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Acceptance and Cognitive Restructuring

Analyses and comparisons from an emotion regulation perspective

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Acceptance and Cognitive Restructuring

Analyses and comparisons from an emotion
regulation perspective



LUND
UNIVERSITY

Martin Wolgast



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“There is nothing either good or bad but thinking makes it so”
- Hamlet, Act 2, Scene 2

*“Do not seek to bring things to pass in accordance
with your wishes, but wish for them as they are, and
you will find them”*
- Epictetus

Abstract

The general aim of the present thesis was to further our understanding of cognitive restructuring and acceptance, both as concepts and as psychological processes related to emotion regulation. In doing this, concepts and processes related to cognitive restructuring and acceptance were examined in four different studies using different designs and methodologies.

The main purpose of Study I was to experimentally compare the experiential and physiological consequences of cognitive reappraisal and acceptance as emotion regulation strategies with regard to aversive emotions elicited by film-clips and how the different emotion regulation strategies influenced tendencies of behavioral avoidance. The outcome pattern supported our hypotheses that both acceptance and reappraisal would be adaptive regulatory strategies in the given context when compared to the control condition. With regard to behavioral avoidance, our hypotheses were confirmed both in that cognitive reappraisal as well as acceptance led to significantly reduced behavioral avoidance (i.e. unwillingness to view the same film-clip again) in comparison to the control condition, and since there was a stronger association between elicited aversive emotion and avoidance in the reappraisal than in the acceptance condition.

The purpose of Study II was to empirically test the suggestion that experiential avoidance in an emotion regulation context is best understood as an emotion regulatory function of topographically distinct strategies. To do this we examined whether a measure of experiential avoidance could statistically account for the effects of emotion regulation strategies intervening at different points of the emotion generating process as conceptualized by Gross' (1998) process model of emotion regulation. The results showed the predicted outcome pattern only for the response focused strategy response suppression and not for the antecedent focused strategies of cognitive reappraisal and behavioral avoidance.

Study III explored the constructs of cognitive restructuring and acceptance using items from well-established measures of the respective constructs in order to determine what subcategories or conceptual nuances that could be empirically detected, and examined these factors' relationship to each other and to positive and negative emotionality, quality of life and clinical status. Exploratory factor analyses in a non-clinical sample rendered the factors "Thought Avoidance", "Active Acceptance" and "Resignation", loading on the higher order factor of "Acceptance", and the factors "Constructive Refocusing", "Cognitive Reappraisal" and "Distractive Refocusing", loading on the higher order factor of "Cognitive Restructuring". This factor structure was validated by confirmatory factor analyses in both another non clinical and a clinical sample.

Finally, the purpose of Study IV was to use a person-oriented approach to test hypotheses regarding how the emotion regulation identified in Study III combine at the level of the individual. In addition, the study examined how homogenous subgroups of individuals characterized by different profiles of cognitive restructuring and acceptance strategies differ in terms psychological well-being. Nine distinct clusters were identified, and the general outcome pattern supported the suggestion that the two types of strategies can be seen as different but compatible forms of emotion regulation that can be combined in a variety of ways at the level of the individual. The findings from the study also lend support to the suggestions that the acceptance or non-acceptance of aversive private events are of particular clinical importance and that the effects of other strategies are significantly affected by whether or not they are combined with experiential avoidance or acceptance.

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To my mother and father I would like to express my deep gratitude for always supporting and encouraging me, and to my brother for hours of discussion that have fostered critical thinking as well as intellectual curiosity.

Last but not least, I would like to express my unending gratitude and love to my wife Sima and my children Alice and Simon. As long as you are in my life, anything is possible.

Lund, August 2012

Martin

List of papers

This thesis is based on the following papers*, which will be referred to in the text by their Roman numerals:

I. Wolgast, M., Lundh, L.-G., & Viborg, G. (2011). Cognitive Reappraisal and Acceptance: an experimental comparison from an emotion regulation perspective. *Behaviour Research and Therapy*, 49, 858 – 866.

II. Wolgast, M., Lundh, L.-G., & Viborg, G. (2012). Experiential Avoidance as an emotion regulation function: an empirical analysis of experiential avoidance in relation to behavioral avoidance, cognitive reappraisal and response suppression. *Manuscript submitted for publication*.

III. Wolgast, M., Lundh, L.-G., & Viborg, G. (2012). Cognitive Restructuring and Acceptance: an empirically grounded conceptual analysis. *Cognitive Therapy and Research*, 2012, DOI 10.1007/s10608-012-9477-0

IV. Wolgast, M., Lundh, L.-G., & Viborg, G. (2012). Patterns of Acceptance and Cognitive Restructuring: a person oriented approach. *Manuscript submitted for publication*.

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Table of Content

Abstract	5
Acknowledgements	7
List of papers	8
Table of Content	9
Introduction	5
Emotion and Emotion Regulation	7
Models of Emotion Regulation	9
Cognitive Restructuring	15
Cognitive restructuring and emotion regulation	17
Acceptance and psychological flexibility	18
Acceptance and emotion regulation	21
Comparing Cognitive Restructuring and Acceptance	22
Empirical comparisons of cognitive restructuring and acceptance in an emotion regulation context	25
General Purpose	28
Study I: Cognitive Reappraisal and Acceptance: an experimental comparison from an emotion regulation perspective	28
Aims	28
Method	29
Results	31

Discussion	33
Study II: Experiential avoidance as an emotion regulatory function: an empirical analysis of experiential avoidance in relation to behavioral avoidance, cognitive reappraisal and response suppression	35
Aims	35
Method	36
Results	37
Discussion	39
Study III: Cognitive Restructuring and Acceptance: an empirically grounded conceptual analysis.	41
Aims	41
Method	41
Results	43
Discussion	47
Study IV: Patterns of Acceptance and Cognitive Restructuring: a person oriented approach.	50
Aims	50
Method	52
Results	53
Discussion	61
General discussion	64
Acceptance and cognitive restructuring – similarities and differences	64
Measuring acceptance and cognitive restructuring	67
The process model of emotion regulation	70
Important limitations	72
Future research	73
Concluding remarks	75

Introduction

In contemporary scientific theories on emotion, emotions are often viewed as evolved adaptive responses to challenges and opportunities that we face (Levenson, 1994). From this perspective emotions are important in readying behavioral and physiological responses, enhancing memory of important events as well as facilitating decision-making and social interactions (Gross & Thompson, 2007). Nonetheless, emotions can also cause us trouble or even suffering, and problems regarding emotions or emotion regulation are vital parts in many of the psychiatric disorders listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994).

Additionally, different conceptualizations of adaptive and maladaptive ways to relate to emotions, thoughts and bodily sensations have been vital parts of many of the major psychotherapeutic paradigms: In a psychoanalytic tradition, primitive and rigid defense mechanisms against subconscious affects, drives and impulses are seen as major contributing factors to psychopathology (Weiner & Bornstein, 2009) and a key to improved health and functioning lies in gaining insight into these processes and how they relate to earlier life experiences (Thompson & Cotlove, 2005). In humanistic psychotherapy, denial and distortions of feelings and desires are conceptualized as the main obstacles to self-actualization, and the goal is to help people regain awareness of their own desires and take control of their lives (Rogers, 1951). In traditional cognitive and cognitive behavioral therapy (CBT) maladaptive cognitions and cognitive restructuring (i.e. affecting our emotional and behavioral responses through changing the way we interpret and think about a particular experience or situation) constitute vital elements in the conceptualization and treatment of psychological disorders (Beck, Rush, Shaw & Emery, 1979; Clark, 1999). Finally, within the so called “third wave” of behavioral therapy in general, and in Acceptance and Commitment Therapy (ACT) in particular, the non-

acceptance of private experiences (thoughts, feelings and bodily sensations), as well as the accompanying efforts to control, change or avoid these experiences, are seen as the major explanations of persistent psychological suffering. The adaptive alternative is to establish a psychological flexibility characterized by acceptance of private experiences and openness to the reality of the present moment, while pursuing one's values and goals (Hayes, Strosahl & Wilson, 1999).

Given the background outlined above, the field of cognitive and behavioral therapies has seen an interesting discussion regarding the usefulness of strategies focusing on changing versus accepting experiential content (e.g. Hayes et al., 1999; Mathews, 2006; Clark, 1999; Arch & Craske, 2008; Hayes, 2008, Hofmann & Asmundson, 2008). Cognitive change and acceptance strategies have been evaluated or compared in relation to psychological treatments (Öst, 2007; Hofmann & Asmundson, 2008), effects in controlled experiments (Gross, 1998; Eifert & Heffner, 2003; Levitt, Brown, Orsillo, & Barlow, 2004; Campbell-Sills, Barlow, Brown, and Hofmann, 2006a, 2006b; Hofmann, Heering, Sawyer, & Asnaani, 2009; Szasz, Szentagotai, & Hofmann, 2011) as well as in studies of the effects of individual differences in the habitual use of these, and related, strategies (Gross & John, 2003; Hayes, Strosahl, Wilson et al, 2004; Kashdan, Barrios, Forsyth & Steger, 2005).

In parallel with this development, the empirical study of the process of emotion regulation has been a growing research area the last decade (Rottenberg & Gross, 2007a) and the field has seen an increasing number of both experimental (e.g. Gross, 1998; Feldner, Zvolensky, Eifert, & Spira, 2003; Liverant, Brown, Barlow, & Roemer, 2008; Hofmann et al., 2009) and individual differences studies (e.g. Gross & John, 2003; Stewart, Zvolensky & Eifert, 2002; Kashdan et al., 2006) regarding the process and outcome of different strategies for emotion regulation. Furthermore, difficulties in emotion regulation are increasingly being incorporated into models of psychopathology (Gratz & Roemer, 2004; Barlow, Farchione, Fairholme, Ellard, Boisseau, Allen & Ehrenreich-Way, 2011; Berking, Wupperman, Reichardt, Pejic, Dippel, & Znoj, 2008; Linehan, 1993; Lynch, Trost, Salsman, & Linehan, 2007; Hofmann, Sawyer, Fang, & Asnaani, 2012).

The general aim of the present thesis was to further our understanding of cognitive restructuring and acceptance, both as concepts and as

psychological processes related to emotion regulation. It should be noted early on that the thesis does not intend to compare or evaluate cognitive restructuring or acceptance as therapeutic interventions nor broad treatment protocols such as CBT and ACT, but rather to investigate and compare processes and concepts related to cognitive restructuring and acceptance from an emotion regulation perspective to see if they seem to be psychologically active in ways that accord with the underlying theories and clinical models. Before describing and discussing the empirical studies on which the thesis is based however, I turn to defining and clarifying some concepts and theories important to the thesis, as well as presenting the scientific background of the performed studies.

Emotion and Emotion Regulation

The concept of emotion has received different definitions in a variety of scientific contexts. This is somewhat problematic, since different researchers have used different definitions and operationalizations of emotion and related terms such as mood and affect. Broadly speaking however, emotions can be defined as evolved action dispositions, which organize behavior along basic defensive and appetitive states, and prepare organisms to respond to their environment (e.g., Bradley, Codispoti, Cuthbert, & Lang, 2001; Lang, Bradley, & Cuthbert, 1990). In doing this, the emotional response occurs across multiple response channels, including experience, physiology and expression, as well as a number of cognitive processes that aid in the interpretation and appraisal of the emotion eliciting stimulus or situation.

In relation to related constructs, emotion is often defined as a relatively brief form of affect (Ekman, 1992; Frijda, 1986), where affect is used as a superordinate category that includes all valenced states (Scherer, 1984). Furthermore, emotions are referential in that emotion generation occurs when an internal or external stimulus signals to the individual that something important might be at stake. This is something that distinguishes emotions from moods, which are generally defined as longer, slower in onset and change, and less tied to specific objects or other forms of elicitors (Watson, 2000).

Emotion regulation on the other hand, has been defined as attempts individuals make to influence which emotions they have, when they have them and how these emotions are experienced and expressed (Gross, 1998; Sloan & Kring, 2007). In parallel to the distinction between emotions and other affective constructs outlined above, efforts are sometimes made to separate emotion regulation from other forms of affective regulation such as coping, mood regulation and psychological defenses. *Coping* refers to the organism's efforts to manage its relations with an environment that taxes its ability to respond (Lazarus & Folkman, 1984). Given this definition coping and emotion regulation clearly overlap, but coping also includes actions not related to emotions that are taken to achieve non-emotional goals (e.g. thoroughly preparing oneself before giving a lecture to a large audience; Gross, 1998). *Mood regulation* on the other hand refers to attempts individuals make to influence affective responses that, as referred to above, are of longer duration, lesser intensity and less likely to be the response to a specific "object" than emotions. In mood regulation research, the focus is often on the types of activities that people engage in, or fail to engage in, in order to reduce aversive mood states, such as eating and sleeping well, physical exercise, social habits etc. (Watson, 2000). Finally, *psychological defenses* refer to psychological processes with significant overlaps with emotion regulation but with the differences that psychological defenses are seen as relatively stable parts of an individual's personality structure that operate outside of awareness to decrease the conscious experience of aversive affective states (Westen & Blagov, 2007; Cramer, 2000).

An important presupposition in the study of emotion regulation is that it is both possible and meaningful to separate emotion regulation from emotion generation. This presupposition is not self-evident or unquestionable. The main reason for this is that emotion regulation is intertwined with the emotional process and must often be inferred on the basis of a supposition that an emotional response would have proceeded in one way, but instead is observed to proceed in another (Gross & Thompson, 2007). Furthermore, there are claims that emotions, at least with adults, are always regulated (Tomkins, 1984), which leads some theorists to view emotion regulation as an integrated part of emotion (e.g. Frijda, 1986; Campos, Frankel, & Camras, 2004). On the other hand, in many theoretical models, the distinction between emotion and emotion regulation is perceived as both possible and meaningful to make. At the conceptual level the distinction is

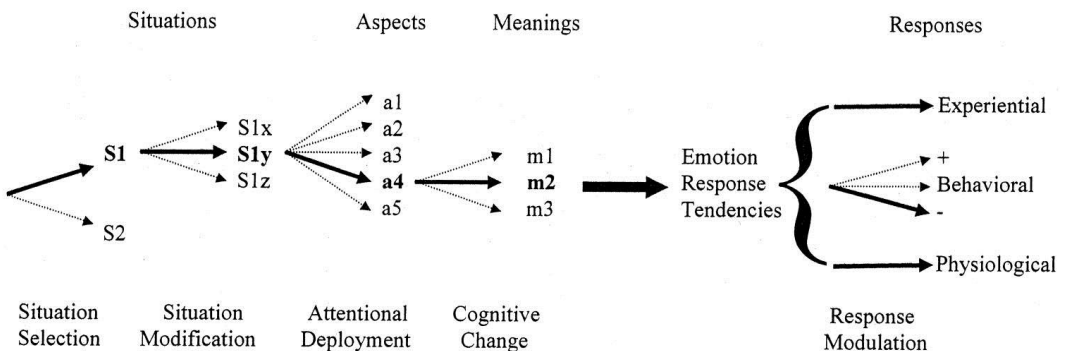
often quite clear, in that “emotion” broadly speaking refers to evolved action dispositions occurring across several response channels, whereas emotion regulation refers to attempts individuals make to alter the emotional experience and/or expression. There are also increasing empirical evidence supporting the distinction between emotion and emotion regulation. On a neural level of analysis, emotion and emotion regulation are often seen as neurologically oriented around different regions of the brain (Ochsner & Gross, 2008). To take the case of fear as an example, the amygdala is known to be critical in mediating behavioral, cognitive and physiological indicators of fear (Kim & Jung, 2006; LeDoux, 2000; Myers & Davis, 1997), whereas higher-order cortical structures, in particular the prefrontal cortex, the orbitofrontal cortex and the anterior cingulate cortex, mediate attempts to regulate emotions (Davidson, Fox, & Kalin, 2007; Ochsner & Gross, 2008; Quirk, 2007). Furthermore research also indicates that self-report measures of emotion regulation predict anxiety disorder symptoms when controlling for emotion reactivity and temperamental emotional vulnerabilities (Mennin, Heimberg, Turk, & Fresco, 2005; Tull, Stipelman, Salters-Pedneault, & Gratz, 2009) and that experimental instructions to employ distinct emotion regulation strategies lead to significant differences in experiential and physiological measures of emotional reactions (e.g. Gross, 1998; Hofmann et al., 2009; Campbell-Sills et al., 2006; Szasz et al., 2011). Given the research and theories referred to above, in the present thesis, the assumption is made that the distinction between emotion regulation and emotions is both scientifically possible and meaningful to make.

Models of Emotion Regulation

James J. Gross (1998) has formulated an influential theoretical model as to how emotion regulation relates to the temporal aspects of the emotion generating process, which he calls the “process model” of emotion regulation. This model broadly distinguishes between *antecedent focused* emotion regulation, which involves attempts to alter emotional experiences before the emotion is fully generated, and *response focused* emotion regulation, which involve attempts to alter emotional responding after the emotional response tendencies have been generated. Antecedent focused emotion regulation comprises four families of emotion regulatory strategies:

(1) *Situation selection*, which refers to attempts to affect or alter a future emotional response by choosing whether or not to enter a potentially emotion eliciting situation. An example of emotion regulation by means of situation selection would be to avoid going into basements if one has a phobic fear of spiders or to seek the company of a good friend if one has had a bad day. (2) *Situation modification*, which refers to strategies that act on the situation itself in order to modify its emotional impact, for example to ask a friend or relative to accompany oneself to the doctor or dentist. (3) *Attention deployment*, involves strategies that affects the emotional response by changing what aspects of the situation that is the focus of cognitive processing, for example by distracting oneself from the fear eliciting aspects of a situation. (4) *Cognitive change* strategies refer to changing the way one constructs the meaning of the situation. An example here would be reminding oneself that “it is not for real” when watching a frightening movie. Response focused emotion regulatory strategies are called *response modulation* which refers to attempts to alter emotional response tendencies once they have been generated, for example by deliberately hiding any overt signs of anger or by drinking alcohol when feeling upset or distressed. Figure 1 graphically presents the five families of emotion regulation strategies along the timeline of the emotion generating process.

Figure 1. A process model of emotion regulation. Reprinted from “Emotion Regulation in Adulthood: Timing Is Everything,” by J. J. Gross, 2001, *Current Directions in Psychological Sciences*, 10, p. 215. Copyright 2001 by Sage Publications. Reprinted with permission.



Thus, within this framework, different emotion regulation strategies can be classified in relation to where in the emotion generating process they occur and what part of the emotion generating process that is the target of the regulatory efforts. Additionally, the model does not make any *a priori* assumptions as to what constitutes an adaptive strategy, only that different strategies intervene in the emotion generating process at different points (Gross, 1998). Conceptually different and seemingly mutually exclusive strategies can thus be fully compatible if they are used at different stages of this process. Indeed a flexible use of a wide array of strategies, intervening at different points in the emotion generating process according to the demands of the particular situation, may very well be the most adaptive regulatory pattern.

An obvious difficulty with the process model of emotion regulation is that it seems to assume that emotions unfold in a linear and ordered fashion from situation to response. In practice it is obvious that emotion generation is an ongoing dynamic process, where one's emotional responses set the stage for a new cycle in the emotion process (e.g. feeling ashamed after breaking into tears). Emotions unfold dynamically over time, and in each cycle, the responses in that cycle influence our subsequent responses. To deal with this issue, Gross & Thompson (2007), emphasizes that a given instance of emotion regulation is antecedent or response focused in relation to a given cycle in the emotion generating process. This is based on a view of the emotion generating processes as a fast cycling system where each cycle gives rise to an emotional "pulse" (Gross & Thompson, 2007). Following this line of reasoning, regulatory efforts that target "pre-pulse" processes are antecedent focused, whereas efforts targeting "post-pulse" processes are response focused, which maintains the validity of the process model.

Emotion regulation strategies can also be classified in relation to which functions they serve, since by regulating emotions, individuals seek to achieve certain psychological outcomes. Considering the functions of emotion regulation is relevant to all emotion regulation strategies and is applicable regardless of whether the specific strategy is directed at for example the situation, attention or bodily responses. Given this, the functions of emotion regulation represent a dimension for characterizing different strategies that is independent of which emotion-generating systems that is being targeted. A traditional way of characterizing the function of emotion regulation is to emphasize that regulatory efforts serve hedonic needs aimed

at promoting pleasure and preventing pain (Larsen, 2000; Westen 1994). In this view, negative emotional states are costly in that they mobilize a variety of mental and physical resources (Sapolsky, 2007). Emotion regulation that serves hedonic needs may thus be adaptive by allowing the individual to conserve these resources by promoting a rapid return to hedonically neutral or positive states. Not all functions of emotion regulation can be related to hedonic needs, however. Another important function of regulatory efforts is to facilitate behaviors that are consistent with certain priorities, tasks or goals. For example, emotion regulation may serve an important function in social interactions or social performance, where the need to remain calm and collected lead people to down-regulate both negative and positive emotional states (Erber, Wegner, & Therriault, 1996). In a similar way, changes in task related demands may render emotionally charged information less important, leading people to devote less processing resources to emotion-eliciting information (Van Dillen & Koole, 2009).

Other approaches to the understanding and classification of emotion regulation draws on the distinction between maladaptive and adaptive ways of regulating emotions. Mennin, Heimberg, Turk and Fresco (2005) have developed an emotion dysregulation model of anxiety disorders that emphasizes four components of emotional dysfunction, where the last two clearly relate to emotion regulation as traditionally understood. The components are: (1) *Heightened intensity of emotions*, which refers to a stable pattern of frequently experiencing strong negative affect and having emotional reactions that occur intensely, easily and quickly. (2) *Poor understanding of emotions*, which involves difficulties in identifying, labeling and differentiating emotions in order to draw meaning from the emotional experience and respond effectively to the present context. (3) *Negative cognitive reactions to emotions*, which refer to negative beliefs about the consequences of emotions in the sense that the emotional reactions are seen as dangerous or harmful. This notion has long been central in the understanding and treatment of panic disorder, where the fear of the consequences of the anxiety symptoms (palpitations, breathlessness, dizziness etc.) is related to the development and maintenance of the disorder (e.g. Taylor, 1995), but the concept has been expanded by for example Williams, Chambless and Ahrens (1997) to include other emotions such as anger, sadness and positive emotions. (4) *Maladaptive management of emotion*, which refers to difficulties in knowing when and/or how to

diminish or enhance emotional experience in a way that is adequate in the present context. This last component follows the distinction suggested by Cicchetti, Ackerman, and Izard (1995) that maladaptive management of emotions can be divided into two categories: The first involves difficulties in modulation of emotional experience and/or expression, for example in the sense that the person has an emotional experience of high intensity, but is unable to adequately modulate this experience (e.g. self-soothe or inhibit emotional expression). The second category involves frequent or automatic attempts to suppress or control emotional experience.

A similar way of conceptualizing emotion regulation and emotion dysregulation has been proposed by Gratz and Roemer (2004), when constructing the Difficulties in Emotion Regulation Scale. In their model emotion regulation is conceptualized as involving four dimensions: (a) awareness and understanding of emotions, (b) acceptance of emotions (in the sense that one does not experience negative emotions in response to one's own emotional reactions), (c) ability to control impulsive behaviors and behave in accordance with valued goals when experiencing negative emotions, and (d) ability to modulate one's emotional responses (i.e. alter the intensity and duration of an emotion) in a way that is appropriate in the present context. In Gratz and Roemer's model, the relative absence of one or all of these abilities indicates difficulties in emotion regulation.

The growing interest in emotion regulation, and its association with psychiatric disorders, has resulted in an increased focus on emotion regulation skills in psychological treatment protocols. For example, Berking et al. (2008) have constructed and tested a cognitive behavioral treatment protocol that includes a treatment module that specifically targets skills related to emotion regulation such as relaxation, effective self-support, non-judgmental awareness, emotional tolerance/acceptance, problem solving and cognitive restructuring. Similarly, Barlow et al.'s (2011) "unified protocol for emotional disorders" is based upon the premise that the way in which individuals with emotional disorders (different forms of anxiety and depression) experience and respond to their emotions constitutes an underlying and unifying factor across these disorders. The modules in the treatment protocol specifically map onto the process model of emotion regulation described above: Maladaptive situation selection (i.e. behavioral avoidance that maintain the learned emotional response) is targeted by "Emotion Exposure", which gradually exposes the patient to situations that

elicit stronger and more uncomfortable emotions. Situation modification strategies that serve the purpose of reducing the perceived threat the situation poses and render emotional responses more manageable (e.g. through safety seeking behaviors), but often serves as a form of emotional avoidance, is addressed in a module called “Preventing Emotional Avoidance”. Additionally, in the “unified protocol”, worry, rumination, selective hyperfocus and distraction are seen as maladaptive forms of attention deployment, that are targeted in the module “Present-focused Nonjudgmental Awareness” by using mindfulness interventions. Maladaptive patterns of appraisals are addressed in the module “Antecedent Cognitive Reappraisal”, where the patients are taught to use realistic and evidence based cognitive reappraisals to influence their emotional reactions. Finally, dysfunctional forms of response modulation, such as expressive suppression, emotion suppression (Cambell-Sills et al., 2006a) and what the authors call “emotion-driven behavior”, are targeted in the module “Facilitating Incompatible Action Tendencies”. Emotion-driven behaviors are behaviors that are driven by the emotional experience itself (e.g. escaping when experiencing fear) and that, although adaptive under certain circumstances, may contribute to the maintenance of emotional disorders when they loose congruence with the actual context and/or are performed in inappropriate situations. The interventions in this module are designed to develop the clients’ abilities to use incompatible behaviors in problematic situations, which they can implement in the situation to allow both natural habituation and more adaptive regulation of their emotional experiences (Barlow et al., 2011).

As can be seen above, emotion regulation is a topic with clear references to important psychological processes. It also has clear associations to clinical psychology and theories on psychopathology as well as to psychological treatments. As previously stated, the present thesis seeks to further our understanding of acceptance and cognitive restructuring as concepts and processes related to emotion regulation, and we now turn to a description of the theoretical and scientific background of these constructs, both in general and in an emotion regulation context.

Cognitive Restructuring

Basic research from the field of emotion studies has demonstrated that the emotional reactions of humans to a considerable extent depend upon the way we cognitively construe or interpret the situations or experiences we encounter (e.g. Murphy & Zajonc, 1993; LeDoux, 1993; Russel, 2003). Furthermore, the assumptions that our appraisals of a situation or stimuli are relevant to our emotional reactions, and that cognitive reappraisal (i.e. construing a potentially emotion-eliciting situation in a way that changes its emotional impact) is a potent strategy for dealing with challenges and aversive emotions, are central in the scientific literature on coping and emotion regulation (ex. Lazarus & Alfert, 1964; Lazarus & Folkman, 1984; Gross, 1998; Gross & John, 2003). When defined within the context of emotion regulation, cognitive change strategies are strategies that affect “how we appraise the situation we are in in order to alter its emotional significance, either by changing how we think about the situation or about our capacity to manage the demands the situation poses” (Gross & Thompson, 2007, p. 14).

As stated in the introduction above, these assumptions also have scientific and clinical connections to traditional cognitive therapy as originally developed by Beck, where pathological conditions to a significant extent are conceptualized as the results of persistent patterns of maladaptive or dysfunctional appraisals or other thought processes in relation to emotionally relevant stimuli or situations (Beck et al., 1979; Clark, 1999; Salkovskis, 1998) and where cognitive restructuring (i.e. the modification of cognition) is seen as a central and necessary part of a therapeutic change process (Clark & Beck, 1999). In this context the general purpose of processes related to cognitive restructuring is to reconceptualize the situation in a way that facilitates mastery or coping (Clark & Beck, 1999). It should be emphasized that the focus or purpose of cognitive interventions as traditionally understood in cognitive behavioral therapies is not to teach “positive thinking” or prove to the client that their thoughts are faulty or erroneous. Instead, the focus is on helping the client to get a more realistic perspective about him- or herself and the “real” world (Hofmann & Asmundson, 2008) by means of testing the client’s hypotheses against logic and experiential evidence. A similar view of the underlying causes to psychopathology and its treatment can be found in Rational Emotive Behavior Therapy (REBT)

originally developed by Albert Ellis (1962). In REBT the root to human suffering is to be found in interpretations and assumptions about the world and events that are illogical, unrealistic and self-defeating, and the treatment seeks to teach clients to dispute, refute and challenge these interpretations and assumptions as well as to develop more constructive and self-helping constructs (Ellis, 1994). Thus in REBT, just as in Cognitive Behavior Therapy, the regulation of emotional responses through altered cognitive processing is a cornerstone of the therapeutic process.

When discussing the cognitive change component of the Unified Treatment Protocol referred to above, Fairholme, Boisseau, Ellard, Ehrenreich, & Barlow (2010) stresses that the kind of cognitive changes being made is likely to affect the emotional outcome. The authors identify two dimensions along which cognitive change can occur: temporal and veracity. The temporal dimension refers to whether the cognitive change process occurs before, during or after the emotion-eliciting event, and the veracity dimension refers to the degree that the reappraisal is realistic and evidence based. According to Fairholme et al. (2010), cognitive change strategies are more likely to be beneficial when they occur early in the emotion generating process, and when they are realistic, evidence based and accurately represent the person's actual value system.

As can be seen above, processes and concepts related to cognitive restructuring or cognitive change strategies have received a wide spread in the clinical literature during the last decades. As is often the case, this has created a significant measure of ambiguity as to what the concept really refers to. Indeed, the interventions seen in the clinical literature, but also in concepts related to more basic research (e.g. Gross, 1998), clearly entail aspects that seem to relate to somewhat different psychological processes: (a) cognitive reappraisal of emotional stimuli in unemotional or more functional terms (Barlow et al., 2011; Craske & Barlow, 2008; Gross, 1998), (b) altering the focus of the cognitive processing away from self-defeating or distress-generating aspects to neutral or positive aspects (Gross, 1998), (c) replacing erroneous interpretations and cognitions with more rational ones (Ellis, 1962), (d) distraction (Fennel, 1989), (e) distancing (Beck, 1970) etc. Furthermore, in more popularized form, positive thinking as a means to improving your psychological health has seen a steady flow of published books during the last decades (e.g. Peale, 2003; Amos, 2008; Hill & Stone, 2007).

Cognitive restructuring and emotion regulation

When conceptualized as an emotion regulatory process within the framework established by Gross (1998), the different forms of cognitive restructuring are primarily antecedent focused strategies (Gross, 1998; Hofmann & Asmundson, 2008). Furthermore, most of the strategies mentioned above, such as cognitive reappraisal and replacing erroneous interpretations and cognitions with more rational ones, are examples of what Gross labels “cognitive change” strategies in that they affects the emotion generating process by changing the way one constructs the meaning of the situation or stimulus. On the other hand, other strategies related to cognitive restructuring, such as shifting the focus away from self-defeating or distress-generating aspects to neutral or positive aspects and distraction, also entail significant aspects of what Gross calls “attention deployment”, in that they represents attempts to alter the focus of cognitive processing.

Given that antecedent focused emotion regulation strategies are supposed to intervene early in the emotion generating process, successfully employing such a strategy ought to lead to a reduced negative, or enhanced positive, emotional response. When experimentally testing this prediction, several studies have indeed found that cognitive reappraisal decreases both experiential and physiological expression of negative emotion compared to the response focused strategy of emotional response suppression (Gross, 1998; Hofmann et al., 2009; Szasz et al., 2011). There are also studies examining whether individual differences in the extent to which one habitually use cognitive reappraisal as an emotion regulatory strategy is associated with psychological well being and functioning. These studies have found that people who frequently use this strategy experience and express more positive emotions and less negative emotions, have closer relationships and are better liked by their peers than individuals who use the reappraisal strategy less frequently (Gross & John, 2003; John & Gross, 2004).

Emotion regulation through cognitive change strategies has also been studied in a neuropsychological context. To integrate the findings from this research, Ochsner & Gross (2007) have formulated a model of the cognitive control of emotion. In this model emotion generation and emotion regulation involve the interaction of two major forms of appraisal processes or appraisal

systems. The first system encodes the affective properties of a stimulus or an event in a bottom-up fashion and is related to neurological structures such as the amygdala, the nucleus accumbens and the insula (Calder, Lawrence, & Young, 2001; Ochsner & Barret, 2001; Phillips, Drevets, Rauch, & Lane, 2003). Emotion generation however can also occur through top down processes where prior beliefs lead one to appraise an otherwise neutral stimulus as emotionally evocative. Top down processes can also be used to regulate an emotional response by redirecting the focus of processing or alter the reappraisals of the emotionally evocative event. These top down control processes have been found to be associated with regions of lateral and medial prefrontal cortex, whereas regions of the dorsal anterior cingulate cortex is thought to be involved in the monitoring of the extent to which the control processes are achieving their desired goals (Botvinick, Braver, Barch, Carter, & Cohen, 2001).

Acceptance and psychological flexibility

The suggestion that the avoidance of negative emotions has a detrimental effect on psychological health unites several paradigms within clinical psychology (Freud, 1914; Kelly, 1955; Mowrer, 1947). In ACT, this notion has been broadened and repackaged into the concept of experiential avoidance, by which is meant the unwillingness to remain in contact with aversive private events and taking action to alter them (Hayes et al., 1999). From an ACT perspective, the root to understanding the detrimental effects of experiential avoidance lies in the literal and evaluative functions of human language and cognition (Blackledge & Hayes, 2001). Given the bidirectional function of language, by which is meant that the functions of events are partially available in the representations of the event (Hayes, Wilson, Gifford, & Folette 1996), humans become motivated to avoid not only events associated with danger or other aversive consequences, but also the symbolic representations (thoughts, memories etc.) of such events. This results in an array of inner control and avoidance strategies which, when applied rigidly and inflexibly, leads to the excessive spending of effort and energy on managing and controlling private events, thus getting in the way of the pursuit of valued goals and reducing the individual's contact with the present moment at the cost of effective action and functioning (Hayes et al.,

1999). Additionally, the struggle to avoid or control private events paradoxically increases the frequency and associated distress of these events since the deliberate and usually verbal avoidance strategies involve the symbolic representation of the avoided event (Hayes et al., 1996). Acceptance on the other hand is often referred to as a willingness to experience aversive or unwanted private events while pursuing one's values and goals (Hayes et al., 1999). It should be noted that acceptance is only one of the processes or techniques that is included in ACT in order to counteract experiential avoidance and increase psychological flexibility (see below). The other processes are (Hayes, Luoma, Bond, Masuda, & Lillis, 2006): cognitive defusion, contact with the present moment, self as context, values and committed action. The goal of "cognitive defusion" is to teach the client to experience thoughts, sensations and memories for what they really are (i.e. thoughts as thoughts and memories as memories) and not what they often "advertise themselves" to be ("real" or "true" events linked to action or inaction). "Contact with the present moment" refers to interventions that try to reduce the extent to which the client lives in, and act upon thoughts about, a past that has once been or a future that has yet to be. The goal here is to increase the awareness of the present moment since this is seen as a prerequisite for effective action. The purpose of interventions related to "self as context" is to help the client to view the self as a place or context for psychological activities such as thoughts and emotions rather than something that is defined by or intimately linked to these thoughts and emotions. The goal is to create a distance between the person and the particular experiences in the present moment, as a way of promoting psychological flexibility. "Values" on the other hand refers to the clarification of what kind of behaviors that provide a sense of direction to the client, and the goal is to redirect attention from unworkable goals, such as "getting thoughts and feelings under control", to actions that truly define what the client wishes their life to stand for. These values are then put into action in the process "committed action", with the goal of helping the client to develop value driven behaviors that are progressively broader and more elaborate.

In recent years the emphasis on acceptance and experiential avoidance has shifted somewhat towards the broader concepts of psychological flexibility and psychological inflexibility (Bond, Hayes, Baer, et al., 2011). The definitions of psychological flexibility and psychological inflexibility however, are quite similar to those of experiential avoidance and acceptance.

Psychological flexibility is defined as “the ability to fully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending on what the situation affords, persisting in or changing behavior in the pursuit of goals and values” (Hayes et al., 2006). Psychological inflexibility on the other hand refers to a “rigid dominance of psychological reactions over chosen values and contingencies in guiding actions” (Bond et al., 2011), which often occurs when people attempt to avoid experiencing private events. In this view, acceptance and experiential avoidance are seen as examples of psychological flexibility and inflexibility, which are still appropriate to use, particularly in clinical contexts where the present moment contains thoughts and feelings that people might not wish to be in contact with (Bond et al., 2011), whereas psychological flexibility/inflexibility is mainly intended to broaden the applicability of the model to also include contexts where the avoidance of unwanted internal events are not the main focus (Bond et al., 2011), for example in job performance and sporting skills (Bond, Flaxman, & Bunce, 2008).

In other theoretical contexts, acceptance is defined somewhat differently. As an example, acceptance has received a somewhat different conceptualization within the field of coping research (Carver, Scheier, & Weintraub, 1989) and in a recent model of cognitively oriented emotion regulation strategies by Garnefski, Kraaij and Spinhoven (2001). In these contexts, acceptance refers to thoughts where you resign to what has happened, or to your emotional reactions, and accept them in the sense that you adopt a stance where you think that you cannot change them and that life must go on. Furthermore, acceptance is also a central component of the mindfulness concept, where acceptance might be conceptualized as a detached or observational standpoint in relation to thoughts and feelings without trying to change or evaluate them (Baer, 2003).

As can be seen from the above, the concept of acceptance might, just as cognitive restructuring, contain conceptual nuances or subcategories: (a) a willingness to experience aversive private events while pursuing value driven goals (Hayes et al., 1999), (b) a detached or observational standpoint in relation to thoughts and feelings without trying to change them (Baer, 2003), (c) a resignation to the facts of the situation or one’s current emotional state (Garnefski, et al., 2001) etc. Furthermore, it is still unclear whether the conceptual opposite of acceptance, experiential avoidance, should be regarded as a single overarching construct or a composite

construct with a number of different dimensions (Chawla & Ostafin, 2007). In addition to this, the conceptual boundaries between experiential avoidance and constructs such as reappraisal, thought suppression, thought control, distraction and response suppression are relatively unclear and, as seen above, these concepts are often described as examples or aspects of experiential avoidance.

Acceptance and emotion regulation

The concept of acceptance is somewhat difficult to incorporate into an emotion regulatory framework. The main reason for this is that the very idea behind acceptance, at least as conceptualized within ACT, is that it represents an attitude or stance where one refrains from attempts to affect, alter or regulate inner states (Blackledge & Hayes, 2001). In this context Boulanger, Hayes and Pistorello (2010) maintain that experiential avoidance/acceptance does not primarily refer to an emotion regulation *strategy*, but rather to an emotion regulation *function* of different strategies. By this is meant that, although specific emotion regulation strategies might be topographically different, they might all represent attempts to avoid or reduce the intensity or frequency of aversive emotions. Thus, following this line of reasoning, experiential avoidance can be conceptualized to be involved in all the main categories of emotion regulation strategies as specified in Gross' model (1998).

Despite this, there are other researchers (see for example Kollman, Brown, & Barlow, 2009) who claim that acceptance does function in similar ways to other emotion regulation strategies in that it influences the dynamics of the emotional process for example by affecting the duration, intensity and expression of emotion across several response systems. Hence, although acceptance differs from other regulatory strategies in that it refers to an absence of attempts to control the emotion generating process, it shares the important characteristic of other strategies that is an actionable response in relation to this process that has significant impacts on its occurrence and dynamics (Kollman et al., 2009). Indeed, from studies on acceptance within an emotion regulatory context, there are accumulating empirical evidence that acceptance does influence the emotional dynamics in a way that is comparable to other emotion regulation strategies (Campbell-Sills et al.,

2006a, 2006b; Eifert & Heffner, 2003; Feldner et al., 2003; Levitt et al., 2004; Hofmann et al., 2009; Szasz et al., 2011).

When conceptualized as an emotion regulation *strategy* within the framework established by Gross (1998) acceptance is most logically construed as a response focused strategy aimed at allowing the experience of emotion without attempts to alter or suppress it (Hofmann & Asmundson, 2008). Acceptance may also however be said to contain an antecedent focused cognitive change component regarding the acceptability of an emerging emotional experience (Liverant et al., 2008). In experimental research on the consequences of emotional acceptance (e.g. Campbell-Sills et al., 2006a, 2006b; Eifert & Heffner, 2003; Feldner et al., 2003; Levitt et al., 2004) it has been shown that acceptance is associated with experiencing less fear, catastrophic thoughts, avoidance behavior and better recovery from negative affect as compared to suppression. Interestingly, many of the experimental studies made on acceptance as an emotion regulation strategy indicate that, in comparison to people with low levels of emotional acceptance, people with high levels do not experience less physiological arousal or bodily sensations related to the elicited reaction, but they report lower levels of subjective distress (Eifert & Heffner, 2003; Feldner et al., 2003; Karekla, Forsyth, & Kelly, 2004). These findings indicate that acceptance is more related to how bodily arousal or other forms of physiological emotional responses are experienced and evaluated rather than how they actually occur, and thus support the supposition that acceptance is primarily a response focused strategy of emotion regulation.

Comparing Cognitive Restructuring and Acceptance

As seen in the above broad definitions of cognitive restructuring and acceptance, from an ACT perspective, the belief underlying traditional cognitive behavioral therapy that one must control, alter or respond to cognitive events (for example thoughts, self-talk, verbalizations, catastrophizing etc) runs the risk of maintaining an inner struggle with these thoughts (Hayes, 2008). Instead, in ACT, the focus is not on changing cognitive content, but rather to teach the client to distance him- or herself from the literal meaning and content of cognition. This process is called

cognitive defusion (Hayes et al., 1999) and the purpose is to expand behavior by helping the client to, without first changing the frequency or content of maladaptive cognitions, alter the social/verbal context so that the degree to which these cognitions regulate behavior is reduced.

On the other hand, it has been proposed (e.g. Arch & Craske, 2008) that cognitive restructuring and acceptance as therapeutic interventions might have more in common than what appears at first glance: in order to work with cognitive restructuring one has to state and deal with previously avoided or suppressed cognitive material and the processes employed in cognitive restructuring (monitoring, stating, and challenging cognitions) may function as a form of exposure to this aversive cognitive material. Furthermore cognitive restructuring helps the client view their cognitions not as undisputable facts but rather as hypotheses to be tested against logic and experiential evidence, thus sharing important aspects with the concept of cognitive defusion by creating a distance between the thinker and the contents of the thoughts and encouraging the client to get in contact with his or hers experiences in the present moment. In addition to this, just as cognitive restructuring might encourage thought suppression by labeling some thoughts as “negative”, “dysfunctional” or “faulty”, some of the methods employed to achieve acceptance of thoughts in ACT might inadvertently do the same by exercises that tells the clients to “let go” of their thoughts. This risk is particularly prominent if the client is instructed to “let go” of the thoughts that get in the way of living a valued life, where the process of making this distinction risks reactivating the notion of some thoughts as “good” and helpful and others as “bad” or unhelpful and in need of defusion in a way that may paradoxically reinforce thought avoidance or thought suppression (Arch & Craske, 2008).

The differences and similarities in an ACT and CBT approach to psychological treatment have also been discussed by Hofmann and Asmundson (2008). This article places the two treatment modalities within an emotion regulation context and concludes that both traditional CBT and ACT tries to teach the clients adaptive emotion regulation skills, but target different aspects of the emotion generating process. CBT, with its focus on cognitive change strategies, encourages antecedent focused emotion regulation, whereas the acceptance oriented strategies of ACT primarily counteract maladaptive response-focused emotion regulation. In addition, Hofmann and Asmundson (2008) try to refute the critique of cognitive

change strategies often voiced from an ACT perspective (see above), by emphasizing that cognitive restructuring does not aim at replacing “bad” cognitions with “good” cognitions, in a way that may encourage experiential avoidance. Rather, the goal of cognitive change processes in CBT is to get the client to re-examine and adopt a critical view of their predictions, perceptions and interpretations of critical situations and draw conclusions on the basis of this process.

Another difference between cognitive restructuring and acceptance when understood as processes related to CBT and ACT, pertains to the philosophical foundations of the underlying approaches in general and to the definition of cognition in particular. The philosophical foundation of ACT is functional contextualism (Gifford & Hayes, 1999), which emphasizes the functional relationships between behaviors and the environment in which these occur. In this context, a cognitive event is understood as a behavior like any other, albeit a private one that can only be directly observed by the person that is having the cognition (Hayes et al., 2006). From this perspective a cognitive event should thus be understood and treated according to its function in the particular context, and not as a causal factor that can explain subsequent emotions or behaviors. Traditional CBT on the other hand has a less clear philosophical foundation, but has been linked to critical rationalism (Hofmann & Asmundson, 2008), with its core assumption that “true” knowledge is gained from testing and attempting to falsify hypotheses. In relation to cognitions, in traditional CBT they are understood as thought processes that can be meaningfully distinguished from both emotions and overt behavior. Furthermore, given the emphasis on cognitive constructs as shaping our understanding and interactions with the world (Beck & Clark, 1999), CBT is also based on the assumption that behavioral and emotional responses are strongly influenced by our cognitions and perceptions of particular events (Beck & Clark, 1999). From this perspective, it follows that the modification of cognition is crucial in alleviating suffering and distress.

The philosophical differences referred to above regarding the understanding of cognition have interesting implications for predictions concerning the association between emotion regulation, emotional experience and behavior. As previously stated, from an ACT perspective, where cognitions are understood as private behaviors, thoughts and feelings are not seen as causing other behaviors, except when regulated to do so by the verbal

context (Hayes et al., 2006). Therefore, it is possible to shift focus from attempting to change thoughts or feelings in order to change overt behavior, to changing the context that causally links these psychological domains to each other (Hayes et al., 2006). In traditional CBT on the other hand, our cognitive representations of an event are seen as crucial in determining our emotional and behavioral reactions to this event. Using cognitive restructuring should then lead to other emotional and behavioral responses, and the causal chain from cognition, via emotional response to overt behavior is thus maintained.

Empirical comparisons of cognitive restructuring and acceptance in an emotion regulation context

In spite of the intense and clinically important discussion referred to above on the relative value of strategies or approaches related to acceptance and cognitive restructuring, there are surprisingly few direct empirical comparisons of the two approaches.

To our knowledge, only two previous studies have experimentally compared the effects of cognitive reappraisal and acceptance in an emotion regulation context. Hofmann et al. (2009) studied the effects on anxious arousal of using acceptance, reappraisal or suppression in a situation where the participants were asked to give an impromptu speech in front of a video camera. The results suggested that both reappraisal and acceptance strategies were more effective than suppression for moderating the physiological arousal while the reappraisal strategy was more effective for moderating subjective feelings of anxiety than attempts to suppress or accept the emotional experience. The authors of the study remarked however that the overall differences were small and that a more potent stimulus for emotion elicitation might have been used (Hofmann et al., 2009). Nevertheless, the study suggests that cognitive reappraisal generally was the most adaptive strategy in terms of reducing anxiety responses. Furthermore when it comes to acceptance, the study suggested an outcome pattern that somewhat contrasts with what has been found in other experimental studies of acceptance, in that the most obvious adaptive effect were found for the physiological outcome measure and not the subjective. The second study (Szasz et al., 2011) compared the effects of reappraisal, acceptance and

suppression on anger and frustration tolerance. In this study as well, reappraisal was found to have the most adaptive effects in that it led to lower self-reported anger and higher frustration tolerance than the other strategies.

Cognitive reappraisal and experiential avoidance have also been compared in a few studies of individual differences. Kashdan et al. (2006) assessed the relationship between experiential avoidance, cognitive reappraisal and measures of psychological well-being and psychopathology. In this study, they found that experiential avoidance was a stronger predictor of anxiety related symptoms and emotional distress than cognitive reappraisal, and that the relationships between cognitive reappraisal and daily functioning and positive and negative affect were fully mediated by experiential avoidance (Kashdan et al., 2006). In a recent meta-analysis Aldo, Nolen-Hoeksema & Schweizer (2010) examined the relationships between six emotion-regulation strategies (acceptance, avoidance, problem solving, reappraisal, rumination, and suppression) and symptoms of four psychopathologies (anxiety, depression, eating, and substance-related disorders). 241 effect sizes from 114 studies were combined, and the results showed a large effect size for rumination, medium to large for avoidance, problem solving and suppression, and small to medium for reappraisal and acceptance. In this context it should be noted however that the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004), that measures experiential avoidance, was coded as a measure of avoidance, while the measures coded as “acceptance” was derived from a coping measure (COPE; Carver et al., 1989) and the acceptance subscale of the Cognitive Emotion Regulation Questionnaire (CERQ, Garnefski et al., 2001), which, as previously noted, have a different definition of acceptance than the one used in contemporary acceptance-oriented therapies such as ACT. Furthermore, the results showed that, in general, the measures of maladaptive strategies were more strongly related to measures of pathology than measures of adaptive strategies. This finding may be relevant in relation to the results from the study by Kashdan et al. (2006) referred to above, since it might suggest that the comparison between cognitive reappraisal and experiential avoidance poses certain methodological difficulties, since the former is predicted to be adaptive and the latter is predicted to be maladaptive.

Another complication in relation to the studies of individual differences regarding acceptance and cognitive change strategies, is that the analyses employed are strictly variable based. The consequence of this is that the

modeling or descriptions cannot be readily translated or understood in terms of properties characterizing individuals, since the information provided by the statistical method focuses on variables and not individuals (Bergman & Magnusson, 1997). In the present context, the variable approach is valuable for example in performing analyses with the purpose of examining how different variables relate to each other and are distributed within and between samples in order to determine how the results relate to the theoretical constructs under examination. In contrast, person oriented research focuses on individuals or homogeneous subgroups of individuals. An important assumption behind this approach is that results and variable properties can differ across individuals and that this information is lost at the aggregate level of variables (von Eye, Bogat, & Rhodes, 2006). In relation to the topic under examination, the variable oriented analyses performed in the studies referred to above, tell us little of how strategies related to cognitive restructuring and acceptance are combined at the level of the individual. This issue is of theoretical importance since it bears on the question of whether the strategies for example are readily combined or contradictory by allowing the identification of homogenous subgroups of individual that share the same profile of scores on the variables.

General Purpose

As can be seen from the introduction above, the scientific and clinical discussions regarding processes and concepts related to cognitive restructuring and acceptance during the last decades have been lively and interesting and relate in a clear way to important aspects of models of psychopathology and psychological treatment. Given this, there are surprisingly few studies that empirically compare the two processes, or that, on an empirical basis, analyze how the two concepts relate to each other. The general aim of the present thesis was to further our understanding of cognitive restructuring and acceptance, both as concepts and as psychological processes related to emotion regulation. In doing this, concepts and processes related to cognitive restructuring and acceptance were examined in four different studies using different designs and methodologies in order to empirically test predictions from the theoretical background outlined in the introduction. The studies are presented in numerical order below, followed by a general discussion.

Study I: Cognitive Reappraisal and Acceptance: an experimental comparison from an emotion regulation perspective

Aims

The purpose of Study I was to experimentally compare the experiential and physiological consequences of cognitive reappraisal and acceptance as emotion regulation strategies with regard to aversive emotions elicited by

film-clips and how the different emotion regulation strategies influenced tendencies of behavioral avoidance. The study also sought to investigate whether individual differences in the habitual use of cognitive reappraisal and acceptance influenced the effects of the experimental instructions to use these strategies in regulating aversive emotions.

Method

Participants

94 persons were recruited via public posters and e-mail to students at the Blekinge School of Technology. In the sample as a whole, 48.9% ($N= 48$) were women and the average age was 27.4 years ($SD = 8.17$, range = 18 – 53). To be eligible for the study, potential participants had to be over 18 and fluent in Swedish.

Measures

Experienced emotions during the film-clips were measured using the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) after watching each film-clip. For the purpose of the present study two further items were added to the standard PANAS items: the adjectives “Sad” and “Disgusted”. These items were added since these emotions were to be elicited in the experiment but are not included in the standard PANAS. Factor analysis using principal component extraction and varimax rotation of this modified version of PANAS showed the intended two factor structure of positive and negative affect, with the two added items loading on the Negative Affect factor as predicted.

Habitual use of Acceptance was measured using the nine item version of the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) whereas habitual use of cognitive reappraisal was measured with the Reappraise subscale of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). To achieve a rudimentary assessment of behavioral avoidance tendencies, the participants were also, after watching each film-clip, asked to rate how reluctant they would be to view the same film-clip again on a five-point Likert scale (1; “not at all reluctant” and 5; “Very reluctant”).

A rationally derived measure was developed for use as experimental manipulation check. The measure was designed to assess participants’

understanding of the written instructions and consisted of four items: two describing an acceptance based approach to the coming film-clips and possible emotions and two describing a reappraisal approach. The participants were asked to rate to what extent they agreed with each statement on a 5 point Likert scale (1; “not at all” and 5 “Very much”). As a further manipulation check, following each film-clip the participants were to rate to what extent they had been able to follow the instructions on emotion regulation they received in the beginning of the experiment. The ratings were done on a 5 point Likert scale (1; “not at all” and 5 “Very much”).

Physiological measures of emotional reactivity were made with regard to the dimensions of valence and arousal. The valence dimension reflects the degree of pleasantness of an affective experience, whereas arousal refers to the activation level linked to the emotional experience. *Arousal* was measured using skin conductance level (SCL) and *Valence* was measured using facial electromyography (EMG), both being sensitive measures of emotional reactivity (Bradley, 2000; Bradley & Lang, 2000). EMG provides information on emotional expression via facial muscle activation, where aversive emotions are associated with high activity at the *Corrugator Supercilii* (brow muscle) regions (Lang, 1995).

Emotion Eliciting Stimuli

Film-clips were chosen as the emotional stimuli for the study since this kind of stimuli have been successfully used in previous studies to elicit emotion in the laboratory (e.g. Gross & Levenson, 1995; Kring & Gorden, 1998; Liverant et al, 2008) and do not rely on participants’ abilities to recall past experiences or imagine emotional scenes, thus allowing for consistency across participants. Participants were exposed to three brief film-clips intended to induce different emotions (fear, disgust and sadness) and one neutral film-clip to establish baseline measures. The length of the film-clips varied from 90 to 216 seconds.

Emotion Regulation Instructions

Participants were given written instruction as to how they were to regulate elicited emotions during the film-clips. Furthermore, the instructions for cognitive reappraisal and acceptance included a short rationale for using the strategy in order to increase the participants’ allegiance to the experimental instructions. In the acceptance condition participants were encouraged to

experience their emotions as fully as possible and to refrain from any efforts to control them whereas the participants in the reappraisal were encouraged to interpret potentially emotionally relevant stimuli in unemotional terms. The watch condition simply consisted of instructions to watch the film-clips carefully.

Design and Procedure

The participants were randomly assigned to the three conditions; “Reappraisal”, “Acceptance” or “Watch”. Prior to the experiment, participants were asked to fill out the questionnaires measuring habitual use of cognitive reappraisal and acceptance. Participants were informed that they would view a series of film-clips and following each film-clip they were to make ratings according to how they felt while watching the film-clip and how they would feel about watching the film-clip again. The participants were then given the experimental instruction, depending on what condition they were assigned to, and the manipulation check questionnaire was administered. During presentation, the neutral film-clip was always presented first in order to obtain a baseline measure, while the order of presentation for the emotionally evocative film-clips was randomized to avoid order effects.

Results

To test the hypotheses concerning group differences in self reported elicited emotions and physiological responses (skin conductance and *Corrugator* EMG), 3 (Film-clip) x 3 (Group) mixed models ANCOVAs were performed, one for each dependent variable. In all analyses scores at baseline were used as covariates. The α -level was Bonferroni corrected to adjust for the four omnibus tests performed in the study, rendering a critical α -level of .013. Significant omnibus between subjects effects of group were followed up using post-hoc Sheffé corrected pairwise comparisons.

The omnibus tests were significant for all variables. Compared to the control (watch) condition participants in both the reappraisal and acceptance conditions reported less subjective distress and showed lesser physiological responses. We found few significant differences however between participants in the acceptance and reappraisal condition on the measures of

subjective distress and physiological responses. Here we had expected reappraisal to have significantly larger effects than acceptance, but this hypothesis was supported only for one of the film-clips (Disgust).

Group differences in avoidance tendencies across the film-clips were examined using a 3 (Film-clip) x 3 (Group) mixed model ANOVA with avoidance score for each film-clip as repeated measure. Once again, the α -level was Bonferroni corrected to adjust for the four omnibus tests performed in the study, rendering a critical α -level of .013. The omnibus test revealed a significant between subjects effect of Group ($F(2, 91) = 38.00, p < .01, \eta^2 = .46$) and post-hoc Sheffé corrected pairwise comparisons for each film-clip revealed that the participants in the Watch condition reported significantly greater avoidance tendencies than participants in the reappraisal and acceptance conditions for all three film-clips (all p 's $< .05$). No significant differences in avoidance tendencies were found between participants in the reappraisal and acceptance conditions. Additionally, to test our hypothesis that participants in the acceptance condition would show a weaker connection between elicited subjective distress and avoidance than those in the cognitive reappraisal and watch conditions, bivariate correlations were computed between avoidance tendencies and change in negative emotion from baseline to emotion elicitation. The performed analysis revealed significant positive correlations between induced negative emotion and avoidance tendencies for each film-clip in the reappraisal and watch conditions, but for none of the film-clips in the acceptance condition. Using Fisher r -to- z transformation to test if the differences between the correlation coefficients in the acceptance and reappraisal conditions were significant, showed significant differences between the coefficients for all three film-clips (Disgust: $z = 4.35, p < .01$; Fear: $z = 2.14, p = .03$; Sadness: $z = 2.30, p = .02$).

To examine whether the participants' habitual use of acceptance and reappraisal based emotion regulation strategies influenced the impact of the experimental manipulation or in other ways had an effect on their performance in the experiment, the repeated measures ANOVAs were rerun using habitual use of cognitive reappraisal and habitual tendencies of experiential avoidance as covariates. These analyses did not change the results from the ANOVAs without covariates, indicating the effects of the experimental manipulation remained when controlling for individual differences. In the control group however the hypothesized relationships

between habitual use of acceptance/reappraisal and emotional reactions and avoidance were generally supported.

Discussion

The outcome pattern supported our hypotheses that both acceptance and reappraisal would be adaptive regulatory strategies in the given context when compared to the control condition. In contrast to our hypotheses however, we found few significant differences between participants in the acceptance and reappraisal conditions on the measures of subjective distress and physiological responses. This result suggests that acceptance and cognitive reappraisal both intervene early in the emotion generating process, resulting in a reduced aversive emotional response, and that acceptance is therefore at least in part an antecedent focused emotion regulation strategy. In fact, as has been previously suggested (Liverant et al. 2008), acceptance might be said to involve a reappraisal component, not of the stimulus that is eliciting the emotion but of the emotional response itself.

With regard to behavioral avoidance, our hypotheses were confirmed both in that cognitive reappraisal as well as acceptance led to significantly reduced behavioral avoidance (i.e. unwillingness to view the same film-clip again) in comparison to the control condition, and since there was a stronger association between elicited aversive emotion and avoidance in the reappraisal than in the acceptance condition. Thus, the results suggest that participants trying to reduce aversive emotion using reappraisal but failing to do so will be more likely to avoid, whereas those succeeding in using reappraisal to produce lower levels of elicited aversive emotion will be less likely to avoid. This is the pattern one would expect to find, displaying a significant correlation between the experience of aversive emotions and avoidance. Interestingly however this connection is significantly weakened (in fact reduced to zero) in the acceptance condition, where the results suggest that the participants using acceptance have a higher tolerance for aversive emotional experience thus being less likely to resort to avoidance when facing the possibility of future aversive emotions. This finding is consistent with how the concept of acceptance is framed within Acceptance and Commitment Therapy, where one of the aims of establishing acceptance of experiential content is to reduce the degree to which private events regulate behavior (Hayes, 2008). Furthermore, the findings support the

hypothesis that acceptance, when conceptualized as an emotion regulation strategy within the framework established by Gross (2007) and in addition to the antecedent focused aspects discussed previously, also has significant response focused aspects, in that it clearly affects how we behaviorally respond to the generated emotion. Thus, whereas reappraisal seems to be more exclusively antecedent focused, acceptance seems to include both antecedent- and response-focused elements.

A plausible interpretation of the findings in relation to the effects of the participants' habitual use of experiential avoidance and cognitive reappraisal, is that our habitual patterns of emotion regulation have an effect on how we react to emotional stimuli, with both cognitive reappraisal and acceptance being associated with less experienced aversive emotion and avoidance behavior but that, in the context of the performed experiment, the effects of the experimental manipulation were much stronger than the effects of the individual differences in emotion regulation. Additionally, this suggests that the experimental instructions were relatively easy to follow and use effectively in the present context.

There are important limitations of the study that should be noted. One limitation is that it is yet unclear how well the processes of reappraisal and acceptance as conceptualized in an experimental framework such as in this study represent the same processes used in emotion regulatory efforts in everyday life. We deliberately tried to formulate the instructions for reappraisal and acceptance so that they as closely as possible resembled the concepts as they are formulated in traditional CBT and ACT, but the experimental context in which the emotional experiences and regulatory efforts take place, deviates in important respects from everyday experiences. Despite this, the study expands the research on cognitive reappraisal and acceptance as emotion regulation strategies and provides several interesting findings on the similarities and differences of cognitive reappraisal and acceptance that are of interest to the theories underlying both traditional cognitive behavioral therapies and the so called third wave behavior therapies.

Study II: Experiential avoidance as an emotion regulatory function: an empirical analysis of experiential avoidance in relation to behavioral avoidance, cognitive reappraisal and response suppression

Aims

The purpose of the Study II was to empirically test predictions from the theoretical perspective that experiential avoidance in an emotion regulation context is best understood as an emotion regulatory function or underlying dimension of topographically distinct strategies (Boulanger et al, 2011). In doing this the study sought to examine whether the relationship between emotion regulation strategies intervening at different points in the emotion generating process and psychological well-being could be accounted for by differences in experiential avoidance. The strategies under investigation were behavioral avoidance, which is a form of situation selection, cognitive reappraisal, which is a cognitive change strategy, and suppression, which represents emotion regulation by response modulation. All these variables are known to be significantly associated with measures of psychological well-being and distress. On the assumption that experiential avoidance is best understood as an underlying functional dimension to the other strategies, we hypothesized that (1) behavioral avoidance, cognitive reappraisal and response suppression would statistically mediate the differences in measures of psychological well-being between a clinical and non clinical sample, but that (2) these effects would be reduced to non significant levels when controlling for differences in experiential avoidance, indicating that the effects of these strategies are not independent from the effect of experiential avoidance. Three aspects of psychological well-being were studied: positive emotionality, negative emotionality, and quality of life.

Method

Participants

Non-Clinical Sample

A non-clinical sample of 1500 individuals (aged 18-70) was drawn randomly from the SPAR register (the Swedish government's Person and Address Register), and were sent a letter with the questionnaire and a pre-stamped addressed return envelope. Of these, 638 individuals (364 women and 274 men, response rate 42%) filled out the entire questionnaire and returned it. The letter also included information regarding the study as well as the measures. Participation was anonymous and no information was stored that could identify a specific participant. In addition to the measures to be used in the study, the participants were asked to state their gender, age and level of highest completed education.

Clinical Sample

Participants in the clinical sample ($N = 172$) were volunteers recruited among patients currently in treatment in open psychiatric care in the county of Blekinge in Sweden. 350 booklets containing an information letter and all the measures were given to members of staff in open psychiatric care, who in turn administered them to clients they were in contact with. Of these 350 booklets, 172 were returned, rendering a response rate of 49%. Of the respondents, 63% were female and 37% were male. There were no formal exclusionary criteria to participate in the study and we had no means of controlling who were asked to participate and who volunteered, nor their diagnosis and type of treatment. The population from which the sample was drawn (patients attending open psychiatric care in Blekinge during 2011) however, are known to have the following characteristics: 43% are male, 57% are female and the most common diagnostic groups are anxiety disorders (15%), depressive disorders (14%), schizophrenia and other psychotic disorders (13%), personality disorders (9%), bipolar disorders (7%), neuropsychiatric disorders including mental retardations (7%), substance abuse (5%) and post traumatic stress disorder (5%).

Measures

The measures used in the study were the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004), the reappraisal and suppression subscales of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), and as well as the summated score of the two subscales of the Cognitive Behavioral Avoidance Scale measuring behavioral avoidance (CBAS, Ottenbreit & Dobson, 2004), the Positive and Negative Affect Scale (PANAS; Watson et al., 1988), and the World Health Organization Quality of Life assessment – brief version (WHOQOL-BREF; Skevington, Lotfy & O’Connell, 2004). All measures showed adequate internal consistency (Cronbach’s alphas: .71 – .92).

Data analysis

To test the hypotheses, a series of mediation analyses were performed. The analyses were conducted using the bootstrapping procedure test (with 5000 resamplings) for indirect effects suggested by Preacher and Hayes (2004, 2008) and performed using the macro for SPSS provided by Preacher and Hayes (2008). In the analyses where the clinical and non-clinical samples were compared, we controlled for the effects of age and highest level of completed education, since the two samples differed significantly on these variables. The mediation analyses were performed in two steps. First, the indirect effects of behavioral avoidance (CBAS-BA), cognitive reappraisal (ERQ-R) and response suppression (ERQ-S) when controlling for age and level of highest completed education were tested. In the second step, the same analyses were made, but this time also controlling for experiential avoidance.

Results

Comparisons of sample 1 and 2 on sociodemographic and clinical variables

Descriptive statistics on demographic and clinical variables for sample 1 and 2 are presented in Table 1. On the demographic variables, the samples differed significantly with regard to age ($t(808) = 4.54, p < .01$) and level of education ($\chi^2(2) = 11.4, p < .01$) but not with regard to gender ($\chi^2(1) = 1.54, p = .21$). With regard to positive and negative emotionality and quality of

life, the differences between the samples were significant and large for all variables (PANAS-N: $t(808) = 15.9, p < .01, d = 1.1$; PANAS-P: $t(808) = -17.1, p < .01, d = -1.2$; Total WHOQOL: $t(808) = 19.0, p < .01, d = 1.3$).

Table 1. Descriptive statistics for demographic and psychological variables.

Variable	Sample 1 ($N = 638$)	Sample 2 ($N = 172$)
	%	%
Gender *		
<i>Men</i>	43	37
<i>Women</i>	57	63
Highest education **		
<i>Elementary School</i>	18.4	26.3
<i>Gymnasium</i>	47.0	53.4
<i>University</i>	34.6	20.3
	<i>M (SD)</i>	<i>M (SD)</i>
Age **	43.5 (14.7)	37.8 (12.8)
Psychological variables		
Negative emotionality (<i>PANAS-N</i>) **	20.4 (7.6)	31.7 (7.8)
Positive emotionality (<i>PANAS-P</i>) **	35.2 (6.3)	26.1 (6.9)
Quality of Life (<i>WHOQOL</i>) **	98.0 (15.3)	72.9 (15.8)

* *ns* ** $p < .01$

Mediation analyses

As can be seen in Table 2, the outcomes differed substantially between the three variables measuring emotion regulation. For behavioral avoidance, the indirect effect remained significant for all criterion variables when controlling for experiential avoidance, which was contrary to the prediction from the perspective of experiential avoidance as an underlying functional dimension. For cognitive reappraisal the indirect effect was reduced to a non-significant level for negative emotionality, when controlling for experiential avoidance, but not for the other two criterion variables. In contrast, for response suppression, the indirect effects were reduced to non-significant levels for all criterion variables when controlling for experiential avoidance.

Table 2. Indirect effects of behavioral avoidance, cognitive reappraisal and response suppression as mediators of the association between clinical status and the criterion variables, with and without experiential avoidance as covariate.

Mediator	Negative emotionality		Positive emotionality		Quality of life	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
<i>Not controlling for experiential avoidance</i>						
Behavioral Avoidance	5.98*	.50	-5.41*	.44	-12.0*	1.03
Cognitive Reappraisal	.69*	.21	-1.12*	.23	-2.45*	.52
Response Suppression	.93*	.21	-1.04*	.23	-2.54*	.54
<i>Controlling for experiential avoidance</i>						
Behavioral Avoidance	1.45*	.28	-1.60*	..32	-2.49*	.55
Cognitive Reappraisal	.12	.09	-.43*	.14	-.79*	.53
Response Suppression	.001	.04	-.003	.11	-.007	.23

*Significant at $\alpha = .05$

Discussion

The specific hypotheses to be tested were (1) that behavioral avoidance, cognitive reappraisal and response suppression would statistically mediate the differences in measures of psychological well-being (negative emotionality, positive emotionality and quality of life) between a clinical and non clinical sample, but that (2) these indirect effects would be reduced to non significant levels when controlling for differences in experiential avoidance.

The results provide clear support for the first hypothesis with regard to all the studied strategies. In contrast to the second hypothesis however, the results showed significant differences in outcome patterns over the three

emotion regulation strategies. The response focused strategy “response suppression” showed the expected outcome on all criterion variables: the significant indirect effects of clinical status on the criterion variables through the measure of response suppression were reduced to non significant levels when controlling for experiential avoidance. For the cognitive change strategy “cognitive reappraisal”, the indirect effect was reduced to non-significance when controlling for experiential avoidance only for negative emotionality, but not for positive emotionality or quality of life. For the situation selection strategy “behavioral avoidance”, the indirect effects remained significant for all criterion variables when controlling for experiential avoidance. Thus, the hypothesis as a whole was not supported by the results of the study.

One way to interpret the results is that experiential avoidance does not differ from emotion regulation strategies in the sense suggested by the theory behind the concept. As previously stated, using experiential avoidance as a covariate in the mediation analyses serves the purpose of examining whether the effects of the studied strategies are independent from the effect of experiential avoidance. Following this line of reasoning, experiential avoidance should be more successful in accounting for the effects of strategies with which it is most similar in terms of how they relate to the effect of clinical status on the criterion variables. Given this, the outcome pattern rather seems to support a perspective where experiential avoidance is conceptualized as an approach to the emotion generating process that is primarily response focused (Hofmann & Asmundson, 2008), as seen in the fact that it seems most closely related to the response focused strategy of response modulation. Similarly, the finding that the indirect effects through the antecedent focused strategy of cognitive reappraisal were reduced to non significant levels only for negative emotionality could from this perspective be interpreted as supporting the suggestion that experiential avoidance/acceptance also contains an appraisal component related primarily to the acceptability of aversive emotional experiences (Liverant et al., 2008).

It should be noted that there are important limitations to the study that ought to be kept in mind when interpreting the results. First, the design is cross-sectional, which makes it impossible to determine causal relationships among the variables. The mediation analyses performed in the study therefore only refer to mediation in a statistical sense and not as a test of causal pathways. Second, the method of data collection is restricted to self

report measures that ask for general patterns over large time spans of emotion regulation, experiential avoidance and psychological well-being. The relationships among the variables might for example be different for shorter time spans (for example in a context of experimental manipulation), for other operationalizations of the constructs and for different modes of data acquisition.

Study III: Cognitive Restructuring and Acceptance: an empirically grounded conceptual analysis.

Aims

The purpose of the study was to empirically explore the constructs of cognitive restructuring and acceptance using well established measures of the respective constructs as a starting point in order (1) to determine what subcategories or conceptual nuances that could be empirically detected as well as (2) to examine these factors' relationship to each other and to dispositional positive and negative emotionality, quality of life and clinical status.

Method

Participants

The participants in Study III were the same as in Study II. For purpose of the planned analyses (see the *Data analysis* section) the non-clinical sample (Sample 1; $N = 638$) was randomly split into two samples of equal size (Sample 1A and Sample 1B; $N = 319$).

Measures

The measures used in the study were the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004), the reappraisal subscale of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), the Positive

and Negative Affect Scale (PANAS; Watson et al., 1988), and the World Health Organization Quality of Life assessment – brief version (WHOQOL-BREF; Skevington et al., 2004), all of which have been previously described (see the Measures sections of Study I and II). In addition to this we used the Cognitive Emotion Regulation Questionnaire (CERQ; Granefski et al., 2001). The CERQ is a multidimensional questionnaire constructed in order to identify the cognitive coping strategies someone uses after having experienced negative events or situations (Granefski et al., 2001). The CERQ consists of nine theoretically constructed subscales, five of which were included in the present study based on their conceptual relationship to acceptance and cognitive restructuring. The included scales were Positive Refocusing, Positive Reappraisal, Refocus on Planning, Putting into Perspective and Acceptance. All included subscales showed adequate levels of internal consistency (Cronbach's alphas: Acceptance = .74; Positive Refocusing = .84; Refocus on Planning = .78; Positive Reappraisal = .74; Putting into perspective = .80). The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), which is a 15-item questionnaire measuring people's general tendency to suppress thoughts and other cognitions, was also included in the study and was produced with adequate internal consistency (Cronbach's alpha = .92).

Data analysis

The data analysis proceeded through several steps. First, an exploratory factor analysis (EFA) using principal axis factoring and promax rotation was performed on Sample 1A. Promax rotation was used since the factors were expected to be correlated. Prior to running the analysis, parallel analysis (Thompson, 2004) was performed to determine the number of factors to extract. The factor analysis was performed at item level. Factor scores were then computed for each participant in the sample by summing the scores of the items in the factor. To identify higher order factors, another factor analysis using principal axis factoring and promax rotation was performed on the factor scores. After this, and still using only data from Sample 1A, stepwise multiple regressions were performed with the first order factor scores as predictor variables and Negative emotionality (PANAS-N), Positive emotionality (PANAS-P) and Quality of life (WHO-QOL) as criterion variables in three separate analyses.

After these exploratory analyses, the factor structure identified in Sample 1A was tested in two confirmatory factor analyses using AMOS® for SPSS®. One CFA was performed on Sample 1B (the other half of the initial non-clinical sample) and another on Sample 2 (the clinical sample), in order to see if the factor structure generalized to these samples. Two different fit indices were used (CFI and RMSEA) to determine goodness of fit. Furthermore, as suggested by Tabachnick and Fidell (2007), the regression equations identified in Sample 1A were validated against both Sample 1B and Sample 2 by using them to compute predicted scores on the three criterion variables for each participant in these samples, correlating them to the actual scores and see if similar levels of R^2 were achieved as in the original sample (Sample 1A).

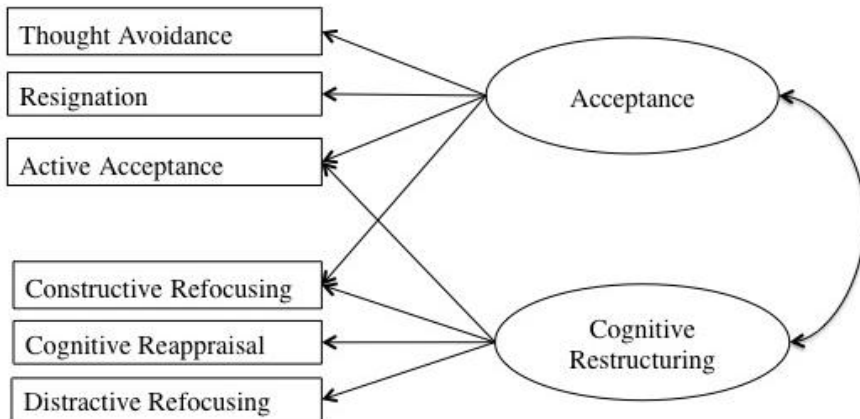
In a final analysis, the factor scores of the non-clinical sample as a whole ($N = 638$) and the clinical sample ($N = 172$) were compared using MANOVA with Bonferroni corrected post-hoc comparisons. To control for the possibility that the differences between the samples simply reflected differences in psychological well-being, PANAS-N was used as covariate in the analysis. Age and level of education were also entered as covariates since the samples differed significantly on these variables.

Results

Parallel analysis indicated that only the first six factors in the actual data exceeded the corresponding eigenvalues in a random score matrix of the same rank. Hence, six factors were extracted in the subsequent EFA. The six factors had eigenvalues of 12.24, 6.48, 2.34, 2.16, 1.77 and 1.45 and accounted for 24.48%, 12.96%, 4.68%, 4.32%, 3.54% and 2.89% of the variance respectively. Overall, the extracted factors accounted for 52.9% of the variance. Items that loaded at least .40 on one factor were assigned to a specific factor based on their highest loading. The resulting factors were named according to the content of the items resulting in the following six factors: Factor 1 = Thought Avoidance, Factor 2 = Constructive Refocusing, Factor 3 = Cognitive Reappraisal, Factor 4 = Distractive Refocusing, Factor 5 = Active Acceptance and Factor 6 = Resignation. Correlations among the six factors ranged from -.083 to .64 (mean $r = .34$), implying the presence of higher order factors. The second order factor analysis (principal axis factoring with promax rotation) yielded two factors with eigenvalues greater

than 1 that together accounted for 69% of the variance. The first order factors were assigned to the higher-order factors according to highest factor loading and the higher order factors were named based on the content of the factors assigned to them. Accordingly, Factor 1 was named Acceptance and Factor 2 was named Cognitive Restructuring. The analysis resulted in the model displayed in Figure 2. It should be noted that two of the first order factors, Constructive Refocusing and Active Acceptance, were allowed to load on both of the higher order factors. This decision was partly based on the results from the second order factor analysis, where both these factors had factor loadings exceeding .40 on both of the higher order factors, but also since it seems theoretically justifiable (see Discussion section).

Figure 2. Model of identified factor structure.



To test the factor structure produced by the EFA on Sample 1A, two confirmatory factor analyses were performed; one on Sample 1B (the second half of the randomly split non-clinical sample) and another on Sample 2 (the clinical sample). The model to be tested is presented in Figure 2. For Sample 1A, the CFA indicated a good fit ($\chi^2(6) = 7.75$, $CFI = .99$, $RMSEA = .03$). This was also the case for Sample 2 ($\chi^2(6) = 8.25$, $CFI = .99$, $RMSEA = .07$). When comparing model fit across the two groups, constraining measurement weights did not significantly reduce model fit compared to the unconstrained model ($\chi^2_{diff} = 2.26$, $\Delta df = 6$, $p = .89$) and constraining structural covariances did not reduce model fit when compared to the model

with constrained measurement weights ($\chi^2_{\text{diff}} = 1.16$, $\Delta df = 3$, $p = .76$), thus indicating that the model fitted equally well in the two samples.

To determine the identified factors' relationships to negative emotionality, positive emotionality and quality of life, stepwise multiple regressions were performed on Sample 1A with scores on the six factors as predictor variables and scores on PANAS-N, PANAS-P and WHO-QOL (total score) as criterion variable in three separate analyses. The α -level in the t-tests for variable selection in three regression analyses was Bonferroni adjusted (critical $\alpha = .05/6 = .0083$) to control for increased Type-I error rate due to multiple comparisons (Mundfrom, Perett, Schaffer, Piccone & Roozeboom, 2001). The analyses indicated that positive emotionality (as measured by PANAS-P) was best predicted by the factors Constructive Refocusing (std $\beta = .34$, $\Delta R^2 = .32$, $p < .01$), Resignation (std $\beta = -.28$, $\Delta R^2 = .16$, $p < .01$), Thought Avoidance (std $\beta = -.23$, $\Delta R^2 = .03$, $p < .01$) and Cognitive Reappraisal (std $\beta = .13$, $\Delta R^2 = .01$, $p < .01$). Negative emotionality (as measured with PANAS-N) was best predicted by the factors Thought Avoidance (std $\beta = .32$, $\Delta R^2 = .46$, $p < .01$), Resignation (std $\beta = .32$, $\Delta R^2 = .08$, $p < .01$), Active Acceptance (std $\beta = -.19$, $\Delta R^2 = .04$, $p < .01$) and Constructive Refocusing (std $\beta = -.12$, $\Delta R^2 = .01$, $p < .01$). Quality of life (as measured by WHO-QOL) was best predicted by the factors Thought Avoidance (std $\beta = -.29$, $\Delta R^2 = .42$, $p < .01$), Resignation (std $\beta = -.28$, $\Delta R^2 = .10$, $p < .01$), Active Acceptance (std $\beta = .21$, $\Delta R^2 = .06$, $p < .01$), Constructive Refocusing (std $\beta = .16$, $\Delta R^2 = .03$, $p < .01$) and Cognitive Reappraisal (std $\beta = .14$, $\Delta R^2 = .01$, $p < .01$).

The regression equations achieved in the stepwise multiple regression analyses on Sample 1A were then cross-validated on Sample 1B and Sample 2 respectively, to see if the equations were valid in these samples as well. The results from these analyses are presented in Table 3. In sum, the analyses indicate that the regression equations arrived at in Sample 1A had the same predictive ability when applied to both the other samples.

Table 3. Explained variance for the multiple regression equations identified in Sample 1A across the three samples.

Measure	Sample 1A <i>N</i> = 319	Sample 1B <i>N</i> = 319	Sample 2 <i>N</i> = 172
R^2 PANAS-N	.60	.59	.57
R^2 PANAS-P	.52	.53	.53
R^2 WHOQOL	.62	.61	.56

Average scores on the six factors for the clinical and non-clinical sample were compared using MANOVA with Bonferroni corrected pairwise comparisons. To control for the possibility that the differences between the samples simply reflected differences in psychological well-being, PANAS-N was used as covariate in the analysis. Age and level of education were also entered as covariates since the samples differed significantly on these variables. Means, standard deviations and effect sizes are presented in Table 4. The omnibus test showed a significant multivariate effect of Group ($F(6, 800) = 11.88, p < .01, partial \eta^2 = .08$). The Bonferroni corrected pairwise comparisons (critical $\alpha = .008$) revealed significant differences between the samples on five of the six factors (Thought Avoidance: $F(1, 805) = 14.2, p < .01$; Active Acceptance: $F(1, 805) = 37.8, p < .01$; Resignation: $F(1, 805) = 25.3, p < .01$; Constructive Refocusing: $F(1, 805) = 11.2, p < .01$; Cognitive Reappraisal: $F(1, 805) = 15.2, p < .01$). The difference in scores on Distractive Refocusing however, was not significant at the adjusted α -level ($F(1, 805) = 4.1, p = .04$).

Table 4. Comparison of factor scores in the non-clinical (Sample 1) and clinical (Sample 2) sample.

Factor	Sample 1 (<i>N</i> = 638)	Sample 2 (<i>N</i> = 172)	<i>d</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Thought Avoidance	49.9 (15.1)	67.1 (15.3)	- 1.1
Constructive Refocusing	33.5 (9.0)	26.2 (9.2)	.80
Cognitive Reappraisal	25.8 (7.2)	21.3 (7.4)	.62
Resignation	8.9 (3.0)	12.8 (3.4)	- 1.2
Active Acceptance	18.5 (4.1)	13.4 (4.4)	1.2
Distractive Refocusing	14.1 (4.2)	12.4 (4.1)	.41

Discussion

In our data six separate though correlated factors related to cognitive restructuring and acceptance could be identified. The higher order factor of acceptance was related to the factors Active Acceptance, Thought Avoidance and Resignation. Analyzing item content suggests that “Thought Avoidance” refers to active efforts to avoid and suppress aversive cognitive material, “Active Acceptance” represents a combination of experiential acceptance and behavioral flexibility in the face of aversive emotions whereas “Resignation” refers to passively accepting a situation or an aversive emotional state combined with an experience of not having the ability to do anything about it. These findings can be related to some of the different conceptualizations of acceptance in the literature, where, on the one hand, acceptance in the context of Acceptance and Commitment Therapy is defined as an active stance of willingness to experience thoughts, emotions and bodily sensations while engaging in goal directed behavior (Hayes et al., 1999) and, on the other hand, some emotion regulation research that define acceptance more in terms of neutral observation (Hofmann et al., 2009), or even resignation (Garnefski et al., 2001). An interesting finding was that the Active Acceptance factor also loaded significantly on the higher order factor of Cognitive Restructuring. One way to understand this is that Active Acceptance also contains a significant element of reappraisal, where what is being reappraised is not the emotion eliciting stimulus or situation, but rather the emotional reaction in itself. This aspect of acceptance has been suggested in previous research (Hofmann & Asmundson, 2008; Liverant et al., 2008) and the findings from the present study might be interpreted as supporting this suggestion.

When it comes to cognitive restructuring, three first order factors could be identified: Constructive Refocusing, Cognitive Reappraisal and Distractive Refocusing. The factor “Cognitive Reappraisal” represents the concept of reappraisal as used within traditional CBT, i.e. changing emotional reactions by changing our appraisals of the emotion eliciting stimulus or situation (Beck et al., 1979). “Distractive Refocusing” represents strategies aimed at trying to think about something else, preferably something positive, entailing an unwillingness to remain in cognitive contact with the emotion eliciting stimulus or situation rather than to think differently about it. Finally, the factor “Constructive Refocusing” refers to attempts to change not how we

interpret the topography of the situation (i.e. how we interpret the factual characteristics of the events) but rather to reframe or reinterpret the function or consequence of the situation (e.g. what our behavioral options are given what has happened, what we can learn from the situation etc). This stance towards experiences can be seen as having important aspects in common with acceptance in that there is an underlying willingness to experience the situation such as it is while remaining flexible in what function the situation and its consequences will serve for future overt and private events. The fact that this factor also loads onto the higher order factor of acceptance can thus be theoretically understood and justified.

The general pattern that emerges from the performed regression analyses in our data is that, though their internal order varies for the three criterion variables, the three factors primarily related to acceptance (either positively or negatively) and Constructive Refocusing are among the strongest predictors for all criterion variables. Once again, it should be noted that Constructive Refocusing, though loading highest on cognitive restructuring, also is related to acceptance in our model. Additionally, in our data, Cognitive Reappraisal is a significant predictor for positive emotionality and quality of life, indicating that this construct is more strongly related to psychological well-being than to negative emotionality.

When comparing the clinical and non-clinical samples on the average factor scores while controlling for negative emotionality, significant differences were found for all factors except Distractive Refocusing, in many cases with large effect sizes, indicating that they measure constructs of clinical importance. Furthermore, the differences between the clinical and non-clinical samples were largest for the factors related to acceptance (Active Acceptance, Thought Avoidance and Resignation).

In relation to the ongoing discussion in clinical psychology regarding the concepts related to traditional CBT and ACT (e.g. Arch & Craske, 2008; Hayes, 2008; Kollman et al., 2009; Heimberg & Ritter, 2008; Hofmann & Asmundson, 2008) it should be noted that the present study by no means is a valid comparison of acceptance and cognitive restructuring as therapeutic processes or interventions. Instead the present study sought to increase our understanding of the constructs of acceptance and cognitive restructuring as emotion regulation strategies based on self-reported individual differences in their habitual use. In this respect, the findings indicate that acceptance and

cognitive restructuring should not be regarded as unitary and non-related constructs, but rather as partly overlapping general dimensions of emotion regulation consisting of several sub constructs or conceptual nuances with somewhat different psychological functions and properties. The concern from an ACT perspective that strategies focusing on changing cognitive content might maintain a debilitating internal struggle with these cognitions and their related emotions (Hayes, 2008) receives no support from the findings from the present study, since the factors related to cognitive restructuring do not load negatively on the acceptance factor and since both cognitive reappraisal and, in particular, constructive refocusing relates positively to positive emotionality and quality of life and negatively to negative emotionality. The strong relationship between the variables related to acceptance and the criterion variables on the other hand, supports the suggestion that processes related to experiential avoidance and acceptance are of central importance to psychological well-being and functioning (Hayes et al., 2004). Additionally, the factor Constructive Refocusing seems to be closely related to the conceptualization of cognitive restructuring presented by Arch and Craske (2008) in that it enables the individual to remain in contact with the present moment and aversive inner states while remaining flexible in how to interpret and act on them.

Furthermore, the factor “Distractive Refocusing” seems to be the factor with the weakest relationship to the criterion variables (positive and negative emotionality and quality of life) and clinical status: It was not a significant predictor in any of the regression equations and the difference between the clinical and non-clinical sample was non-significant when controlling for scores on negative emotionality. This is interesting in view of the ambiguous status of distraction strategies within cognitive behavioral therapies, where distraction in some protocols, for example in Dialectic Behavior Therapy (Linehan, 1993), are taught as valid strategies for regulating aversive emotions in certain situations while they in other protocols are seen as counter-productive (e.g. Craske & Barlow, 2008).

Finally, we would like to point out that there are limitations to the present study that should be kept in mind when interpreting the results. Firstly, the design is cross-sectional, which makes it impossible to determine causal relationships among the variables. In future research it would be interesting to use a longitudinal design to see if scores on the emotion regulation factors predict future psychological well-being when controlling for initial

differences. Furthermore, the factor structure found and validated in our samples should be tested in other populations in order to further establish its validity. The same goes for the relationship between the factors and our criterion variables as found in the regression analyses. In addition to this, all data in the study comes from self-report measures, thus running the risk of being subject to mono method bias (Cook, Shadish & Campbell, 2001), which threatens the validity of the results. It should also be noted that the method employed makes the results dependent on which measures we chose to include in the study. This selection was based on the present literature on acceptance and cognitive restructuring and we chose to include well-established and frequently employed measures, but none the less, a different selection would yield different results.

Study IV: Patterns of Acceptance and Cognitive Restructuring: a person oriented approach.

Aims

The purpose of the study was to use a person oriented approach to further explore the concepts related to acceptance and cognitive restructuring, in order to examine how these emotion regulation strategies are combined at the level of the individual and how homogenous subgroups of individuals characterized by specific patterns or profiles of such strategies differ in terms of positive emotionality, negative emotionality, quality of life and clinical status. Based on the theoretical discussion summarized above, several hypotheses were examined: First, with regard to acceptance and cognitive restructuring being seen as two distinct but compatible categories of emotion regulation (Asmundson & Hofmann, 2008; Wolgast et al., 2012), we expected to find (1a) one cluster of individuals who score generally high on Acceptance but not on Cognitive Restructuring, (1b) another cluster of individuals who score generally high on Cognitive Restructuring but not on Acceptance, and (1c) a third cluster with high scores on both Cognitive Restructuring and Acceptance. As to their association with psychological well-being (positive and negative affect, quality of life, and clinical status), different theoretical perspectives would predict different results: If

acceptance and cognitive change strategies represent strategies with considerable similarities that achieve similar outcomes (e.g., Arch & Craske, 2008), it would be expected (1d) that all these clusters should be equally positively associated with psychological well-being and be overrepresented in the non-clinical sample. On the other hand, if acceptance and cognitive restructuring are different but compatible forms of emotion regulation intervening at different points in the emotion generating process (e.g., Hofmann & Asmundson, 2008), the effects of these two strategies may be expected to add or interact positively so that (1e) the cluster of individuals who score high on both Acceptance and Cognitive Restructuring would score higher on measures of psychological well-being than those who score high on only one of these strategies. Alternatively, from an ACT perspective (Blackledge & Hayes, 2001; Boulanger, Hayes, & Pistorello, 2010), if acceptance is an underlying functional dimension that is basic to all adaptive strategies of emotion regulation, it would be expected (1f) that the clusters who score generally high on Acceptance will be most positively associated with psychological well-being and clinical status, regardless of their scores on Cognitive Restructuring.

Second, at the other end of the scale, we might similarly expect to find (2a) one cluster of individuals who score generally low on Acceptance but not on Cognitive Restructuring, (2b) another cluster of individuals who score generally low on Cognitive Restructuring but not on Acceptance, and (2c) a third cluster with low scores on both Cognitive restructuring and Acceptance. Again, different theoretical perspectives would predict different results in relation to the criterion variables: If both acceptance and cognitive change strategies are adaptive and additive strategies, it would be expected (2d) that a cluster with low scores on both Acceptance and Cognitive Restructuring would be worst off in terms of psychological well-being and would be overrepresented in the clinical sample. From an ACT perspective, however, it would be expected (2e) that clusters of individuals who score generally low on Acceptance will be worst off, whether they score low on Cognitive Restructuring or not.

Third, with regard to the subfactors, the strategy of Distractive Refocusing may be focused for two reasons: In Study III, it was the factor with the weakest relationship to psychological well-being. At the same time, distraction as an emotion regulation strategy has an ambiguous status within cognitive behavioral therapies, where it is taught as a useful strategy in some

protocols (e.g., Dialectic Behavior Therapy; Linehan, 1993), but seen as counter-productive in others (e.g. Craske & Barlow, 2008). As suggested in our previous study (Wolgast et al., 2012), one possible interpretation of these findings is that the adaptiveness of Distractive Refocusing is highly context dependent, which might lead to small effects when measured as a variable averaged over different contexts. Another possibility, however, is that Distractive Refocusing simply represents an emotion regulation strategy that neither is particularly effective nor maladaptive. If the adaptiveness of Distractive Refocusing is context-dependent, however, we should expect to find (3a) that high scores on Distractive Refocusing appear in various constellations in different clusters of individuals, and that these clusters show different associations with psychological well-being. More specifically, from an ACT-related perspective (e.g. Boulanger et al., 2010) it would be expected that (3b) if there is a cluster which combines high scores on Distractive Refocusing with *high* scores on Acceptance, this cluster would be positively associated with psychological well-being and would be overrepresented in the non-clinical sample, whereas (3d) if there is a cluster which combines high scores of Distractive Refocusing with *low* scores on Acceptance, this cluster would be negatively associated with psychological well-being and would be overrepresented in the clinical sample.

Method

Participants

The participants of the study were the same as in Study II and III.

Measures

To assess different emotion regulation strategies related to cognitive restructuring and acceptance, we used the participants' scores on scales based on the factors identified in Study III. All the scales showed adequate levels of internal consistency (Cronbach's alphas: Thought Avoidance: .92, Active Acceptance: .75, Resignation: .73, Cognitive Reappraisal: .84, Distractive Refocusing: .79, Constructive Refocusing: .87). As in Study II and III, psychological well-being was assessed using PANAS-N, PANAS-P and WHOQOL-BREF (see method section of Study II for further detail).

Cluster analysis

The individual participants were grouped into clusters on the basis of their individual profiles of scores on the six scales related to acceptance and cognitive restructuring. This was done according to the LICUR procedure suggested by Bergman (1998) and using the statistical package for pattern-oriented analyses SLEIPNER 2.1 (Bergman & El-Khoury, 2002). In a first step, the data were searched for multivariate outliers and 1 outlier was identified and removed from further analyses. Secondly, clusters were formed using Ward's hierarchical clustering method, which is a stepwise procedure that starts by considering each individual as a separate cluster and then merges the two clusters that results in the smallest increase in the overall error sum of squares in each subsequent step. In order to determine the optimal cluster solution we used the criteria suggested by Bergman (1998): (1) Theoretical meaningfulness of the cluster solution; (2) if a distinct reduction in the explained variance occurs when moving from one step to another, this may indicate that two not so similar clusters have been merged and that the resulting cluster solution is not optimal; (3) the number of clusters should not be expected to be less than five nor to exceed 15; (4) the size of the explained variance for the chosen cluster solution should at the very least exceed 50%, and preferably exceed 67%. Additionally, the homogeneity coefficient of each cluster should preferably be <1.0 . In a third step, a data simulation using Monte Carlo procedure with 20 resamplings was performed to test if the explained variance for the identified cluster solution significantly exceeded what would be expected from a random data set with the same general properties as the "real" data set. In a final step, in order to improve the homogeneity of the clusters and increase the proportion of explained variance, a non-hierarchical relocation procedure was performed (Bergman, 1998), in which individuals were moved between clusters in order to find the optimal solution.

Results

Cluster analysis

Applying the criteria suggested by Bergman (1998) resulted in the choice of a 9 cluster solution, which explained 59.9% of the variance, whereas the 8 cluster solution would have resulted in a drop in explained variance to

57.1%. The data simulation reliably showed that the explained variance for the chosen cluster solution was significantly higher than what would be expected by chance ($p < .01$). After this, the relocation procedure was performed, resulting in a final nine cluster solution which explained 62.6% of the variance and where all the clusters except one had homogeneity coefficients of <1.0 (Cluster 5 had a homogeneity coefficient of 1.08). Table 5 shows the z -scores on each factor for each cluster as well for the whole group.

Table 5. Z -scores for the nine clusters on the studied emotion regulation variables.

Cluster	<i>N</i>	Thought Avoidance <i>Z</i>	Active Acceptance <i>Z</i>	Resignation <i>Z</i>	Constructive Refocusing <i>Z</i>	Cognitive Reappraisal <i>Z</i>	Distractive Refocusing <i>Z</i>
1	104	-1.2	.88	-.89	-.13	-.77	-.77
2	108	-.84	.77	-.77	1.2	1.2	.30
3	62	.87	-.26	.11	.51	.56	1.4
4	83	-.45	-.72	-.69	-.43	-.17	.19
5	94	-.48	.94	.03	.63	.32	1.4
6	48	1.4	-.68	1.8	-.32	.36	-.05
7	87	1.2	-1.5	1.4	-1.1	-1.2	-1.0
8	112	.15	.32	-.20	.42	.43	-.40
9	111	.52	-.51	.37	-.98	-.47	-.49

□

In relation to the hypotheses regarding the subgroups that would be identified, the results from the performed analysis largely supported our hypotheses: Cluster 1 was characterized by high scores on Acceptance but not on Cognitive Restructuring, which support hypothesis 1a, whereas cluster 2 was defined by high scores on both Acceptance and Cognitive Restructuring (except for Distractive Refocusing), thus supporting hypothesis 1c. Hypothesis 1b stated that there would be a cluster characterized by high scores on Cognitive Restructuring but not on Acceptance. The closest approximation to this pattern was found in cluster 3, though it should be noted that the cluster is primarily characterized by high scores on Distractive Refocusing. Additionally, hypotheses 2a, 2b, and 2c were also supported. Hypothesis 2a stated that there would be a cluster characterized by low scores on Acceptance but not on Cognitive Restructuring, which was supported by Cluster 6. Hypothesis 2b on the other

hand predicted that there would be a cluster characterized by low scores on Cognitive Restructuring but not on Acceptance. This pattern was found in Cluster 1 (with exception for Constructive Refocusing where the individuals in this cluster scored close to average). Furthermore, hypothesis 2c stated that there would be a cluster defined by low scores on both Acceptance and Cognitive Restructuring, which was supported by the profile in Cluster 7.

Finally, hypothesis 3a stated that high scores on the scale Distractive Refocusing would appear in different constellations across the clusters. This prediction was supported mainly by the identification of Cluster 5 (where high scores on Distractive Refocusing were with combined high scores on Active Acceptance) and Cluster 3 (where high scores on Distractive Refocusing were combined with low scores on Acceptance, primarily in the form of high Thought Avoidance).

Comparisons between the clusters on positive emotionality, negative emotionality and quality of life.

Three Bonferroni corrected (critical α 's = .017) ANOVAS were performed with the nine clusters as independent variables and scores on PANAS-N, PANAS-P and WHOQOL as dependent variable in the separate analyses. To control for observed differences between the clusters with regard to age and level of highest completed education, these variables were entered as covariates in the analyses. Means and standard deviations on the criterion variables for each cluster are presented, in descending order according to the mean score of the clusters, in Tables 6 – 8 (one table for each criterion variable). The omnibus tests showed that there were significant differences between the clusters on all three variables (PANAS-P: $F(8, 798) = 85.1, p < .01$, partial $\eta^2 = .46$; PANAS-N: $F(8, 798) = 116.9, p < .01$, partial $\eta^2 = .54$; WHOQOL: $F(8, 798) = 110.7, p < .01$, partial $\eta^2 = .53$). Sidak-corrected post hoc comparisons were performed to examine the significance of the differences between the clusters on each dependent variable. The results from these analyses are presented in Tables 6 – 8.

Table 6. Comparisons between the clusters on the PANAS-P

Cluster	<i>N</i>	PANAS-P <i>M (SD)</i>	Significant differences (Sidak, $\alpha = .05$)
2. Generally High Acceptance + High Cognitive Restructuring (except Distractive Refocusing)	108	39.4 (3.8)	> Clusters 4, 8, 3, 6, 9, 7
1. Generally High Acceptance + Low Cognitive Restructuring (except Constructive Refocusing)	104	37.7 (4.4)	> Clusters 8, 3, 6, 9, 7
5. High Distractive Refocusing + High Active Acceptance	94	37.1 (5.2)	> Clusters 3, 6, 9, 7
4. Low Active Acceptance + Low Resignation	83	35.2 (5.4)	> Clusters 6, 9, 7
8. Average profile (neither high nor low on any factor)	112	34.5 (6.6)	> Clusters 6, 9, 7
3. High Distractive Refocusing + High Thought Avoidance	62	33.4 (6.4)	> Clusters 6, 9, 7
6. Generally Low Acceptance + Average Cognitive Restructuring	48	28.6 (6.8)	> Cluster 7
9. Low Constructive Refocusing	111	27.8 (5.9)	> Cluster 7
7. Generally Low Acceptance + Generally Low Cognitive Restructuring	87	22.6 (6.2)	
All	809	33.3 (7.7)	

“High”: $z > .70$; “Low”: $z < -.70$.

Table 7. Comparisons between the clusters on the PANAS-N

Cluster	<i>N</i>	PANAS-N <i>M (SD)</i>	Significant differences (Sidak, $\alpha = .05$)
7. Generally Low Acceptance + Generally Low Cognitive Restructuring	87	35.8 (6.1)	> Clusters 9, 3, 8, 4, 5, 1, 2
6. Generally Low Acceptance + Average Cognitive Restructuring	48	34.9 (7.5)	> Clusters 9, 3, 8, 4, 5, 1, 2
9. Low Constructive Refocusing	111	26.6 (6.2)	> Clusters 8, 4, 5, 1, 2
3. High Distractive Refocusing + High Thought Avoidance	62	25.1 (8.7)	> Clusters 8, 4, 5, 1, 2
8. Average profile (neither high nor low on any factor)	112	20.1 (6.0)	> Clusters 1, 2
4. Low Active Acceptance + Low Resignation	83	19.8 (5.4)	> Clusters 1, 2
5. High Distractive Refocusing + High Active Acceptance	94	19.1 (5.3)	> Clusters 1, 2
1. Generally High Acceptance + Low Cognitive Restructuring (except Constructive Refocusing)	104	16.4 (5.0)	
2. Generally High Acceptance + High Cognitive Restructuring (except Distractive Refocusing)	108	16.2 (5.0)	
All	809	22.8 (8.9)	

“High”: $z > .70$; “Low”: $z < -.70$.

Table 8. Comparisons between the clusters on the WHOQOL

Cluster	<i>N</i>	WHOQOL <i>M (SD)</i>	Significant differences (Sidak, $\alpha = .05$)
2. Generally High Acceptance + High Cognitive Restructuring (except Distractive Refocusing)	108	107.2 (9.1)	> Clusters 5, 8, 4, 3, 9, 6, 7
1. Generally High Acceptance + Low Cognitive Restructuring (except Constructive Refocusing)	104	106.2 (9.7)	> Clusters 8, 4, 3, 9, 6, 7
5. High Distractive Refocusing + High Active Acceptance	94	101.7 (14.0)	> Clusters 3, 9, 6, 7
8. Average profile (neither high nor low on any factor)	112	98.0 (13.1)	> Clusters 3, 9, 6, 7
4. Low Active Acceptance + Low Resignation	83	96.4 (16.1)	> Clusters 9, 6, 7
3. High Distractive Refocusing + High Thought Avoidance	62	91.1 (15.9)	> Clusters 9, 6, 7
9. Low Constructive Refocusing	111	79.8 (12.6)	> Clusters 6, 7
6. Generally Low Acceptance + Average Cognitive Restructuring	48	72.0 (15.1)	
7. Generally Low Acceptance + Generally Low Cognitive Restructuring	87	67.3 (9.9)	
All	809	92.7 (18.5)	

“High”: $z > .70$; “Low”: $z < -.70$.

In relation to the hypotheses under examination, hypotheses 1d, 1e, 1f, 2d, and 2e contrasted three perspectives. In general, the hypotheses from an ACT perspective received the clearest support: Hypothesis 1f stated that the clusters that score generally high on Acceptance will be most positively associated with psychological well-being and clinical status, whether they score high on Cognitive Restructuring or not. The fact that there were no significant differences between clusters 1 and 2 fits well with this prediction. This is in contrast to hypothesis 1e, which predicted that participants combining the two types of strategies would score significantly higher on measures of psychological well-being than participants relying primarily on one type of strategy. Furthermore, from an ACT perspective, we formulated the hypothesis (2e) that that clusters of individuals who score generally low on acceptance would have the lowest scores on measures of psychological

well-being, whether they score low on Cognitive Restructuring or not. This was supported by the findings that Cluster 7 (with low scores on both Acceptance and Cognitive Restructuring) and Cluster 6 (with low scores on Acceptance and average scores on Cognitive Restructuring) did not differ significantly on either PANAS-P or WHOQOL. In contrast however, the difference between the clusters on PANAS-N, was significant, which is an outcome that fits with our hypothesis 2d.

Finally, with regard to the hypotheses regarding Distractive Refocusing, hypothesis 3b stated that a cluster where high scores on Distractive Refocusing is combined with high scores on Acceptance would be positively associated with measures of psychological well-being, whereas hypothesis 3c stated that the opposite would be true for a cluster where high scores on Distractive Refocusing is combined with low levels of Acceptance. Both these hypotheses were supported by Cluster 5 and Cluster 3 respectively.

Representation of the clusters in the clinical and non-clinical samples

To test the hypotheses regarding over and under representation in the clinical and non-clinical samples, the clusters and the two samples were cross-tabulated as presented in Table 9, and the observed frequency in each cell was compared with the frequency expected if the clusters were randomly distributed across the samples. The statistical testing was performed in accordance with the fixed-margins model using EXACON (Bergman & El-Khoury, 1987).

Table 9. Cross-tabulation of samples and clusters, comparing observed and expected frequencies in each cell (expected frequencies in parentheses).

Cluster	Non-Clinical Sample ($N = 637$)	Clinical Sample ($N = 172$)
1	104 (82)**	0 (22)***
2	108 (85)**	0 (23)***
3	42 (49)	20 (13)*
4	73 (65)	10 (18)*
5	83 (74)	11 (20)*
6	26 (38)*	22 (10)***
7	23 (69)***	64 (19)***
8	100 (88)	12 (24)**
9	78 (87)	33 (24)*

* $p < .05$; ** $p < .01$; *** $p < .001$

With regard to our hypotheses, all perspectives predicted that a cluster defined by high scores on both Acceptance and Cognitive Restructuring would be overrepresented in a non-clinical sample and underrepresented in a clinical sample, and that a cluster defined by low scores on the same type of strategies would have the reverse pattern of representation. As previously stated, these clusters are represented by Cluster 2 and Cluster 7 in our data and the outcome in the performed analysis support the hypothesis: Cluster 2 was significantly overrepresented in the non-clinical sample (observed frequency: 108, expected frequency: 85, $\chi^2 = 6.2$, $p = .01$) and underrepresented in the clinical sample (observed frequency: 0, expected frequency: 23, $\chi^2 = 23.0$, $p < .01$), whereas Cluster 7 was significantly overrepresented in the clinical sample (observed frequency: 64, expected frequency: 19, $\chi^2 = 111.9$, $p < .001$) and significantly underrepresented in the non-clinical sample (observed frequency: 23, expected frequency: 69, $\chi^2 = 30.2$, $p < .001$).

From an ACT perspective however, we also hypothesized that the factor that would determine whether or not a cluster was over or underrepresented in the clinical and non-clinical sample was their score on scales related to acceptance. More specifically hypothesis 1f stated that clusters scoring high on Acceptance would be overrepresented in the non-clinical sample regardless of the score on Cognitive Restructuring, whereas hypothesis 2e stated that clusters of individuals scoring low on Acceptance would be overrepresented in a clinical sample regardless of the score on Cognitive

Restructuring. Both these hypotheses was supported by the fact that not only Cluster 2 (see above) but also Cluster 1 was overrepresented in the non-clinical sample (observed frequency: 104, expected frequency: 82, $\chi^2 = 5.97$, $p = .01$), and that not only Cluster 7 but also Cluster 6 was overrepresented in the clinical sample (observed frequency: 22, expected frequency: 10, $\chi^2 = 13.6$, $p < .01$).

Finally, with regard to Distractive Refocusing, the results support hypothesis 3c given that that cluster 3 (with high scores on Distractive Refocusing and low scores on acceptance) was overrepresented in the clinical sample (observed frequency: 20, expected frequency: 13, $\chi^2 = 3.58$, $p = .04$). Hypothesis 3b, that the cluster characterized by high scores on Distractive Refocusing and high scores on acceptance (Cluster 5) would be overrepresented in the non-clinical, was not supported (observed frequency: 83, expected frequency: 74, $\chi^2 = 1.09$, $p = .15$).

Discussion

The identified cluster solution fitted well with the predicted pattern since nine clusters with different profiles of score across the emotion regulation scales were identified. In addition, the pattern of scores across the clusters supports the assumption that strategies related to acceptance and cognitive restructuring can be combined in several different ways and therefore might be seen as distinct but compatible strategies as suggested in previous research (Asmundson & Hofmann, 2008). In relation to the association between the clusters and the criterion variables, the general provides best support for the hypotheses formulated from an ACT perspective in that combining high scores on Acceptance with high scores on Cognitive Restructuring did not seem to significantly strengthen the association with psychological well-being compared to clusters with high scores on Acceptance combined with low or average scores on Cognitive restructuring. Furthermore, clusters of individuals who scored generally low on Acceptance had lower scores on measures of psychological well-being and were overrepresented in the clinical sample, whether they score low on Cognitive Restructuring or not.

Although these findings might be seen as strengthening the suggestions that the acceptance or non-acceptance of aversive private events are of particular

clinical importance and that the effects of other strategies are significantly affected by whether or not they are combined with – or performed in a context of – experiential avoidance or acceptance (Boulangier et al., 2010), it should also be noted that the factors Thought Avoidance and Resignation were the only variables included in the analyses that were known to be associated with maladaptive outcomes on measures of well-being. The centrality of these factors might therefore also be a result of the fact that the relative presence of maladaptive emotion regulation strategies are more important in predicting outcomes on measures of well-being than the relative presence of adaptive strategies (Aldo, Nolen-Hoeksema, & Schweizer, 2010).

In addition to the above, several hypotheses regarding the scale Distractive Refocusing were examined. As hypothesized, the performed analyses indicate that Distractive Refocusing can be combined with average to low levels of acceptance (as in Cluster 5) or with high levels of acceptance (as in Cluster 3), and that the context in which the strategies are performed (high or low thought avoidance) has clear implications for the association with measures of psychological well-being. This is interesting in view of the ambiguous status of distraction strategies within cognitive behavioral therapies, where distraction in some protocols, for example in Dialectic Behavior Therapy (Linehan, 1993b), are taught as valid strategies for regulating aversive emotions in certain situations while they in other protocols are seen as counter-productive (e.g. Craske & Barlow, 2008). The results of the present study may be interpreted as suggesting that the function of distraction strategies depend upon if distraction is used primarily as a way of avoiding aversive thoughts or if it used as an emotion regulation strategy where one deliberately changes the focus of cognitive processing to increase the experience of positive emotions, without an underlying explicit fear of aversive private experiences.

There are important limitations to the study that should be taken into consideration when interpreting the results. First, the study is based upon the factors and factor structure identified in Study III. This serves the purpose of further qualifying the results from that study and increase the understanding of the factors therein identified, but at the same time it makes it impossible to determine whether the results generalize to other populations and makes the validity of the results dependent upon the validity of the factor structure identified in the previous study. Furthermore, the design is

cross-sectional, which renders causal conclusion regarding the relationship between the examined strategies and the criterion variables impossible to draw. As an example, we cannot know if a particular profile of regulatory strategies leads to emotional distress or whether high levels of emotional distress leads one to adopt a particular approach to emotion regulation. Furthermore, the study is based entirely upon data from self-report questionnaires, which make the results susceptible to threats from mono-method biases.

Despite these limitations, we believe that the present study provides interesting empirical contributions to the ongoing discussion regarding the concepts and processes related to acceptance and cognitive restructuring. In addition, it illustrates the advantages of also applying a person oriented approach to the study of emotion regulation.

General discussion

The aim of the present thesis was to further our understanding of cognitive restructuring and acceptance, both as concepts and as psychological processes related to emotion regulation. In doing this, the included studies provides several empirical findings that are of interest to the ongoing scientific discussion regarding the concepts, processes and therapeutic approaches related to cognitive restructuring and acceptance, but also raises some questions that warrant further investigation and theoretical developments. The conclusion of the thesis will discuss the implications and significance of the major findings from the included studies as well as critically reflect upon central methodological issues and theoretical models in the thesis.

Acceptance and cognitive restructuring – similarities and differences

Study I supported the findings from previous research that both acceptance and cognitive change strategies have significant impacts on emotional dynamics in that they reduce aversive emotional reactions in different response channels. This finding can be related to the findings from Study II and III where strategies related to both cognitive restructuring and acceptance were positively associated with measures of dispositional positive emotionality and quality of life and negatively associated with measures of negative emotionality. Furthermore, in Study IV, clusters of participants scoring high on strategies related to cognitive restructuring and/or acceptance also had high scores on the measures of psychological well-being. This outcome pattern might be seen as strengthening the

suggestion that both cognitive restructuring and acceptance can be meaningfully conceptualized, studied and compared as emotion regulatory strategies (Kollman et al., 2009; Hofmann & Asmundson, 2009).

The suggestion that acceptance, or experiential avoidance, rather should be understood as a general emotion regulatory function, receives little support from the findings of the performed studies. In the experimental study (Study I), the acceptance and the reappraisal instructions were associated with clear and similar outcomes, indicating that both were actionable strategies that the participants could employ to affect their emotional reactions. Furthermore, in the experimental conditions, there were no interactions between habitual experiential avoidance and the experimental manipulation, for example in the sense that participants scoring high on the AAQ had less benefit when using cognitive reappraisal than participants with low scores on the AAQ. The existence of such an interaction would be expected if the extent to which specific emotion regulation strategies are adaptive is largely determined by the extent to which they represent an effort to control and avoid private experiences (Boulanger et al., 2010). Additionally, the conceptual analysis performed in Study III indicated that a solution with two second-order and overlapping factors related to cognitive restructuring and acceptance, best represented the data. If acceptance or experiential avoidance/psychological inflexibility are best described as general underlying dimensions or functions of other strategies, a different outcome pattern would be expected, for example with psychological flexibility and psychological inflexibility as the second-order factors. Furthermore, the findings from Study II did not support the prediction that experiential avoidance would account for the effects of distinct emotion regulation strategies intervening at different points of the emotion generating process. In stead, the results seem to support an understanding of experiential avoidance and acceptance as primarily related to response-focused processes, but with some cognitive change components as well. The only empirical findings from the performed studies that support the suggestion of experiential avoidance as an emotion regulation function come from Study IV. In this study, the hypotheses derived from an ACT perspective received the clearest support and the factors that seemed to be most decisive in determining the clusters' scores on measures of psychological well-being, were the scores on the variables Thought Avoidance and Resignation. This might be interpreted as supporting the suggestion that the effect of other regulatory strategies are

determined by whether or not they are performed in a psychological context of experiential avoidance. On the other hand, the results may also be a result of the fact that Thought Avoidance and Resignation were the only variables known to be “maladaptive”, since previous research indicate that the relative presence of maladaptive emotion regulation strategies seem to be more detrimental than the relative absence of adaptive emotion regulation. Furthermore, the strong relationship between scores on Thought Avoidance and Resignation and the criterion variables can also be interpreted in light of the model for emotion dysregulation proposed by Mennin et al (2005), where “negative cognitive reaction to emotions” and “maladaptive management of emotion” are two of the components. In relation to this model, Thought Avoidance is likely related to the first component, while high scores on Resignation might be seen as an effect of a perceived inability to adequately handle an emotional experience. In this context however, it should be noted that the difference between a strategy and a function is hard to operationalize and made subject to empirical testing in a way that provides sound basis for conclusive inferences.

The studies also supported the suggestions that the two types of strategies can be meaningfully distinguished from each other and that they share some important aspects while differing on others. As noted above, the higher-order factors identified in Study III seem to relate to acceptance and cognitive restructuring in quite a clear way and each factor is related to distinct and interpretable first-order factors. An interesting finding in this context is that the first order factors named “Constructive Refocusing” and “Active Acceptance” were best represented when allowed to load on both higher-order factors. A possible interpretation of what process or characteristic that unites these factors is that both to a significant extent represent strategies based on a high degree of psychological and behavioral flexibility in relation to both the elicited emotion and its functions and future consequences. The results from the cluster analysis performed in Study IV also seem to support the suggestion that acceptance and cognitive restructuring can be meaningfully distinguished from each other, since clusters of participants relying more exclusively on either acceptance or cognitive change strategies were identified.

An important prediction of the way in which cognitive reappraisal and acceptance would differ in their psychological effects, that was supported in the experimental study (Study I), was that they would influence the

relationship between elicited aversive emotion and avoidance differently. Indeed, in the acceptance condition, there were no significant correlation between subjective aversive emotions and avoidance whereas significant positive correlations between aversive emotion and avoidance were found in the reappraisal and watch conditions. This finding is consistent with how the concept of acceptance is framed within Acceptance and Commitment Therapy, where one of the aims of establishing acceptance of experiential content is to reduce the degree to which private events regulate behavior (Hayes, 2008).

Finally, the performed studies provided interesting results in relation to distraction as an emotion regulation strategy. In Study III the factor called Distractive Refocusing was related to the higher order factor of Cognitive Restructuring, but did not seem to be a strong predictor of criterion variables related to psychological well-being. The person-oriented approach employed in Study IV however, further qualified these results in that two separate clusters with high scores on Distractive Refocusing were identified. These two clusters differed significantly in their relationship to the criterion variables and were distinguished from each other by the fact that one of the clusters (Cluster 3) was also characterized by low scores on Acceptance, whereas distraction in the other cluster (Cluster 5) was combined with high scores on Acceptance. These findings seem to suggest that the effect of distraction strategies depend upon whether or not distraction is used in a context of non-acceptance.

Measuring acceptance and cognitive restructuring

Given the centrality of the specific measures employed in the included studies in determining the results, it is important to critically reflect upon these measures, and whether other factors than the psychological phenomena they are supposed to measure might explain parts of the findings from the studies. One such potential confound is the extent to which the items in the questionnaires that are supposed to measure emotion regulation, contain formulations related to adaptive or maladaptive *outcomes* in terms of psychological well-being or functioning. The AAQ has been criticized for not making a clear enough distinction between process and outcome

(Chawla & Ostafin, 2007). For example, the nine-item version contains item such as “When I compare myself with other people, it seems most of them are handling their lives better than I do” (item 7) and “When I feel depressed or anxious, I am unable to take care of my responsibilities” (item 3). Both these items, and especially the former, clearly incorporate formulations related to outcome, thus risking circularity in measurements. Items 1, 4 and 5 can also be subjected to this kind of criticism. For example, item 5, “I am not afraid of my feelings”, might receive a high score either if the respondent has strong aversive feelings but is not afraid of them or if the respondent in general has low levels of negative emotionality and therefore does not experience feelings as a problem. Additionally, item 4, “I rarely worry about getting my anxieties, worries and feelings under control”, might receive similar scoring based on significantly different processes: one might score high on the item if a) one does not try to control one’s feelings, or b) if one regularly tries to control one’s feelings, is successful in doing so, and therefore does not worry about it, or c) if one has very low levels of anxiety and worries so that controlling them seldom seems to be an issue. In this context, it should be noted that a new version of the AAQ (AAQ-II) has recently been published (Bond et al., 2011). This new version of the AAQ is intended to address some of the shortcomings of the AAQ I with regard to psychometric properties and ease of comprehension. The AAQ-II consists of seven items measuring psychological inflexibility or experiential avoidance (Bond et al., 2011): “My painful experiences and memories make it difficult for me to live a life that I would value”, “I’m afraid of my feelings”, “I worry about not being able to control my worries and feelings”, “My painful experiences prevent me from having a fulfilling life”, “Emotions cause problems in my life”, “It seems like most people are handling their lives better than I am”, “Worries get in the way of my success”. As can be seen, the items in this new version can be subjected to the same criticism of confounding process or trait with outcome: For many of the items it is hard to distinguish if a specific response is grounded in levels of psychological inflexibility/experiential avoidance or for example in levels of experienced aversive emotions and worries. The authors of the AAQ-II briefly addresses parts of this problem by conducting a confirmatory factor analysis to test if the AAQ-II and the Beck Depression Inventory (BDI-II) are best represented by a one or two factor model. In this analysis a two-factor model (with BDI-II and AAQ-II as separate factors) provided a significantly better fit than a one-factor model (Bond et al., 2011), indicating that the scales do not

measure the same construct. To claim that the AAQ-II does not measure the same construct as the BDI-II however, addresses only parts of the problem discussed above. It still remains unclear for example how well the scale distinguishes between experiential avoidance or psychological inflexibility as an approach or attitude toward private events on the one hand and the supposed outcome of this approach in terms of emotional problems and experienced life satisfaction on the other. In part, the problem discussed above is a result of the explicitly functional framework in which the ACT model is situated. In this context it is logical that the focus is shifted from emotion regulation as traditionally defined toward effective living (Blackledge & Hayes, 2001). None the less, when acceptance or psychological flexibility is measured and operationalized as a psychological trait or ability (as in Hayes et al., 2006) that can be compared to, or even explain the effects of, other approaches to private events, it seems of central importance to clarify the distinction between the trait or ability on the one hand and the outcome of having this ability or the extent to which one has for example emotional problems on the other. Given the above, future research should pay attention to the problem of measuring both acceptance and experiential avoidance in a way that minimizes the extent to which the process or trait is confounded with outcomes and psychological well-being.

With regard to the ERQR, the originators of the scale explicitly tried to construct items that separated strategy from outcomes (Gross & John, 2003). They tried to achieve this by formulating items such as “I control my emotions by changing the way I think about the situation I am in” and “When I want to feel less negative emotions (such as sadness or anger), I change what I’m thinking about”. These items seem more successful in making the intended distinction and avoiding the potential confounding, but there is nevertheless a risk of encouraging a response pattern where only individuals that are successful in using reappraisal to achieve the intended emotional outcomes will score high on the items. Another issue with regard to the construct validity of the ERQR is how well it differentiates between emotion regulation in the domains Gross (1998) calls “attentional deployment” and “cognitive change”. As previously stated, strategies in the cognitive change domain affect the emotion generating process by changing the way one constructs the meaning of the situation, whereas attention deployment involves strategies that affect the emotional response by changing what aspects of the situation that are the focus of cognitive

processing. Cognitive reappraisal is supposed to represent a cognitive change strategy in that it refers to a strategy that involves construing a potentially emotion-eliciting situation in a way that changes its emotional impact (Gross & John, 2003). A closer inspection of the ERQR items however leads to questioning whether some of the items rather measure attention deployment. Four of the six items of the scales refer to attempts to achieve emotional changes by changing *the way* one thinks, which seem to fit the definition of cognitive reappraisal as referred to above. The other two items however are formulated as “When I want to feel less negative emotions (such as sadness or anger), I change what I’m thinking about” and “When I want to feel more positive emotion (such as joy or amusement), I change what I’m thinking about”, where the formulation “I change what I’m thinking about” seems to be, at least partly, related to attention deployment in that it refers to an active changing of the focus of cognitive processing.

The WBSI (Wegner & Zanakos, 1994) contains items such as “I often do things to distract myself from my thoughts”, “I have thoughts I try to avoid” and “I have thoughts that I cannot stop”. As with the ERQR these items do not contain references to emotional or functional outcomes, but are likely to be more relevant to people experiencing problems with intrusive thoughts. The items in the CERQ (Garnefski et al., 2001) are framed within a context of what people think when experiencing threatening or stressful life events. Here, the items have wordings such as “I think that it all could have been much worse”, “I think of something nice instead of what has happened” and “I think that I have to accept that this has happened”. As with the ERQR and WBSI there is little or no reference to outcomes in the items, but the item assesses what people do and not what they *try* to do which might lead to a loss of information regarding what the effects are of trying, but not succeeding, to employ a specific strategy.

The process model of emotion regulation

The process model of emotion regulation suggested by Gross (1998) is a central part of the theoretic and conceptual framework of the present thesis. The model is useful in that it can incorporate a wide array of strategies and allows for the prediction of the effects of different strategies depending on

where in the emotion generating process they occur. In relation to this model the studies included in the present thesis suggest that cognitive restructuring encompasses strategies belonging to the domains of attention deployment and cognitive change. Acceptance on the other hand, has been suggested to entail both response focused and cognitive change components (Liverant et al., 2008; Hofmann & Asmundson, 2008), and the findings from the studies included in this thesis support these suggestions.

There are however important questions regarding the validity of Gross' model that warrant further discussion. One such question, and perhaps the most important one, concerns the issue of time. In a very short time frame, it seems reasonable to think of the emotion generating process as following a straight time line such as the one in Gross' model where it is possible to clearly distinguish antecedent from response focused strategies. Once the time frame is expanded however, the distinction becomes more difficult to make. As stated in the introduction, Gross and John (2007) acknowledge this by suggesting that a specific emotion regulation effort is antecedent- or response focused in relation to a specific pulse or cycle in the emotion generating process. This qualification of the process model raises further questions. The main reason for this is that the version of the process model that incorporates many cycles or pulses into the model seemingly makes the assumption that each cycle or pulse can be understood and analyzed in isolation from prior cycles or pulses. This seems like an assumption that is not entirely unproblematic. One might for example question whether the effect or function of a particular emotion regulation effort varies as a result of how strong an emotional response that has already been generated by prior pulses in the emotion generating process. Thus, when the cycles are not viewed in isolation from each other but as an ongoing dynamic process, the distinction between antecedent and response focused emotion regulation seems more difficult to maintain.

Important limitations

There are important limitations of the studies included in the present thesis, many of which have been discussed in connection with the presentation of each study. Some more general limitations however, warrant further attention. One such issue concerns how the central constructs (emotion regulation, acceptance and cognitive restructuring) are operationalized and measured. In studies II – IV, emotion regulation is assessed by means of self-report questionnaires that measure dispositional tendencies to use certain strategies across large time spans. This is in line with Campbell-Sills and Barlow's (2007) argument that, in studying emotion regulation and its relationship to psychopathology, we need to assess relatively stable patterns of responding that lead to the persistence or recurrence of unwanted emotions over time. On the other hand, the validity of using self-report measures at a single point in time to assess response patterns across a large time spans can be questioned (Robinson & Clore, 2002). As an example, an accurate report requires significant insight and meta-cognitive ability of the participants, and the responses may be influenced by the current mood state in a way that threatens the validity of the measurements. In addition, in measuring emotion regulation it is not easy to separate the process of emotion regulation from its supposed emotional outcome. As seen above, this problem is relevant in relation to all measures, though to a particularly large extent in relation to the AAQ. One might also question if one gets access to similar kinds of psychological processes when asking participants to self report on particular response patterns across large time spans, as when studying the effects of strategies based on experimental manipulations that operate at the level of seconds or minutes. Given this complexity, the outcome pattern of the performed studies is diverse and many aspects need to be investigated by further research.

Additionally, as has been pointed out in reference to all the studies included in the thesis, the investigation of emotion regulation strategies related to acceptance and cognitive restructuring as studied in the present thesis, does not inform us of the relative efficacy of therapeutic strategies related to cognitive restructuring and acceptance or of broad treatment protocols such as CBT and ACT. In stead, the purpose of the thesis was to investigate and

compare processes and concepts related to cognitive restructuring and acceptance from an emotion regulation perspective to see if they seemed to be psychologically active in ways that accords with the underlying theories and clinical models. In relation to this however, one might also question the extent to which the concepts of cognitive restructuring and acceptance refer to something else in an emotion regulation context than in the context of psychological treatment. As an example, the conceptualization and treatment of psychological disorders in CBT focuses on the content of cognitions that are specific to the particular disorder in question (Clark & Beck, 1999), whereas cognitive reappraisal in an emotion regulation context refers to a general ability or tendency to try to affect the emotional dynamics by changing how we cognitively construe the eliciting situation (Gross & Thompson, 2007). At the same time, it seems reasonable that learning to handle emotional problems in one area by adopting cognitive change strategies will lead to a generalized ability to employ these kinds of strategies also in other contexts. Indeed, in Barlow et al.'s (2011) Unified Treatment Protocol, the general ability to use cognitive reappraisal is targeted by the treatment interventions and measured using the ERQR.

Future research

Though it seems both scientifically meaningful and possible to separate emotion regulation from emotion, it is still unclear how the relationship between emotion regulation and emotion is best described and understood. The models of emotion regulation presented in the present thesis, are all based on the assumption that differences in emotion regulation cause differences in emotional responding (Gross & John, 2007; Mennin et al., 2005; Gratz & Roemer, 2004). In a clinical context, the same understanding underlies models where maladaptive emotion regulation strategies are seen as causing emotional disorders (e.g. Barlow et al., 2011; Mennin et al., 2005). These models raise the question of whether persistent patterns of emotion regulation cause stable differences in emotional responding or if differences in dispositional emotionality lead to differences in how we handle our emotional responses. The most likely answer to this question is that neither of the alternatives is sufficient to describe the complex relationship between emotion regulation and emotions. Indeed, the

assumption that there is a simple causal relationship between the two concepts seems to be an oversimplification of complex psychological processes and phenomena. It seems more reasonable to assume that there is a reciprocal relationship between emotion regulation and emotional responses, and that they interact with each other in a dynamic and non-linear fashion. Given this, the formulation of a sufficiently complex yet testable and clinically useful model of emotion regulation seem to be an important challenge for future research in this area.

In addition to the above, a vast majority of the studies on emotion regulation (Campos, Walle, Dahl & Main, 2011) have an intrapersonal focus where emotion is viewed as a process occurring within the individual, from which it follows that emotion regulation is conceptualized and studied as an intrapersonal process comprising of attempts individual make to achieve a desirable emotional state (for example Gross, 1998; Eifert & Heffner, 2003; Feldner, et al., 2003; Liverant et al., 2008). The way emotion and emotion regulation have been conceptualized, studied and discussed in the present thesis is no exception to this. From an evolutionary perspective on the other hand, it is often emphasized that a central function of human emotionality lies in its contribution to our sociability by for example coordinating social interactions (Keltner, Haidt, & Shiota, 2006). From this perspective emotion can logically be construed as an interpersonal process in that each person generates emotions in another, in reciprocal, contradictory, or harmonious ways. This view has profound implications for the study of emotion regulation in that it changes the very epistemological focus from an intrapersonal process serving to achieve desirable emotional states to an interpersonal process serving mainly to effectively manage social interaction. An interesting consequence of shifting the focus from the intrapersonal to the interpersonal in the study of emotion regulation is that one moves away from seeking to understand different regulatory strategies in terms of their psychological *adaptiveness* (i.e. how different strategies in general relates to measures of psychological well-being) to their *effectiveness* in a particular social context in terms of achieving the desired goals. From this perspective, what counts as the more adaptive of different regulatory strategies cannot be determined without taking into consideration the contextual conflicts of goals they are intended to resolve (Campos et al. 2011). In relation to processes related to cognitive restructuring and acceptance such a shift in the focus of study, may expand our understanding

of in what situations different strategies are selected and performed and what their results are in different social contexts.

Furthermore, only one of the included studies uses an experimental design that enables conclusions on causal relationships between the variables. In future research, it would be interesting to study other processes related to cognitive restructuring and acceptance using experimental designs. Future research also needs to compare and explore cognitive restructuring and acceptance as emotion regulation strategies in a clinical context, for example by examining how the processes work in relation to clinically relevant stimuli and emotional processes of relevance to specific disorders. In addition, it would be interesting to study the identified concepts for example as mediators and moderators of change during psychological treatments. It would also be interesting to use assessment methods of individual differences in emotion regulation and emotional responding that enables the assessment and measurement of the concepts on a daily basis over extended periods of time.

Concluding remarks

The aim of the present thesis was to further our understanding of cognitive restructuring and acceptance, both as concepts and as psychological processes related to emotion regulation. The performed studies have indeed provided several interesting findings that shed light on these interesting and clinically highly relevant processes. To an even larger extent however, the firm belief of the author is that the thesis shows how complex and multifaceted the psychological processes of cognitive restructuring, acceptance and emotion regulation are, and how important it is to adopt an open minded perspective and careful empirical approach when examining these complex phenomena. The scientific process is necessarily slower than the ideologically driven discussions between proponents of different therapeutic schools, but must nevertheless be the firm ground on which these discussions are based if we want to achieve lasting scientific and clinical progress. Indeed, unless continuously informed by empirical research, the discussions on these matters runs the risk of getting stuck in ideological disputes. In this context, the humble hope of the author is that the present

thesis will contribute to a more empirically based and nuanced discussion regarding the concepts and processes of cognitive restructuring and acceptance.

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