).

Is pursuing positive emotions always universal?

However, the pursuit of positive emotional experiences is not universal for everyone all the time, as research shows people seek such positive experiences around 70-90% of the time (Kampfe & Mitte, 2009; Riediger, Scmiedek, Wagner, & Lindenberger, 2009). In particular, Parrott (1993) notes that there are occasions where people want to engage in the opposite form of regulation (termed contra-hedonic regulation), namely a desire to upregulate negative and to downregulate positive emotional experiences. The main reasons given for this approach are that contra-hedonic regulation is useful for instrumental and social reasons, where it can promote the focus necessary for successful task performance or allow people to respect cultural norms around the appropriate display of emotion in certain situations. These reasons seem to express adaptive uses of contra-hedonic regulation, yet it is also true that it is sometimes used maladaptively. For example, depressed people often report experiencing a state of joylessness and lack of zest called anhedonia, which is marked by a lack of motivation to pursue positive emotional states, or a strategy to diminish the positive emotions they are currently experiencing (Chentsova-Dutton & Hanley, 2010). Furthermore, some depressed people seek to approach and experience negative emotions, as they have become the lens through which they interpret themselves and the world. For instance, Heimpel, Wood, Marshall, and Brown (2002) note that depressed people sometimes seek to prolong negative emotional states, as they believe they do not deserve to feel better. Similarly, Beck (1976) showed that depressed people exhibit negative attentional biases, where they preferentially attend to information that supports their pre-existing negative beliefs about themselves and the world. In summary, it is important to understand that people hold different levels and combinations of emotion motives, and these different motives may illuminate what triggers people to regulate their emotions in certain ways.

This question of emotion motives is often overlooked in the emotion regulation literature, where the predominant focus has been on *how* people regulate their emotions, rather than on *why* people regulate their emotions in certain ways (Tamir, 2016).

Theories of emotion regulation strategies

The most well-known model of emotion regulation strategies is the process model of emotion regulation developed by Gross (1998), which suggests that strategies employed to alter an emotion can be initiated before the onset of the response (an antecedent-focused strategy), during the emotional event (a protective strategy), or after it has occurred (response-focused strategy). An example of an antecedent-focused strategy is situation-selection (i.e. what situations do I want to engage in and which ones do I want to avoid?), while an example of a protective regulation strategy is cognitive reappraisal (the deliberate attempt after the fact to reinterpret an emotion-eliciting situation in a way that alters its meaning and impact in a more favourable way) (Gross & John, 2003; Lazarus & Alfert, 1964). Another example of an emotion regulation strategy that occurs after an emotional response is experienced is expressive suppression, defined as the attempt to hide, inhibit or reduce ongoing emotionally expressive behaviour like facial expressions, verbal expressions and gestures (Katana, Rocke, Spain, & Allemand, 2019). Researchers like Gross (2013) note that consistently labelling an emotion regulation strategy as always adaptive or always maladaptive is a fallacy, as it is the context that determines its adaptiveness, but it is also recognised that certain strategies generally lead to better outcomes than others (Aldao & Nolen-Hoeksema, 2012). For example, antecedent and protective strategies are more effective at altering negative emotional responses as they are preventative (i.e. occur before the onset of the physiological and behavioural components of an emotional response), and are therefore more likely to lead to a greater improvement in one's ongoing emotional state (Webb, Miles, & Sheeran, 2012). An example of such a strategy is cognitive reappraisal,

which is effective at decreasing negative and increasing positive emotions, and therefore is associated with greater levels of subjective happiness and lower levels of anxiety and depressive symptoms (Johns, Inzlicht, & Schmader, 2008). Conversely, response-focused strategies like expressive suppression tend to alter the outward expression of an emotional response more than its internal reality. Therefore, it may enable people to appear calm and collected on the outside (the goal of the strategy), but is a generally less effective emotion regulation strategy, as the subjective emotional response remains the same and it is often associated with feelings of inauthenticity and depressive symptoms (Richards, Butler, & Gross, 2003). Thus, recognising that some emotion regulation strategies are generally more adaptive than others, is important in clarifying the complex role they play in influencing whether an attempt at emotion regulation is successful or not.

Do emotion regulation motives affect the strategies people use to regulate their emotions?

Given that there are different motives for engaging in emotion regulation, it is surprising that little research has assessed the effect they have on the strategies people use to regulate their emotional responses. In particular, most research tends to assess emotion motives and strategies in isolation rather than together, where the focus is on the type of emotion regulation that is used (i.e. hedonic or contra-hedonic), or on the strategies people use to regulate their emotions (e.g. Gross & Thompson, 2007; Parkinson & Totterdell, 1999; Webb, Miles, & Sheeran, 2012), which has led to the assumption that the beneficial effects of particular emotion regulation strategies (i.e. cognitive reappraisal) are independent of the emotion regulation motives that influenced them (Tamir, Halperin, Porat, Bigmant, & Hasson, 2019). Similarly, Tamir, Vishkin, and Gutentag (2020) note that activating a particular emotional goal (i.e. to feel more positive or negative emotions) can lead to a shift in emotional state regardless of the particular strategy used. To address this gap, English, Lee,

and Gross (2017) assessed how motives (either emotional or instrumental) influence the strategies people use to regulate their emotions in daily life. They predicted that expressive suppression would be used more when regulating emotions for instrumental purposes (i.e. to get work done) and for contra-hedonic emotional goals (i.e. to feel more negative emotions), while cognitive reappraisal and distraction would be used more for hedonic emotional end states (i.e. to feel more positive emotions). Previous research (e.g. Richards, Butler, & Gross, 2003) has found that expressive suppression does not reduce the experience of negative emotions and instead tends to decrease peoples' positive emotional experiences, while the opposite is true for cognitive reappraisal (i.e. it reduces negative and increases positive emotional experiences). The researchers tested these hypotheses by asking college students to complete daily diaries in which they reported if, why and how they regulated their emotions. They found support for their hypotheses in that people reporting contra-hedonic and instrumental motives engaged in more expressive suppression (particularly of positive emotions), and people holding hedonic motives used more cognitive reappraisal. Their results show that emotion motives have an effect on the types of emotion regulation strategies that are used to alter one's present emotional state.

However, we would argue that emotion motives not only predict the decision to engage in emotion regulation strategies (such as cognitive reappraisal and expressive suppression), but also set in motion pathways that result in certain mood states. For instance, Tamir et al. (2019) found that participants who were instructed to decrease their negative emotions, without being told how to do so, were as effective at this task as participants who were instructed to use cognitive reappraisal to regulate their emotions. The findings could not be attributed to the spontaneous use of cognitive reappraisal in the former group, as these participants used the strategy less than participants in the second group, suggesting that emotion motives are just as important, if not more so, in guiding an emotion regulation

response, than the use of particular emotion regulation strategies themselves. Likewise, Millgram et al. (2015) found that depressed individuals used emotion regulation strategies like situation selection and cognitive reappraisal to increase negative emotions. They discovered that depressed people chose to use cognitive reappraisal to increase levels of sadness in response to sad images more so than non-depressed people, suggesting that the adaptiveness of a particular emotion regulation strategy may also depend on the emotion motives that are driving them. In other words, emotion motives can constrain the direction and preferred outcomes of a particular emotion regulation strategy. These findings suggest that emotion motives exert an effect on the choice of emotion regulation strategies, which, in turn, can affect the nature of the emotional response.

Cognitive reappraisal and expressive suppression might function as mediators between emotion regulation motives and subjective happiness and depressive symptom levels

To date no research has assessed how particular emotion motives predict mood outcomes (i.e. subjective happiness and depressive symptom levels) through the mediating effects of the ER strategies people use to fulfil them. Research (e.g. John et al., 2008) shows that certain emotion regulation strategies (i.e. cognitive reappraisal) are associated with greater subjective happiness and lower depressive symptom levels than other ER strategies (i.e. expressive suppression), but research is lacking on how these pathways are set in motion by the emotion motives people possess. For instance, hedonic emotion regulation seems to be predictive of greater happiness and less depressive symptoms than contra-hedonic regulation (e.g. Aldao & Nolen-Hoeksema, 2012), but the motivational roots of these ER choices need to be explored. For example, a hedonic motive (e.g. to downregulate negative emotions) could paradoxically reduce well-being if a maladaptive strategy (i.e. expressive suppression) is used to reduce negative emotional experiences, a finding that is suggested in research on the sometimes counterproductive relationship between pursuing positive emotional

experiences and subsequent happiness levels (Ford & Mauss, 2014; Fergus & Bardeen, 2016; Mauss, Savino et al., 2011). Motives do not always result in the preferred outcome; the choice of appropriate ER strategies would seem to be important in explicating this dynamic.

Aims and hypotheses of the present study

Thus, the aim of the present research is to assess how both hedonic and contra-hedonic emotion motives (Bloore et al., 2020) predict levels of emotion regulation strategies (i.e. cognitive reappraisal and expressive suppression), which, in turn, predict levels of subjective happiness and depressive symptoms. This topic is important to investigate because our conventional views on the presumed adaptiveness of hedonic regulation and the presumed maladaptiveness of contra-hedonic regulation may not be supported. It is possible that maladaptive regulation strategies (e.g. expressive suppression) could be used in the pursuit of a hedonic emotional goal (i.e. happiness). And it is possible that emotion motives, ER strategies, and psychological outcomes do not align as expected, i.e. a hedonic motive (trying to experience positive emotions) may predict the use of a generally maladaptive ER strategy such as expressive suppression, which, in turn, might positively predict higher levels of depressive symptoms.

We predicted on the basis of research by Lee and Gross (2017) and Haga, Kraft, and Corby (2009) that trying to experience positive emotions (i.e. holding a hedonic emotion motive) would positively predict use of cognitive reappraisal, which would, in turn, be positively predictive of subjective happiness (Hypothesis 1) and negatively predict use of expressive suppression which would negatively predict depressive symptoms (Hypothesis 2). We predicted a different pattern for expressive suppression a factor that includes items describing avoidance of expressing both positive and negative emotions, where one aspect captures the contra-hedonic motive of avoiding positive emotions, e.g. "When I am feeling

positive emotions, I am careful not to express them", and another aspect which captures the hedonic motive of avoiding negative emotions, e.g. "When I am feeling negative emotions, I make sure not to express them".

Thus, we expected that the two GERM motives, namely trying to avoid experiencing negative emotions and trying to avoid experiencing positive emotions, would both positively predict use of expressive suppression, which would, in turn, both positively predict higher depressive symptom levels (Hypothesis 3) and negatively predict use of cognitive reappraisal which would predict lower subjective happiness levels (Hypothesis 4).

Other mediational pathways, involving the two emotion regulation strategies and resultant subjective happiness and depressive symptom levels were considered as exploratory analyses, as there is insufficient research on these aspects of hedonic and contra-hedonic regulation to pose definitive predictions.

Method

Participants

A concurrent sample of 256 individuals participated in this study, of which 74% were female and 26% were male. The mean age for the sample was 18 years with a range from 17 to 44 years. The ethnic composition of the sample was 71% European New Zealand, 13% New Zealand Maori, 9% Pacific Islanders, 11% Asian and 22% classified as Other ethnicity. All participants were introductory psychology students attending Victoria University of Wellington, New Zealand, who volunteered to participate as part of a course requirement.

Procedure

Prior to data collection, the study's ethics application was approved by the School of Psychology's Human Ethics Committee at Victoria University of Wellington, New Zealand. Participants were invited to complete an internet-based survey via the on-line computer

software program Qualtrics. The survey included a wide range of measures such as

demographics variables (age, sex, nationality and ethnicity), measures that examined emotion

regulation capacities (i.e. dysfunctional emotion regulation strategies, aversion to happiness,

mindfulness, and rumination), and measures investigating correlates of well-being (i.e.

positive and negative affect, subjective well-being, anxiety, and depressive symptoms). An

information sheet outlining what the study involved and the contact information of the

researchers as well as the telephone numbers of helplines to call if the study triggered

upsetting emotions or thoughts was provided to participants. Participants were also presented

with a debriefing sheet at the end of the study outlining the general aims of the research, and

how the data would be used. The study took participants approximately 50 minutes to

complete.

Measures

Emotion motives assessed by the GERM: In order to measure 'emotion motives,' i.e.,

the extent to which participants try to experience or try to avoid experiencing clusters of

valenced emotions, the GERM (General Emotion Regulation Measure) scale was

administered. This new scale developed by Bloore, Jose and Roseman (2020) is comprised of

twenty-five emotion terms. Each item is rated on a 4-point Likert scale ranging from 1

(Never) to 4 (All of the time), and emotions are rated under three different stems, but we

focused on only two (TRY to experience and TRY TO AVOID experiencing) for both

clusters of positive and negative emotions: 1) try to experience positive emotions (ExpPos);

2) try to avoid experiencing positive emotions (AvdPos); 3) try to experience negative

emotions (ExpNeg); and 4) try to avoid experiencing negative emotions (AvdNeg). Bloore et

al.'s (2020) study has shown that these four factors are useful in identifying key emotion

motives. These four factor scores were calculated from taking the average of each of the 12

positive (i.e. happiness, love, compassion, joy, peacefulness, pride, gratitude, hope, relief,

enthusiasm, determination and liking a person) and 12 negative (i.e. anger, sadness, jealousy, frustration, shame, disgust, guilt, fear, contempt, anxiety, regret and distress) emotions. The four subscales have been found to demonstrate acceptable levels of internal consistency (Bloore et al., 2020) with Cronbach's alphas of .90 for trying to experience a positive emotion, .90 for trying to experience a negative emotion, .87 for trying to avoid experiencing a positive emotion, and .92 for trying to avoid experiencing a negative emotion.

Emotion Regulation Questionnaire (ERQ): This scale consists of ten items that are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) (Gross & John, 2003). The ERQ assesses people's use of two commonly used strategies to alter emotion, namely, cognitive reappraisal and expressive suppression. Cognitive reappraisal involves thinking about a situation differently in order to appraise one's emotional experience in a more positive or adaptive fashion, while expressive suppression involves an attempt to hide or reduce expressive behaviour (i.e. suppressing facial expressions and gestures involving both positive and negative affect). Six items contribute to the subscale for cognitive reappraisal (e.g. "When I'm faced with a stressful situation, I make myself think about it in a way that helps me keep calm"), and four items contribute to the subscale for expressive suppression (e.g. "When I'm feeling negative emotions, I make sure not to express them"). Previous research shows the two subscales exhibit good psychometric properties, with Cronbach's alphas ranging from .89 to .90 for cognitive reappraisal and ranging from .76 to .80 for expressive suppression (Preece, Becerra, Robinson, & Gross, 2020). The measure also showed good internal consistency in the present analysis with Cronbach's alphas of .77 for expressive suppression and .87 for cognitive reappraisal.

Subjective Happiness Scale (SHS): To assess the subjective happiness levels of participants, we administered the Subjective Happiness Scale developed by Lyubomirsky and

Lepper (1999). The measure is comprised of four items that are rated on a 7-point Likert

scale with ratings from "not at all" to "a great deal," or "less happy" to "more happy,"

(Lyubormirsky & Lepper, 1999). An example of an item is "Some people are generally very

happy. They enjoy life regardless of what is going on, getting the most out of everything. To

what extent does this characterisation describe you?" Previous studies have found the scale to

have good internal consistency and test-retest reliability (e.g. Lyubomirsky & Lepper, 1999;

McCaskill, Miller & Weech-Maldonado, 2017). The scale also yielded high internal

consistency with an excellent Cronbach's alpha (α = .87) in the present study.

Centre for Epidemiologic Studies Depression Scale (CES-D): We administered the

CES-D scale to participants to assess their levels of depressive symptoms. The scale is

constituted of nine items that are rated on a 4-point Likert scale ranging from 1 (Less than

one day) to 4 (5-7 days) over a week's time. An example of an item is "I got upset by things

that don't usually upset me" (Radloff, 1977). Previous research has demonstrated that the

scale has acceptable internal consistency across many different studies, with Cronbach's

alphas ranging from .85 to .90 (Knight, Williams, McGee, & Olaman, 1997; Radloff, 1977;

Roberts, Vernon, & Rhoades, 1989). The scale also demonstrated good internal consistency

in the present analysis with a Cronbach's alpha of .85.

Analytic procedures

The chief aim of the study was to assess whether the two emotion regulation strategies

of cognitive reappraisal and expressive suppression functioned as mediators between emotion

motives (the four GERM subscales) and mood outcomes (subjective happiness and

depressive symptom levels). We first generated descriptive statistics (zero-order correlations)

to determine whether variables were generally associated among themselves as expected.

Then we constructed a structural equation model to test the mediational hypotheses. This

observed variable path model was estimated with Analysis of Moment Structures (Amos Ver. 25) statistical software (Arbuckle, 2017).

Specifically, in order to examine the hypotheses, we constructed a multiple mediator model, in which the four facets of the GERM (i.e. trying to experience and trying to avoid experiencing positive and negative emotions) were the four independent (exogenous) variables, cognitive reappraisal and expressive suppression were conceptualised as mediators, and subjective happiness and depressive symptom levels were the dependent variables (see Figure 3). The initial model was just-identified (namely estimated with zero degrees of freedom), so no modification indices were generated in the first model test but were for subsequent pruned models.

Results

Descriptive statistics

The correlations among variables and the mean and standard deviation for each variable are presented in Table 1. We found preliminary support for one of our hypotheses among the zero-order correlations, namely trying to experience positive emotions was positively associated with cognitive reappraisal and subjective happiness levels and negatively associated with expressive suppression and depressive symptom levels. While, further significant associations were noted between trying to experience negative emotions which was positively associated with expressive suppression and depressive symptom levels and negatively associated with subjective happiness levels.

Table 1. *Bivariate Correlations, Means and Standard Deviations*

	ExpPos	ExpNeg	AvdPos	AvdNeg	CogReapp	ExpSup	SubjHap	Dep	Mean (SD)
ExpPos	-	-.17**	-.16**	.38**	.27**	-.25**	.33**	-.20**	3.74 (.69)
ExpNeg		-	.44**	-.26**	-.10	.20**	-.21**	.29**	1.67 (.64)
AvdPos			-	-.19**	-.12*	.12	-.27**	.14	1.67 (.61)
AvdNeg				-	.03	.04	.12	-.11	3.67 (.89)
CogReapp					-	-.11	.48**	-.29**	4.38 (1.33)
ExpSup						-	-.30**	.26**	3.85 (1.50)
SubjHap							-	-.51**	4.20 (1.43)
Dep								-	2.01 (.98)

Note: *p < .05; **p < .01; *** p < .001. N = 256. CogReapp = Cognitive Reappraisal, ExpSup = Suppression, ExpPos = Trying to experience positive emotions, ExpNeg = Trying to experience negative emotions, AvdPos = Trying to avoid positive emotions, AvdNeg = Trying to avoid negative emotions, Dep = Depression, SubjHap = Subjective happiness.

Relationships among the constructs

Out of the 20 direct associations tested among the variables in the SEM path model in the original model, eleven were found to be significant. As recommended in structural equation modelling procedures (Hoyle, 2014), we pruned one by one the non-significant paths until the path model reflected only the significant paths (see Table 2 and Figure 2). We will first consider pathways from the GERM motives to the two ER strategies (IVs to MedVs). Consistent with predictions, positive associations were found for: trying to experience positive emotions, which positively predicted use of cognitive reappraisal (β = .27, p < .001, 95% CI = [.49, 1.45]) and negatively predicted use of expressive suppression (β = -.29, p < .001, 95% CI = [-.25, -.93]). Also consistent with predictions, trying to avoid negative emotions was positively predictive of the use of expressive suppression (β = .21, p < .001, 95% CI = [.55, .10]). Among our exploratory analyses we found that trying to experience negative emotions positively predicted use of expressive suppression (β = .20, p < .05, 95% CI = [.36, .12]).

Table 2

Significant direct pathways (betas) among emotion motives, regulation strategies and mood outcomes

	ExpPos	AvdNeg	ExpNeg	AvdPos
CogReapp	.29***	-.11	-.05	-.08
ExpSup	-.29***	.21**	.19*	.03
SubjHap	.44***	-.25***	-.25***	-.15**
Dep	.23***	-.03	.23***	-.09

*Note: *p* < .05; **p* < .01; *** *p* < .001. N = 256. CogReapp = Cognitive Reappraisal, ExpSup = Expressive suppression, ExpPos = Trying to experience positive emotions, ExpNeg = Trying to experience negative emotions, AvdPos = Trying to avoid positive emotions, AvdNeg = Trying to avoid negative emotions, Dep = Depression, SubjHap = Subjective happiness.

Four significant direct associations were also found between the two emotion regulation strategies (i.e. cognitive reappraisal and expressive suppression) and the two outcome variables (i.e. subjective happiness and depressive symptoms) (MedVs to DVs). We found two significant positive associations; namely cognitive reappraisal predicted greater subjective happiness levels (β =.40, p < .001) and expressive suppression predicted greater depressive symptom levels (β =.19, p < .001). And we also found two negative direct associations; cognitive reappraisal predicted less depressive symptoms (β =-.25, p < .001) and expressive suppression predicted less subjective happiness (β =-.21, p < .001).

In terms of significant direct associations between the emotion motives and outcome variables (IVs to DVs), two significant positive associations were found, namely trying to experience positive emotions predicted greater subjective happiness levels (β =.13, p < .05), and trying to experience negative emotions predicted greater levels of depressive symptoms (β =.22, p < .01). Only one significant direct negative association was found, i.e. trying to avoid positive emotions predicted lower levels of subjective happiness (β =-.18, p < .001).

Mediation tests: Did cognitive reappraisal and expressive suppression mediate the influence of emotion motives on subjective happiness and depressive symptoms?

In the present research we sought to investigate four mediational hypotheses, namely that trying to experience positive emotions would positively predict use of cognitive reappraisal, which, in turn, would positively predict greater subjective happiness levels (Hypothesis 1) and negatively predict use of expressive suppression, which would predict less depressive symptoms (Hypothesis 2), and, further we predicted that trying to avoid experiencing negative and positive emotions would likely predict use of expressive suppression, which in turn would be likely to predict more depressive symptoms (Hypothesis 3) and less subjective happiness (Hypothesis 4). Finally, the effects of trying to experience

negative emotions on the two ER strategies and mood outcomes were left as exploratory analyses. We investigated these hypotheses and the research questions through Structural Equation Modelling (SEM) using Amos statistical software.

For the first two mediational pathways (Hypotheses 1 and 2) significant mediations were found, where trying to experience positive emotions predicted use of cognitive reappraisal, which, in turn, predicted greater subjective happiness levels (a*b = .76, se = .20, $p < .001$, 95% CI = [.40, 1.20]), and lower depressive symptom levels (a*b = -.57, se = .18, $p < .001$, 95% CI = [-.98, -.27]). Thus, empirical support was obtained for Hypotheses 1 and 2. Also, consistent with predictions, significant mediations were found for trying to avoid experiencing negative emotions which positively predicted expressive suppression, which, in turn, predicted higher levels of depressive symptoms (a*b = .33, se = .15, $p < .001$, 95% CI = [.10, .70]) and lower levels of subjective happiness (a*b = -.32, se = .13, $p < .001$, 95% CI = [-.65, -.11]). Thus, Hypotheses 3 and 4 were partially supported in that we found significant mediations for trying to avoid experiencing negative emotions, but we did not find support for trying to avoid experiencing positive emotions.

Among our exploratory analyses two additional significant mediational pathways were found involving the ER strategy of expressive suppression. First, trying to experience positive emotions negatively predicted use of expressive suppression, which predicted lower subjective happiness levels (a*b = .43, se = .15, $p < .001$, 95% CI = [.19, .80]) and greater depressive symptom levels (a*b = -.45, se = .18, $p < .001$, 95% CI = [-.88, -.17]). Also, trying to experience negative emotions positively predicted use of expressive suppression, which, in turn, predicted lower levels of subjective happiness (a*b = -.23, se = .10, $p < .001$, 95% CI = [-.47, -.09]) and greater levels of depressive symptoms (a*b = .24, se = .11, $p < .01$, 95% CI = [.08, .52]). These additional findings suggest that the motives to use expressive suppression are varied and many.
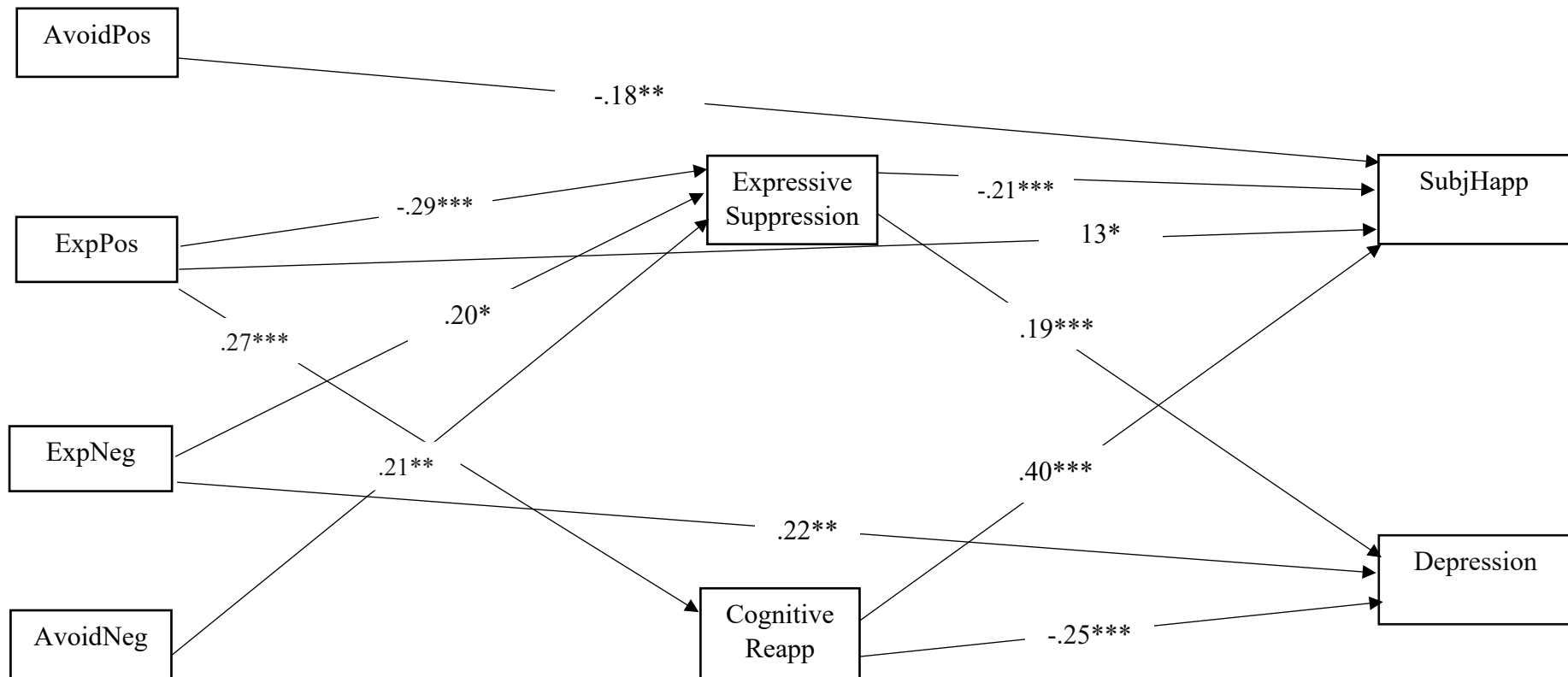
Figure 2. Relationships among emotion motives, emotion regulation strategies, and levels of subjective happiness and depressive symptoms.

Note. AvoidPos = trying to avoid experiencing positive emotions; ExpPos = trying to experience positive emotions; ExpNeg = trying to

experience negative emotions; AvoidNeg = trying to avoid experiencing negative emotions; Cognitive Reapp = cognitive reappraisal; SubjHapp

= subjective happiness; Depression = depressive symptoms. Standardized regression coefficients (betas) are presented to indicate directions and

strengths of relationships. *p < .05. **p < .01. ***p < .001.

Discussion

In the present study we assessed whether emotion regulation strategies act as mediators between emotion motives and the outcomes of subjective happiness and depressive symptom levels, an enquiry that has not been previously performed and reported. Prior studies have assessed associations between emotion regulation strategies and subjective happiness (e.g. Parkinson & Totterdell, 1999) and between emotion motives and emotion regulation strategies (e.g. Gross et al., 2017), but no one seems to have examined whether emotion motives predict subjective happiness and depressive symptom levels through their effect on emotion regulation strategies. We hypothesised that the hedonic motive of trying to experience positive emotions would positively predict use of cognitive reappraisal, which in turn would predict greater subjective happiness levels, and that it would also negatively predict use of expressive suppression, which would predict lower depressive symptoms. The opposite pattern was predicted for expressive suppression where, because the factor includes items that describe the avoidance of both positive and negative emotions, we predicted that these two GERM motives would positively predict use of expressive suppression, which would predict greater levels of depressive symptoms and less subjective happiness. No predictions were made for the other GERM motive (i.e. trying to experience negative emotions) as there is not enough research to draw definitive predictions for this motive. Support was found for three out of the four expected relationships, and for one mediational pathway among the exploratory associations (i.e. trying to experience negative emotions).

Results from the present study replicate similar findings in the literature (e.g. Johns, Inzlicht, & Schmader, 2008; Webb, Miles, & Sheeran, 2012) on the adaptiveness of cognitive reappraisal and the maladaptiveness of expressive suppression as emotion regulation strategies. For example, Johns et al., (2008) showed that cognitive reappraisal could mitigate the impact of stereotype threat on the test performance of a group of female psychology

students by effectively reducing their anxiety levels. Likewise, Webb, Miles, and Sheeran (2012) showed through a meta-analysis concerned with the effectiveness of different emotion regulation strategies that suppressing the experience of an emotion was not an effective way to regulate one's emotional response, but that cognitively reappraising one's emotional response was better. The present study supported these findings by showing that cognitive reappraisal was positively associated with subjective happiness levels and negatively associated with levels of depressive symptoms, while the reverse was true for expressive suppression.

Our results built on and extended these findings by showing how emotion motives predicted the choice of ER strategies and, in turn, how the ER strategies' predicted mood outcomes (subjective happiness and depressive symptoms). In particular, the present results support research by Gruber, Mauss, and Tamir (2011) on the paradoxical effects of 'trying to be happy'. They found that some individuals who strive for happiness fail to achieve greater happiness. Our view is that individuals trying to increase their happiness may choose either of the two hedonic emotion motives, namely trying to experience positive emotions (ExpPos) and trying to avoid experiencing negative emotions (AvoidNeg). Although ExpPos motives positively predicted cognitive reappraisal, and that ER strategy positively predicted subjective happiness, the other hedonic motive showed a different pathway. In particular, AvoidNeg positively predicted expressive suppression, which, in turn, positively predicted depressive symptom levels. Further, AvoidNeg did not significantly predict cognitive reappraisal. Thus, the two hedonic motives, which are sometimes considered to be interchangeable, precipitated very different choices of ER strategies, and these, in turn, resulted in very different outcomes. Our results suggest that hedonic motives can sometimes paradoxically lead to reduced subjective happiness levels through promoting an avoidance, rather than an acceptance or restructuring, of negative emotions.

Finally, our results support research by Tamir et al. (2019, 2020), which showed that emotion regulation is motivated by the activation of particular emotional goals (i.e. to feel more positive or negative emotions), which can shift emotional states regardless of the particular emotion regulation strategy that is used. In addition, in our research we found that the GERM motives of trying to experience both positive and negative emotions and trying to avoid experiencing negative emotions significantly and directly predicted mood outcomes (i.e. levels of subjective happiness and depressive symptoms), independently of the particular ER strategy used to influence such outcomes.

In terms of novel findings, our research is the first to show that both hedonic and contra-hedonic emotion motives are predictive of the emotion regulation strategy of expressive suppression. Notably, three emotion motives significantly predicted use of this strategy: 1) trying to experience positive emotions (negative); 2) trying to avoid experiencing negative emotions (positive); and 3) trying to experience negative emotions (positive). It is especially noteworthy that the strongest association among these three was for not trying to experience positive emotions ($\beta = -.29$), which has not been identified previously as a motive for this ER strategy in the literature. In contrast, only one emotion motive, i.e., trying to experience positive emotions, predicted cognitive reappraisal. This pattern of findings suggests that expressive suppression is multiply motivated, and future research should explore what each motive contributes to the dynamic of monitoring and suppressing emotional expression.

This more finely detailed characterisation of the motives lying behind expressive suppression contrasts with findings by Gross et al. (2017), who only linked expressive suppression to contra-hedonic emotional goals (i.e. trying to avoid experiencing negative emotions). Our finding is consistent with prior research which has emphasised the greater difficulty experienced in regulating negative emotional experiences compared to positive

ones and also how pushing negative emotions away can lead to a rebound effect (i.e. an increase in negative affect) (Gross et al., 2006). At the same time, our path model identified contradictory motives for expressive suppression, as it is not certain why a motivation to try to experience more negative affect is predictive of attempts to reduce outward expression of negative emotions. A possible explanation is that because our research did not draw a distinction between whether the emotions were regulated privately or socially, this association may be a reflection of the way negative emotions are regulated (or not) in social contexts. In other words, emotion motives may not always align with the social norms concerned with the display of affect in social situations. For example, research shows that the display of negative emotions is often discouraged in order to maintain social ties and reduce conflict with others, particularly among people with perceived low levels of social status and power (Langner, Epel, Matthews, Moskowitz, & Adler, 2012). This possibility is supported by work by Gross et al. (2017) which showed that instrumental emotional goals (e.g. a desire to keep up appearances or avoid conflict) were associated with greater use of expressive suppression.

In contrast, the story concerning cognitive reappraisal is relatively simple: the only predictor was the motive of trying to experience positive emotions (ß = .29). This result suggests that individuals who engage in the process of cognitive reappraisal are motivated by a desire to experience higher levels of positive emotions. The literature on cognitive reappraisal suggests that the main dynamic of this ER strategy is to adjust or change thinking about a negative event in order to neutralise the negative impact on emotions, i.e. individuals try to downregulate negative emotions. An example item is "When I'm faced with a stressful situation, I make myself think about it in a way that helps me keep calm." In this context, it is important to point out that the motive to avoid experiencing negative emotions (AvoidNeg) was not a significant predictor of this emotion regulation strategy. Numerous studies have

shown that cognitive reappraisal is an effective strategy for reducing negative emotions (e.g. Kalisch et al., 2005; McRae, Ciesielski, & Gross, 2012; Ochsner, Bunge, Gross, & Gabrieli, 2002; Ochsner et al., 2004). However, it is not clear whether this effectiveness is the result of avoiding negative emotions or of accepting them. Is 'keeping calm in the face of stress' due to acceptance, avoidance, or cognitive restructuring? Some research suggests that cognitive reappraisal may include an acceptance component (e.g. Liverant, Brown, Barlow, & Roemer, 2008). It is also possible that cognitive reappraisal is only effective at reducing negative emotions at a moderate level of intensity; Wolgast, Lundh, and Viborg (2011) showed that cognitive reappraisal can sometimes fail to reduce the intensity of negative emotions and this failure can lead to an avoidance of negative emotions more broadly. In contrast, Wolgast et al. (2011) did not find this association with the strategy of acceptance, which may involve a higher tolerance of negative emotions and therefore a lower probability of avoidance in the face of future negative emotions. In sum, our novel findings concerning motives for cognitive reappraisal raise some important questions about why individuals choose to employ this strategy to deal with emotions.

Clinical implications

There are several clinical implications that can be drawn from the results, some of which can hopefully aid clinicians in the development of new interventions or the modification of existing interventions (i.e. Emotion regulation therapy, Renna et al., 2018) used in the alleviation of ER problems in clients. First, many interventions (e.g. Joorman & Siemer, 2014) aim to reduce depressive symptom levels through targeting and reducing the maladaptive emotion regulation strategies (i.e. rumination and expressive suppression) that depressed people use to regulate their emotions, rather than the emotion motives that predate and constrain their use of those particular ER strategies (e.g. trying to experience and avoid negative emotions, or not trying to experience positive emotions). We would argue that an

effective strategic approach might be to focus on changing the emotion motives that triggered the use of particular maladaptive ER strategies, in other words we might try identifying and then replacing 'trying to experience negative emotions,' with more adaptive strategies such as 'trying to experience positive emotions,' although, admittedly, to do so may be difficult.

Further, encouraging clients to accept negative emotions through mindful self-regulation may be an effective adjunct to interventions aimed at increasing the frequency of cognitive reappraisal and decreasing the use of expressive suppression in people suffering from depressive symptoms (Alberts, Schneider, & Martjin, 2010; Jury & Jose, 2019; Pastuszak, Driessen, Betkowska-Korpala, Starowicz-Filip, & Gierowski, 2014). A third option would be to use positive psychology interventions to promote more engagement with positive emotions to 'push out' and replace some individuals' unhealthy focus of engaging with negative emotions by encouraging people to experience more positive emotions through use of strategies such as cognitive reappraisal (Proyer, Wellenzohn, Gander, & Ruch, 2014). For instance, many positive psychology interventions (e.g. Sin & Lyubomirsky, 2009) promote a focus on gratitude, kindness and optimism, attitudes which can reduce an obsessive preoccupation with negative emotions through the realization of the more positive aspects of one's present situation, by focusing attention on other people rather than obsessing about oneself.

Strengths and limitations of the present study

A major strength of the research was its inclusion of assessments of both emotion motives (i.e. the General Emotion Regulation Measure) and emotion regulation strategies (i.e. the Emotion Regulation Questionnaire). The GERM is labelled as a *general* emotion regulation measure which assesses the motives people have for engaging in emotion regulation, and differs from other emotion regulation measures in that it tries to explain *why*

people engage in specific emotion regulation strategies. Therefore, the model tested proposed an important theoretical innovation in the literature.

However, several limitations of the study also need to be addressed. First, due to the cross-sectional nature of the research design, we could not make conclusions about the direction of causality among our variables. We need to test our hypotheses with longitudinal or experimental data to determine whether the direction proposed here (from emotion motives to emotion regulation strategies to mood outcomes) is supported. It is possible that other temporal directions may be verified, e.g. people who are happier may wish to experience more positive emotions and may also engage in cognitive reappraisal to a greater extent than people who are less happy.

Second, the research was performed with a sample of university students, mostly comprised of females, who may regulate their emotions differently than other groups of people. Thus, the results may not generalize well to the general public, or to clinical populations or people from different cultural backgrounds. The latter group is particularly important given that prior research has found that expressive suppression has less detrimental effects in people from East Asian backgrounds (Butler, Lee, & Gross, 2007; Ford & Mauss, 2015).

Future research

In order to address the limitations noted above, future research could use a multi-wave longitudinal mediation design to assess how emotion motives affect the choice to use cognitive reappraisal or expressive suppression, and then how these strategies, in turn, predict subsequent levels of subjective happiness and depressive symptom levels. Such a design (see Jury & Jose, 2019) could strengthen the above findings by accounting for the direction of temporality and/or causality in the assessed associations. Other future directions would be to

use more diverse samples of participants (i.e. particularly people from different cultural backgrounds, different age groups and a more equal ratio of males to females), which would allow for more confident conclusions about generalisations to be drawn from the results. Finally, the findings obtained here should be tested with clinical samples to determine whether individuals suffering from high levels of negative mood states exhibit the same relationships or whether interesting departures from these patterns are noted for these samples.

Conclusions

The results from our study add to existing research in the emotion regulation literature in that we assessed how emotion motives predicted choice of ER strategies, and then how ER strategies, in turn, predicted mood outcomes. Our study identified interesting associations among these variables in an analysis that has not been performed before. We found that both hedonic and contra-hedonic emotional motives were associated with expressive suppression, both through trying to experience and trying to avoid experiencing negative emotions. This finding adds nuance to existing views on healthy emotion regulation, where it is largely assumed that only contra-hedonic regulation has the potential to be detrimental. The findings also have important clinical implications for psychologists who wish to develop more effective interventions to ameliorate emotion regulation deficits in clients, through encouraging use of more adaptive regulation strategies like cognitive reappraisal and decreasing use of expressive suppression. The results suggest that information about emotion motives of individuals will be useful in understanding why certain ER strategies are used, and what the eventual outcomes of doing so will be.

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Appendix A:

Subjective Happiness Scale

For each of the following statements and/or questions, please tick the point on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself:

1. Less happy	2.	3.	4.	5.	6.	7. More happy

2. Compared with most of my peers, I consider myself:

1. Less happy	2.	3.	4.	5.	6.	7. More happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterisation describe you?

1. Not at all	2.	3.	4.	5.	6.	7. A great deal

4. Some people are generally <u>NOT</u> very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterisation describe you?

1. Not unhappy at all	2.	3.	4.	5.	6.	7. A great deal of unhappiness

Appendix B:

General Emotion Regulation Questionnaire

On the following three pages we would like to know how you feel about a number of emotions that you may experience.
On one page we will ask you how often you **TRY** to experience each emotion. On another page we will ask you how often you try to **AVOID** experiencing each emotion. On the final page we will ask you how often you **ACTUALLY** experience each emotion.
Please carefully read the question in **boldface type** at the top of each page. The question will tell you what each page is asking you. Then, for each emotion, select the answer that comes closest to describing how you feel.

How often do you TRY to experience _____?

	Never	Occasionally	About half of the time	Most of the time	All of the time
Happiness					
Frustration					
Disliking a person					
Joy					
Pride					
Anger					
Sadness					
Gratitude					
Love					
Surprise					
Shame					
Peacefulness					
Disgust					
Compassion					
Hope					
Guilt					
Fear					
Relief					
Liking a person					
Contempt (feeling superior to someone else)					
Anxiety					
Regret					

Enthusiasm					
Determination					
Distress					

How often do you try to AVOID experiencing _____?

	Never	Occasionally	About half of the time	Most of the time	All of the time
Happiness					
Frustration					
Disliking a person					
Joy					
Pride					
Anger					
Sadness					
Gratitude					
Love					
Surprise					
Shame					
Peacefulness					
Disgust					
Compassion					
Hope					
Guilt					
Fear					
Relief					
Liking a person					
Contempt (feeling superior to someone else)					
Anxiety					
Regret					
Enthusiasm					
Determination					
Distress					

How often do you ACTUALLY experience _____?

	Never	Occasionally	About half of the time	Most of the time	All of the time
Happiness					
Frustration					
Disliking a person					
Joy					
Pride					
Anger					
Sadness					
Gratitude					
Love					
Surprise					
Shame					
Peacefulness					
Disgust					
Compassion					
Hope					
Guilt					
Fear					
Relief					
Liking a person					
Contempt (feeling superior to someone else)					
Anxiety					
Regret					
Enthusiasm					
Determination					
Distress					

Appendix C:

Emotion Regulation Questionnaire

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

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

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

2. I keep my emotions to myself.

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

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

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

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

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

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

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

6. I control my emptions by not expressing them

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

7. When I want to feel a more positive emotion, I change the way I think about the situation I am in

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

8. I control my emotions by changing the way I think about the situation I am in.

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

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

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

10. When I want to feel less negative emotion, I change the way I think about it.

1. Strongly Disagree	2.	3.	4.	5.	6.	7. Strongly Agree

Appendix D:

Centre for Epidemiologic Studies Depression Scale

Below is a list of the ways you might have felt or behaved. Please tell us how often you have felt this way <u>during the past week</u>:
(e.g. if you remember feeling sad on two different days within the last week, you would tick '1-2 days' for 'I felt sad')

	Less than 1 day	1-2 days	3-4 days	5-7 days
I got upset by things that don't usually upset me				
I was happy				
I felt sad				
I enjoyed life				
I could not stop feeling bad even when others tried to cheer me up				
I felt hopeful about the future				
I felt lonely				
I felt depressed				
I felt that everything I did was an effort				