Chapter 2

Emotion Regulation: Definition and Relevance for Mental Health

2.1 Defining Important Concepts

Although the term emotion is frequently used in our daily life, it is not easily defined. In the scientific literature, emotions are described as coordinated sets of responses to internal or external events which have a particular significance for the organism (e.g., Lazarus, 1993). These response sets may involve cognitive, behavioral, physiological, and neural mechanisms and aim to orchestrate the best possible response to significant events. The subjective experience of an emotion is often called a feeling. Emotions and feelings refer to distinct and rather brief phenomena. In contrast, moods refer to less specific and longer-lasting experiences. Stress is a term to describe a less distinct alarm response, which may eventually turn into specific emotions. In the scientific language, affect is an encompassing term which includes emotions, feelings, motivational impulses, and moods together (Gross, 2014). In everyday language, the terms affect, emotions, and feelings are often used interchangeably, so to enhance the readability of this manual we will do the same.

In the past two decades, the topic of emotion regulation has become quite popular in psychological research and clinical psychology and commonly refers to measures taken by an individual to modify the natural course of affective responses. For example, Thompson (1994) defined emotion regulation as "...the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (pp. 27–28). To date, numerous studies have investigated the association between the ability to regulate one's emotions and various aspects of mental health. The findings that will be reviewed in the following chapter suggest two important points. First, the inability to effectively regulate emotions poses serious risks to a person's mental health, and second, enhancing effective emotion regulation skills is a promising way of fostering or restoring mental health.

2.2 Emotion Regulation Deficits and Mental Disorders

Evidence for a significant association between the ability to effectively regulate undesired affective states and mental health has been found across almost all mental disorders included in the Diagnostic and Statistical Manual for Mental Disorders (DSM-5; APA, 2013). For example, individuals suffering from depression, one of the most prevalent mental health problems of our time, often report difficulties identifying their emotions (Honkalampi, Saarinen, Hintikka, Virtanen, & Viinamaki, 1999; Rude & McCarthy, 2003), accepting and tolerating negative¹ emotions (Brody, Haaga, Kirk, & Solomon, 1999; Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Conway, Csank, Holm, & Blake, 2000; Hayes et al., 2004), compassionately supporting themselves when suffering from negative emotions (Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006; Hofmann, Grossman, & Hinton, 2011), and effectively modifying their emotions (Catanzaro, Wasch, Kirsch, & Mearns, 2000; Ehring, Fischer, Schnülle, Bösterling, & Tuschen-Caffier, 2008; Kassel, Bornovalova, & Mehta, 2007). Moreover, it has been shown that symptoms of depression are positively associated with ruminating/brooding, catastrophizing, and expressional suppression (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Conway et al., 2000; Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010; Garnefski & Kraaij, 2006; Kraaij, Pruymboom, & Garnefski, 2002; Morrow & Nolen-Hoeksema, 1990), which have been conceptualized as ineffective attempts to avoid negative emotions (Berking & Wupperman, 2012; Moulds, Kandris, Starr, & Wong, 2007).

Cross-sectional findings such as these provide preliminary evidence for the hypothesis that emotion regulation deficits have a negative impact on mental health. However, cross-sectional findings do not clarify whether such deficits are the cause of or the effect of mental disorders. In order to clarify whether regulation difficulties actually contribute to the development of mental disorders, such as depression, we must look at the longitudinal and experimental research.

Longitudinal research has found that a person's positive belief in their ability to successfully modify their own negative affect can predict future reductions in depression (Kassel et al., 2007), and the use of regulation strategies generally considered to be maladaptive can predict depressive symptoms (Aldao & Nolen-Hoeksema, 2012; Kraaij et al., 2002). Moreover, studies using daily diaries (i.e., ecological momentary assessments) have shown that responses of negative affect to aversive events persisted longer in depressed individuals than in nondepressed controls (Peeters, Nicolson, Berkhof, Delespaul, & deVries, 2003), and the tendency to respond to aversive events with negative affect predicted depressive symptoms 2 months after the initial assessment in college students (O'Neill, Cohen, Tolpin, & Gunthert, 2004). Similarly, tendencies to respond to aversive events with negative affect and negative mood-regulation expectancies have been shown to predict less symptom reduction during cognitive behavior therapy (CBT) for major

¹When we refer to emotions as *negative*, we are referring to the aversive, undesired or challenging aspects of these emotions. We are not implying that these emotions are bad or wrong in any way.

depressive disorder (Backenstrass et al., 2006; Cohen, Gunthert, Butler, O'Neill, & Tolpin, 2005). Finally, dampening of positive affect was found to predict depressive symptoms 3 and 5 months later, even when controlling for ruminative responses to negative affect and depressive symptoms at initial assessment (Raes, Smets, Nelis, & Schoofs, 2012).

Further evidence for the causal effect of emotion regulation on mental health problems, such as depression, comes from experimental studies which systematically manipulate emotion regulation and assess potential effects on depressive symptoms. In such studies, it has been shown that maladaptive responses to dysphoric mood states (e.g., rumination or suppression) impair the recovery from such states in individuals vulnerable to depression (Campbell-Sills et al., 2006; Ehring et al., 2010; Liverant, Brown, Barlow, & Roemer, 2008; Morrow & Nolen-Hoeksema, 1990), and that individuals with depression are more likely to utilize such strategies than healthy controls (Ehring et al., 2010).

Similar to the research involving depression, numerous studies are also finding that emotion regulation skill deficits contribute to the development and maintenance of anxiety disorders (Aldao & Nolen-Hoeksema, 2012; Aldao et al., 2010; Amstadter, 2008; Berking & Wupperman, 2012; Campbell-Sills, Ellard, & Barlow, 2014; Cisler, Olatunji, Feldner, & Forsyth, 2010; Kashdan, Zvolensky, & McLeish, 2008; Suveg, Morelen, Brewer, & Thomassin, 2010). For example, in a nonclinical sample of 631 participants, emotion regulation skill deficits significantly predicted subsequent anxiety symptom severity during a 2-week interval (Berking, Orth, Wupperman, Meier, & Caspar, 2008). In another nonclinical sample, the participants' belief that they could successfully cope with negative moods predicted subsequent anxiety symptom severity over an 8-week period (Kassel et al., 2007). Additionally, in a nonclinical sample of adolescents, unsuccessful emotion regulation predicted anxiety symptom severity after 7 months (McLaughlin, Hatzenbuehler, Mennin, & Nolen-Hoeksema, 2011), and in a sample of college students, difficulties describing and identifying emotions predicted increases in anxiety symptom severity 1 year later (Ciarrochi & Scott, 2006). Finally, in a nonclinical sample of 131 participants, emotion regulation skills negatively predicted anxiety symptom severity during a 5-year period, while anxiety symptom severity did not predict subsequent emotion regulation (Wirtz, Hofmann, Riper, & Berking, 2013).

Research involving *clinical* samples has found that individuals suffering from generalized anxiety disorder (GAD) display deficits in emotional clarity, a poorer understanding of emotions, greater negative reactivity to emotions, as well as less acceptance and less successful management of emotions (McLaughlin, Mennin, & Farach, 2007; Mennin, Heimberg, Turk, & Fresco, 2005; Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006; Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). In addition, emotion regulation skill deficits have been found to mediate the effect of preexisting generalized anxiety disorder on psychological distress during the year following the terrorist attacks of 9/11 in a sample of New York University students that were directly affected by the event (Farach, Mennin, Smith, & Mandelbaum, 2008).

Research on clinical samples also indicates that individuals meeting criteria for panic disorder report difficulties identifying, labeling, accepting, and tolerating unde-

sired emotions (Baker, Holloway, Thomas, Thomas, & Owens, 2004; Naragon-Gainey, 2010; Parker, Taylor, Bagby, & Acklin, 1993; Shear, Cooper, Lerman, Busch, & Shapiro, 1993). Further evidence indicates these individuals also tend to use avoidant strategies when trying to cope with anxiety-provoking or other types of aversive experiences (Tull & Roemer, 2007), and the use of these avoidant strategies may paradoxically increase anxiety (Eifert & Heffner, 2003; Feldner, Zvolensky, Eifert, & Spira, 2003; Feldner, Zvolensky, Stickle, Bonn-Miller, & Leen-Feldner, 2006; Karekla, Forsyth, & Kelly, 2004; Spira, Zvolensky, Eifert, & Feldner, 2004), thus contributing to the development and maintenance of anxiety disorders (Craske, Miller, Rotunda, & Barlow, 1990; Hino, Takeuchi, & Yamanouchi, 2002; Levitt, Brown, Orsillo, & Barlow, 2004).

When compared to healthy controls, individuals meeting criteria for social anxiety disorder have been found to have more difficulty describing and identifying emotions (Turk et al., 2005), experience higher levels of shame (Fergus, Valentiner, McGrath, & Jencius, 2010), and display greater difficulty accepting emotional experiences when they are confronted with negative events (Kashdan & Steger, 2006). Individuals suffering from specific phobias report high use of avoidance, self-accusation, rumination, catastrophizing, and low reliance on positive reappraisals when trying to manage challenging experiences (Davey, Burgess, & Rashes, 1995; Kraaij, Garnefski, & Van Gerwen, 2003).

Similarly, in individuals suffering from posttraumatic stress disorder (PTSD), symptom severity and impairment have been associated with a lack of emotional clarity, a lack of emotional acceptance, and difficulties engaging in goal-directed behavior and effective emotion regulation strategies (Cloitre, Miranda, Stovall-McClough, & Han, 2005; Ehring & Quack, 2010; Roemer, Litz, Orsillo, & Wagner, 2001; Tull, Barrett, McMillan, & Roemer, 2007; Weiss et al., 2012). Emotion regulation difficulties have also been shown to mediate the association between PTSD symptom severity and substance abuse in patients with histories of childhood abuse (Staiger, Melville, Hides, Kambouropoulos, & Lubman, 2009).

Further research has shown that patients with eating disorders tend to experience emotions more intensely than controls (Overton, Selway, Strongman, & Houston, 2005; Svaldi, Griepenstroh, Tuschen-Caffier, & Ehring, 2012). For example, increased feelings of fear, anxiety, tension, and nervousness have been found in patients with eating disorders (McClenny, 1998). These patients also tend to avoid experiencing emotions, have difficulties accepting and managing their emotions (Corstorphine, Mountford, Tomlinson, Waller, & Meyer, 2007; Whiteside et al., 2007), and have a decreased capacity for emotional awareness (Bydlowski et al., 2005; Carano et al., 2006; Svaldi, Caffier, & Tuschen-Caffier, 2010).

When compared to nonclinical controls, patients with bulimia nervosa were found to be deficient in their ability to be aware of and identify their internal emotional state (Sim, 2002; Sim & Zeman, 2004). Additionally, research using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) found that a sample of women with anorexia nervosa reported significantly more difficulties in all of the subscales of the DERS than did nonpsychiatric controls (Harrison, Sullivan, Tchanturia, & Treasure, 2009). Moreover, in a meta-analysis,

rumination and suppression were associated with more severe eating disorder symptoms (Aldao et al., 2010). In longitudinal studies, negative mood predicted binge eating in binge eating disorder (Chua, Touyz, & Hill, 2004; Hilbert & Tuschen-Caffier, 2007; Stein et al., 2007; Wild et al., 2007) as well as binging and purging in bulimia nervosa (Crosby et al., 2009; Smyth et al., 2007, 2009).

Evidence for the causal effect that emotion regulation may have on eating disorders comes from experimental studies indicating that the induction of negative mood or stress increases subsequent food intake and/or the likelihood of binge eating in individuals with binge eating disorder (Agras & Telch, 1998; Chua et al., 2004; Laessle & Schulz, 2009). However, conflicting findings were found in another experimental study (Dingemans, Martijn, Jansen, & van Furth, 2009), in which participants received instructions either to suppress emotions or to react naturally to a sadness-inducing film clip. Results of this study revealed the two different responses to the film clip did not significantly affect subsequent food intake. This conflicting finding demonstrates that it is difficult to absolutely define certain regulatory strategies as "maladaptive" or "effective" (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004).

The use of drugs and alcohol in substance-related disorders are widely regarded as an effort to regulate or avoid negative emotions (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Cooper, Frone, Russell, & Mudar, 1995; Weiss, Griffin, & Mirin, 1992; Wupperman et al., 2012). Since negative emotions serve as important triggers for relapse (Cooney, Litt, Morse, Bauer, & Gaupp, 1997; ElSheikh & Bashir, 2004; Isenhart, 1991), the availability of effective emotion regulation skills should help a person to maintain sobriety even in the presence of such emotions (Berking et al., 2011). Preliminary evidence for this hypothesis comes from studies showing that patients meeting criteria for the so-called emotional disorders (affective and anxiety disorders; Ellard, Fairholme, Boisseau, Farchione, & Barlow, 2010) as well as borderline personality disorders often also meet criteria for substance disorders (Hasin, Stinson, Ogburn, & Grant, 2007) and display significantly higher rates of relapse after treatment (Bradizza, Stasiewicz, & Paas, 2006). Additionally, low levels of "emotional intelligence," defined by Salovey and Mayer (1990), p. 189, as the "ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions," has consistently been found to be associated with more intensive levels of drug and alcohol use (Kun & Demetrovics, 2010). Individuals with substance disorders also often report more emotion regulation difficulties than do healthy controls, especially during periods of abstinence (Berking et al., 2011; Fox, Axelrod, Paliwal, Sleeper, & Sinha, 2007).

Additionally, in several longitudinal studies, negative affect predicted future drinking levels and the desire to drink (Falk, Yi, & Hilton, 2008; Gamble et al., 2010; Hodgins, El-Guebaly, & Armstrong, 1995; Swendsen et al., 2000; Willinger et al., 2002), and deficits in adaptive emotion regulation predicted relapse during and after inpatient treatment for alcohol dependence (Berking et al., 2011). Additionally, experimental research has found that an induction of negative affect leads to increased urges to drink (Birch et al., 2004; Cooney et al., 1997; Sinha et al., 2009). Finally, interventions that target symptoms of depression and anxiety

in patients with substance abuse issues have been found to decrease both relapse and the severity of substance use (Brown, Evans, Miller, Burgess, & Mueler, 1997; Watt, Stewart, Birch, & Bernier, 2006).

A substantial amount of research points to emotion dysregulation as a core concept underlying borderline personality disorder (Linehan, 1993). This disorder is partly defined and characterized (APA, 2013) by intense and unstable mood states (Austin, Riniolo, & Porges, 2007; Kuo & Linehan, 2009; Weinberg, Klonsky, & Hajcak, 2009). Patients meeting criteria for this personality disorder have been found to experience less emotional awareness and clarity (Leible & Snell, 2004; Svaldi et al., 2012; Wolff, Stiglmayr, Bretz, Lammers, & Auckenthaler, 2007) and are less able to tolerate distress when working toward a goal (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). These patients also tend to utilize avoidant (Berking, Neacsiu, Comtois, & Linehan, 2009) and harmful emotion regulation strategies (e.g., self-injurious behavior) when distressed (Wupperman, Neumann, Whitman, & Axelrod, 2009), and their regulatory attempts have been found to be less successful than those of healthy controls, despite exerting more regulatory effort (Gruber, Harvey, & Gross, 2012). Additionally, research has found that borderline patients have deficits in their ability to use reappraisal to regulate their emotions (Schulze et al., 2011). In a longitudinal study Tragesser and colleagues found that emotion dysregulation predicted future borderline features better than impulsivity, supporting a causal effect that emotion regulation may have on this personality disorder (Tragesser, Solhan, Schwartz-Mette, & Trull, 2007).

It has also been hypothesized that difficulties in correctly identifying emotions place individuals at risk for developing somatoform disorders, as they misinterpret the somatic components of an emotion as serious health problems (Nemiah & Sifneos, 1970; Sifneos, 1973). In accordance with this theory, several studies have found evidence for associations between somatoform disorders and emotion regulation deficits, such as the abilities to consciously experience and tolerate emotions, correctly identify emotions, and accurately link emotions to sensations occurring in the body (De Gucht & Heiser, 2003; Lumley, Stettner, & Wehmer, 1996; Schweinhardt et al., 2008; Subic-Wrana et al., 2002; Subic-Wrana, Beutel, Knebel, & Lane, 2010; Subic-Wrana, Bruder, Thomas, Lane, & Köhle, 2005; Waller & Scheidt, 2004, 2006).

Finally, a number of studies from the developmental literature have found a significant relationship between emotion regulation deficits and childhood psychopathology, including attention-deficit/hyperactivity disorder (Walcott & Landau, 2004) and a variety of internalizing (e.g., social withdrawal, depression, and anxiety) and externalizing behaviors (e.g., aggression, anger, and behavior problems) (Calkins & Howse, 2004; Kim & Cicchetti, 2010; McLaughlin et al., 2011). Children and adolescents diagnosed with anxiety disorders have been found to have a significantly lower perceived ability to control anxious reactions as compared to child and adolescent controls (Weems, Silverman, Rapee, & Pina, 2003).

In summary, there is strong empirical evidence that emotion regulation deficits are associated with mental disorders and that emotion regulation deficits contribute significantly to the development and maintenance of these disorders. Based on these findings, we attempted to develop a conceptualization model of adaptive emotion regulation. The following chapter will describe this model in detail.

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