Published in final edited form as:
Cognit Ther Res. 2014 October ; 38(5): 483–492. doi:10.1007/s10608-014-9620-1.

Interpersonal Emotion Regulation Model of Mood and Anxiety Disorders

Stefan G. Hofmann
Boston University

Abstract

Although social factors are of critical importance in the development and maintenance of emotional disorders, the contemporary view of emotion regulation has been primarily limited to intrapersonal processes. Based on diverse perspectives pointing to the communicative function of emotions, the social processes in self-regulation, and the role of social support, this article presents an interpersonal model of emotion regulation of mood and anxiety disorders. This model provides a theoretical framework to understand and explain how mood and anxiety disorders are regulated and maintained through others. The literature, which provides support for the model, is reviewed and the clinical implications are discussed.

Keywords

Emotion; emotion regulation; interpersonal; anxiety; depression; mood; classification; research domain criteria

Experiencing and regulating emotions are essential human qualities. As humans, we have the ability to empathize with another person's emotional state, because we "know" and "sense" what another person must feel like. Some of us are better able to empathize and experience another person's emotional state than others. This ability has been described with various terms, including empathy (Preston & de Waal, 2002), theory of mind (Leslie, 1987), emotional intelligence (Salovey & Mayer, 1990), and alexithymia (Taylor, Bagby, & Parker, 1997).

Emotional experiences are complex and differ on many levels – intensity, valence, duration, controllability, complexity, and action tendency (Barrett, Mesquita, Ochsner, & Gross, 2001). To some extent, we do have control over our emotional experience, either by avoiding the situations, people, or triggers that elicit distress, or by changing our view of the situation. This ability has become known as emotion regulation (Gross, 2002, 1998; Thompson, 1994) and coping (Lazarus, 2000; Lazarus & Folkman, 1984). Coping researchers primarily examine responses to general stress, whereas emotion regulation

Stefan G. Hofmann, Ph.D., Department of Psychology, Boston University, 648 Beacon Street, 6th Floor, Boston, MA 02215-2002, Fax: (617) 353-9609, Tel: (617) 353-9610, shofmann@bu.edu.

Conflict of Interest
There are no conflicts of interest.

researchers examine strategies an individual possesses to deal with specific positive and negative emotions.

In addition to these intrapersonal processes, social processes also appear to be important aspects in the experience and expression of emotions. However, these processes have largely been ignored in contemporary theories of emotion regulation. This article will introduce an interpersonal model of emotion regulation for mood and anxiety disorders. This model offers a complementary framework to the popular intrapersonal emotion regulation model (Gross, 2002). More specifically, the objective of this article is to: (1) briefly review the contemporary intrapersonal model of emotion regulation and discuss its limitations; (2) introduce an interpersonal model of emotion regulation; and (3) discuss the relevance of this interpersonal model of emotion regulation for the maintenance and treatment of mood and anxiety disorders.

Intrapersonal Models of Emotion Regulation

The Process Model

In their influential model, Gross and colleagues define emotion regulation as the process by which people influence which emotions they have, when they have them, and how they experience and express these emotions (Gross, 2002; Gross & John, 2003; Gross & Levenson, 1997). Accordingly, emotions can be regulated at various stages in the process of emotion generation: (1) selection of the situation, (2) modification of the situation, (3) deployment of attention, (4) modification of cognitive appraisal, and (5) modulation of responses. These emotion regulation strategies can be broadly divided into *response-focused* and *antecedent-focused* strategies, depending on the timing during the emotion-generative process. Antecedent-focused emotion regulation strategies occur before the emotional response has been fully activated and include situation modification, attention deployment, and cognitive reframing of a situation. Response-focused emotion regulation strategies entail attempts to alter the expression or experience of emotions after response tendencies have been initiated and include suppression and other experiential avoidance strategies. Results of empirical investigations have so far converged to suggest that antecedent-focused strategies are relatively effective methods of regulating emotions in the short-term, whereas response-focused strategies tend to be counterproductive (Gross, 2002; Gross & John, 2003; Gross & Levenson, 1997).

In a typical experiment conducted by Gross and colleagues, healthy subjects are asked to view pictures that differ in emotional salience. Some of these pictures might elicit very strong negative reactions, such as feelings of disgust (e.g., an amputated human hand). The dependent variables typically include subjective reports of distress and psychophysiological measures before, during and some time after viewing these pictures. When using such a paradigm, Gross and colleagues typically observe that different instructions have a clear effect on the viewers' subjective and physiological responses. Gross and colleagues classified some strategies as *effective* (or *adaptive*) and others as *ineffective* (or *maladaptive*) for regulating emotions. A commonly discussed effective strategy is cognitive reappraisal. Gross and colleagues have demonstrated in numerous experiments that subjects typically report less distress and arousal when they were asked to reframe (i.e., reappraise) emotional

pictures in a less distressing way. In contrast, when asked to suppress their emotions when viewing emotional pictures, subjects typically experience an increase the subjective distress and psychophysiological arousal as compared to people who do not attempt to suppress their emotions.

This apparent paradoxical increase in arousal when trying to suppress emotions is consistent with studies demonstrating the paradoxical effects of suppressing thoughts or images. The evidence linking emotional suppression to an increase in negative affect and physiological arousal can be placed into the larger context of the suppression literature, which reports a similar effect for images, events in the environment (such as a dripping water faucet or the ticking of a clock), or neutral images, as demonstrated in the White Bear thought suppression experiments (e.g., Wegner, Schneider, Carter, and White, 1987). As part of a typical experiment, subjects are first asked to imagine a white bear and are then instructed to think for a period of time (typically one minute) about anything, except the white bear. The cognitive self-monitoring that is required to suppress the thought of the white bear leads to the paradoxical effect that the thought now becomes intrusive and, due to its intrusiveness, also unpleasant. Moreover, the intrusiveness of the suppressed thought tends to linger and continues into the post-suppression period when people are again free to think about any topic. Research has shown that thought suppression leads to increased electrodermal responses to emotional thoughts, suggesting that it elevates sympathetic arousal. Subsequent research has further established links between this rebound effect, as a laboratory phenomenon, and clinical disorders. For example, thought suppression has been associated with increased electrodermal responses to emotional thoughts (Wegner & Zanakos, 1994). Attempts to suppress pain (Cioffi & Holloway, 1993) or anxiety (Hofmann, Heering, Sawyer, & Asnaani, 2009) are similarly unproductive, and ruminating about unpleasant events prolongs both angry and depressed moods (Nolen-Hoeksema & Morrow, 1993; Rusting & Nolen-Hoeksema, 1998). However, a meta-analytic review indicated only a small to moderate rebound effect of thought suppression that varied in magnitude depending on the nature of the target thought and the method by which thought frequency was assessed (Abramowitz, Tolin, & Street, 2001).

Intrapersonal Emotion Regulation Models

Recently, authors have explored the role of emotion regulation and dysregulation in emotional disorders (Aldao, Nolen-Hoeksema, & Schweizer, 2010), and especially mood and anxiety disorders (Amstadter, 2008; Cisler, Olatunji, Feldner, & Forsyth, 2010; Berking, Ebert, Cuijpers, & Hofmann, 2013; Berking, Wirtz, Svaldi, & Hofmann, 2014; Hofmann, Sawyer, Fang, & Asnaani, 2012; Mennin, Heimberg, Turk, & Fresco, 2005; Wirtz, Hofmann, Riper, & Berking, 2014). Experimental studies have shown that participants with anxiety and mood disorders generally judge their negative emotions in response to a distressing film as less acceptable and tend to suppress their emotions to a greater extent than nonanxious participants (Campbell-Sills, Barlow, & Hofmann, 2006a). However, when instructed to accept their emotions, individuals with clinical diagnoses of anxiety or depression report less subjective distress and lower autonomic arousal than when asked to suppress their emotions in response to a distressing film (Campbell-Sills, Barlow, & Hofmann, 2006b).

Similar effects have been observed in individuals who were asked to undergo a social stress task (Hofmann et al., 2009). In this study, participants were randomly assigned to reappraise, suppress, or accept their anticipatory anxiety prior to an impromptu speech. The instructions to suppress anxiety were associated with greater increase in physiological arousal than the instructions to reappraise and accept. Furthermore, the suppression group reported more subjective anxiety than the reappraisal group. However, the acceptance and suppression groups did not differ in their subjective anxiety response.

The findings of these and other studies suggest that both reappraising and accepting negative emotions, such as anxiety, are more effective than suppressing anxiety for moderating the physiological arousal. However, reappraising tends to be more effective for moderating the subjective feeling of anxiety than attempts to suppress or accept it.

The modern conceptualization of emotion regulation is closely associated with older term of self-regulation. Moreover, emotion regulation, by definition, implies self-regulation, and emotions in humans are closely associated with self-regulatory processes. Many influential theories directly link self-related processes to emotions and well-being. For example, the *self-determination theory* (Ryan & Deci, 2000) suggests that an open awareness is especially beneficial in facilitating the choice of behaviors that are consistent with one's values, needs, and interests. In contrast, mindless and automatic processing can negatively affect considerations of options that are more congruent with one's needs and values (Ryan, Kuhl, & Deci, 1997). Therefore, although automaticity saves time and frees one's mind for more important tasks, it can also have negative consequences. For example, utilizing conscious attention can override unwanted responses, and be linked to well-being in cognitive, emotional, and behavioral domains (Bargh & Ferguson, 2000).

Self-focused attention may be described as a specific form of such a cognitive bias that is strongly related to negative affect. An earlier review of the literature suggested that negative self-focus is a general factor of psychopathology with specific kinds of self-relevant information being disorder specific and reflecting the particular psychopathological schemata of the various disorders. According to this view, self-focused attention can become maladaptive if the person is unable to shift to an external focus of attention when the situation warrants, leading to self-absorption, which is an excessive, sustained, and inflexible attention to internal states (Ingram, 1990). A more recent review suggests that private self-focus was relatively more strongly associated with depression and generalized anxiety, whereas public self-focus attention was more strongly associated with social anxiety (Mor & Winquist, 2002). In general, there is consensus in the literature linking self-regulation and self-focused attention to emotional experiences, especially to mood and anxiety.

The concept of *self-focus* was also a central component in an early version of *self-regulation model* (e.g., Duval & Wicklund, 1972). According to this model, self-focused attention leads to a self-evaluative process in which a person's current state in a particular self-relevant domain is compared with his or her standard in that domain. The model states that the person experiences positive affect if the current standing surpasses the standard, whereas negative affect is experienced if the current standing falls short of the standard. This

standard is greatly defined by social norms, making parts of the self a construct that is relative to the social context.

Building on this model, Carver and Scheier (1998) proposed that self-focus plays an important role in the self-regulatory processes toward goal pursuit by allowing the person to gather information about the discrepancy between their current self and a salient standard and engage in discrepancy-reducing behaviors when a negative discrepancy is detected. The model states that if there is a match between the current self and the desired standard, the person terminates the regulatory process. In contrast, if the current self falls short of the standard, the person is assumed to enter a cycle of behaviors and evaluations that lasts until the self matches the standard or until the person determines that a match is impossible.

Negative affect is experienced as a result of a person's judgment that the likelihood of attaining the standard is low or if the progress toward one's goals would be too slow. Therefore, self-regulation involves making decisions in the present in relation to future goals and social standards (Carver & Scheier, 1998). If the consequences of these decisions are congruent with these goals, standards, and values, the self is perceived as positive; if they are incongruent, the self is perceived as negative (Higgins, 1987). For example, if people experience a discrepancy between their present state (*actual self*) and the type of person they hope or aspire to be (*ideal self*), they feel discouraged, sad, and depressed, and their willingness to engage in a task is weakened. Moreover, if people experience a discrepancy between their present state and the type of person they believe they have to become (*ought self*), they worry, feel anxiety, and their engagement and vigilance in tasks increases (Higgins 1987). In contrast, people have positive affect toward themselves if they become the type of person they value to become. Thus, Higgins' self-discrepancy theory (e.g., Higgins, 1987) posits that emotions are not a direct product of any specific behavioral outcome. Rather, emotions are seen as a product of the perceived discrepancy between the desired state and the present state, which is in part defined by the social context.

Limitations of the Intrapersonal Process Model

Gross' process model of emotions has been highly influential and has stimulated a great amount of research. However it is not without limitations. Although recent formulations of the model (e.g., Gross & John, 2003) consider positive feedback loops and the possibility of recursive relationships, the core model assumes a simple input-output relationship between triggers and response. Moreover, some (if not most) emotional experiences, such as fast-acting fear or aggressive responses, cannot be easily explained by this process model, which implies that the multi-step process is relatively slow and deliberate as it requires a considerable amount of processing time.

Another and perhaps the most significant weakness of the model is its overemphasis on intrapersonal processes. Contrary to this intrapersonal view, it could be argued that there is no particular emotion regulation strategy that is categorically, or even mostly, either "good" or effective (e.g., appraisal) or "bad" or ineffective (suppression). Instead, it could be argued that regulatory flexibility is most beneficial, because adaptiveness of a strategy greatly depends on the social context and the situational demands (Bonanno, & Burton, 2013; Kashdan & Rottenberg, 2010).

Expressive suppression, as a case in point, is often cited as an example of a maladaptive strategy because it tends to increase physiological arousal (Gross, 1998; Gross & Levenson, 1997). Yet, one can think of many situations in which suppression is adaptive, if not essential, in order to meet the social demands. For example, it is highly adaptive to suppress anger in some vulnerable interpersonal situations, or to suppress the urge to burst out laughing at a funeral. Thus, the question of adaptiveness of emotion regulation strategies changes its meaning when moving from intrapersonal to interpersonal processes. Most importantly, emotion regulation is not confined to intrapersonal processes because humans form complex social networks that are intricately connected with their emotions. It could even be argued that emotion regulation typically happens in interpersonal relationships due to the multitudes of close social networks people are engaged in when dealing with emotions. Certain forms of psychosocial treatments, such as dialectic behavior therapy for borderline personality disorder (e.g., Lynch, Trost, Salsman & Linehan, 2006) already focus greatly on interpersonal aspects of emotions regulation. The particular treatment aspects targeting interpersonal emotion regulation primarily consist of social skills trainings to encourage clients to express their emotions in a socially acceptable and tempered manner. In contrast, relatively little is known about interpersonal emotion regulation strategies in mood and anxiety disorders.

The Social Dimension in Emotion Regulation

Communicative Function of Emotions

More than a decade after his major contribution on evolution that would revolutionize the field of science, Darwin wrote in *The Expression of Emotions in Man and Animals* (Darwin, 1955/1872):

> The movements of expression in the face and body (…) serve as the first means of communication between the mother and her infant; she smiles approval, and thus encourages her child on the right path, or frowns disapproval. We readily perceive sympathy in others by their expression; our sufferings are thus mitigated and our pleasures increased; and mutual good feeling is thus strengthened. The movements of expression give vividness and energy to our spoken words. They reveal the thoughts and intentions of others more truly than do words, which may be falsified (Darwin, 1955/1872, p. 364).

Darwin assigns emotions an important communicative function; he sees emotions as being closely linked to the social system of the organism, because many emotional experiences and expressions serve important roles of social communication. In fact, one could argue that without social connections, emotions, such as shame, jealousy, embarrassment, etc., cannot exist outside a social context.

Similarly, Mayr (1974) distinguished between behaviors directed toward the living and nonliving world (communicative vs. noncommunicative behaviors). Within the communicative category, Mayr further distinguished between behaviors that are directed toward members of one's own species (intraspecific behaviors) and behaviors that are directed toward members of other species (interspecific behaviors). Different emotional problems map onto different behaviors of Mayr's classification system. For example, in the

case of anxiety disorders, the fear of heights, snakes, and social situations, correspond to noncommunicative, interspecific communicative, and intraspecific communicative behaviors, respectively. The communicative function of emotions has also been referred to as *instrumental* if they serve a particular purpose to achieve a certain aim (e.g., Greenberg, 2011). For example, people may show sadness to elicit empathy from others or they may show anger in order to intimidate others. As such, emotions may be viewed as evolved mechanisms with an adaptive function and at times a communicative value.

Emotions and the Social Context as Related to the Self

The social context is implicit in the self-concept theories outlined earlier and is an important aspect of the self as it relates to emotions. William James (1948/1892) emphasizes the social aspect of the self by distinguishing the *social Me* from the *material Me* and the *spiritual Me*. The *social Me* is determined by the recognition one gets from his or her peers, which in turn influences one's emotional state.

Similarly, other authors have emphasized throughout the history of psychology the importance of the social context and social relationships for the self and emotional well-being. For example, Cooley (1902) assumed that a person perceives him- or herself the way others do, which was referred to as the *looking-glass self*. Thus, each person consists of as many selves as there are significant others in his or her social life. This view emphasizes *social consciousness* (i.e., awareness of others and society) as opposed to *self-consciousness*. Social consciousness involves awareness of how the significance of a person's action is determined by the reactions of others.

Mead (1934) later posited that a person has as many selves as there are social roles for this individual. Sarbin (1952) further proposed that everybody possesses a number of *empirical selves* that correspond to the different social roles that we are expected to occupy. The *pure ego* is the cross section of these different empirical selves. Similarly, Gergen (1971) argued that we possess multiple selves corresponding to our multiple social identifications. Later authors noted that people base their self-worth partly on their social roles and relationships with other people (Markus & Kitayama, 1991). Accordingly, some theories distinguish between the *private* and *public self-consciousness* with the former being focused on one's internal states and the latter being focused on one's personal competence or personality in a social context (e.g., Buss, 1980; Fenigstein, Scheier, & Buss, 1975). These theories consistently identify a social dimension of the construct called the *self*, which is closely tied to emotions.

Social Development of Emotion Regulation

Limiting emotion regulation to an intrapersonal, input-output process is further incompatible with a sizeable literature in the field developmental psychology, also suggesting that emotion regulation is a social, interpersonal process. Emotion regulation originates in early attachment relationships. An infant's emotional expression becomes the primary means through which attachment figures are made aware of the infant's needs. It has been proposed that what begins as the regulation of basic physiological needs *via* expressed emotions gradually transforms into emotion regulation (Hofer, 2006). Research on attachment has

shown that children utilize the secure base as a means of regulating their emotions as they explore their world (Bowlby, 1973, 1982). By learning that there is a safe place to turn to when distressed, children become more confident that the world is a safe place. This is then associated with a reduction of anxiety, allowing infants to move further away from the secure base for extended periods of time (Ainsworth, Blehar, Waters, & Wall, 1978).

Adult attachment relationships mirror these early infant–caregiver bonds, possibly because of the potential evolutionary advantages of pair bonding (Fraley & Shaver, 2000; Mikulincer & Shaver, 2007). Therefore, adults are likely to experience negative affect when being socially isolated, whereas social bonding and affiliation is associated with positive affect (Coan, 2010, 2011). As reviewed by McGinn and Newman (2013), an insecure attachment style in particular is linked to anxiety disorders in general. However, the findings are mixed, with some studies suggesting that insecure attachment to parents might be associated with anxiety (Shamir-Essakow, Ungerer, & Rapee, 2005; Rekart, Minela, Zinbarg, & Griffith, 2007; Warren, Huston, Egeland, & Sroufe, 1997), whereas others showed no such relationship (e.g. Feng, Shaw, & Silk, 2008; see also McGinn & Newman, 2013).

Emotion regulation eventually becomes a fundamental aspect of human socialization between the ages of 3 and 6 when social regulation evolves. This is the time when a child learns to respond based on other people’s inner states rather than to the outward behaviors and learns to relate the present self to the past self as well as the future self (Higgins & Pittman, 2008). This process depends largely on the environmental input in the form of caregivers' verbal and nonverbal reactions to children's emotions, and parents' expression and discussion of emotion (Eisenberg, Spinrad, & Eggum, 2010; Posner & Rothbart, 2000). This develops in the context of parent–child interaction, with both internal and external influences that act on one another over time (Cassidy, 1994; Cole, Martin, & Dennis, 2004; Eisenberg, Spinrad, & Eggum, 2010).

As executive functioning develops over time, emotion regulation becomes more intentional and effortful (Derryberry & Rothbart, 1997). Therefore, emotion regulation development is closely associated with parental and family influences from early in development, and these influences begin to include the peer context over time (Lunkenheimer, Shields, & Cortina, 2007; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Spinrad et al., 2007; Zeman & Shipman, 1998).

The development of the affective and cognitive systems underlying emotion regulation continues through adolescence (Steinberg, 2005). For example, the relationship between emotions in adolescence is mediated by parents' supportive responses to emotions (Yap, Allen, & Ladouceur, 2008). Research has linked the parents’ modeling of processes involved in their own emotion regulation, as well as their responses to their children's emotions, to the development of both anxiety and depression (Alloy et al., 2001; Eisenberg et al., 2010; Murray, Creswell, & Cooper, 2009). These studies suggest that social support is an important general predictor of psychological health. Social support refers to the psychological and material resources that are needed to benefit a person’s ability to cope with stress (Cohen, 2004). Perceived loneliness and social isolation, an extreme expression

of low social support, is a strong predictor of emotional health, especially depression (Cacioppo & Hawkley, 2003; Cacioppo, Hawkley, & Thisted, 2010; Joiner, 1997).

The nature of social support can be *instrumental* (e.g., material things), *informational* (e.g., guidance to facilitate coping or problem solving), or *emotional* (e.g., empathy). Perceived social support appears to be more important than received (enacted) social support for emotional health (Haber, Cohen, Lucas, & Baltes, 2007; Lakey, Orehek, Hain, & VanVleet, 2010), such as depression (e.g., Brown & Harris, 1978; George, Blazer, Hughes & Fowler, 1989; Stice, Ragan, & Randall, 2004; Travis, Lyness, Shields, King, & Cox, 2004). However, the mechanism through which social support affects emotional well-being is not well understood. It has been proposed that interpersonal emotion regulation might serve as a proximal mechanism through which social support affects emotional health (Marroquin, 2011).

The Interpersonal Model of Emotion Regulation

Principles of Interpersonal Emotion Regulation

Recently, Zaki and Williams (2013) proposed an interpersonal emotion regulation model. This model provides a valuable framework to identify interpersonal emotion regulation processes in mood and anxiety disorders. This model is consistent with the notion that emotion regulation implies self-regulation that happens within a social context and often serves a communicative function. More specifically, the model by Zaki and William (2013) distinguishes two orthogonal types of processes: Intrinsic vs. extrinsic and response-dependent vs. response-independent interpersonal emotion regulation processes. *Intrinsic interpersonal regulation* refers to the process when a person initiates social contact in order to regulate his/her emotion experience. In contrast, *extrinsic emotion regulation* is the process in which a person regulates another person's emotion. These processes can be *response-dependent* or *response-independent*. They are response-dependent if the processes rely on a particular response by another person, and they are response-independent if they do not require that the interaction partner responds in any particular way. Accordingly, these orthogonal processes create a 2 × 2 matrix: extrinsic vs. intrinsic processes that are either response-dependent or response-independent (Figure 1).

The following clinical scenarios might illustrate these processes and mechanisms of interpersonal emotion regulation. In the case of intrinsic interpersonal emotion regulation, a person wants to regulate his or her affect through the help of another person. An example for *intrinsic response-dependent emotion regulation* is the wife with panic disorder and agoraphobia who is afraid of going to a mall alone. However, she is able to do this when her husband is by her side. By asking her husband to go with her to the mall, she is able to regulate (i.e., reduce) her anxiety ("*You will rescue me*").

If the woman was married to a physically disabled husband, who could not effectively assist her in any way if she had a panic attack, her motive to have him by her side would be slightly different. In this case, simply feeling the presence of her husband might make her feel more at ease. She might feel that he will stand by her side, even if he was unable to

effectively respond in any particular way to her anxiety ("*You will stand by me*"). This is an example of *intrinsic, response-independent interpersonal emotion regulation*.

From the husband's perspective, an example of extrinsic emotion regulation is when he influences his wife's anxiety. In the case of *extrinsic response-dependent emotion regulation*, the husband accompanies her to the mall because he wants to make her feel more at ease and therefore accompanies her to the mall ("*I need to make you feel better*"). But one could also imagine that the husband is unaware of his wife's anxiety. If he is a loving husband, he will agree to his wife's request to join her to a trip to the mall without needing to further explore the reason for this request. In this case, he regulates his wife's emotions not because he wants to make her feel better (because he might not even be aware of her struggles with panic disorder), but only because he wants to be a loving husband ("*Feel my love*"). This is an example for *extrinsic response-independent emotion regulation*.

Some Implications for Treatment

The examples above focused for simplicity sake on panic disorder and agoraphobia. However, these processes are conceivable in many other forms of disorders in which individuals utilize other people as a way to regulate their own emotions (e.g., specific phobias, generalized anxiety disorder, obsessive-compulsive disorder, etc).

Whenever individuals are in close relationships, emotion regulation is probably not limited to only intrapersonal regulation strategies, but will also include interpersonal aspects. For chronic disorders, these strategies can be maladaptive, contributing to the maintenance of the disorders. The following will discuss some common examples.

Anxiety disorders—Avoidance behaviors are the primary maintenance factors for anxiety disorders. The presence of safety people constitutes an example of such an avoidance strategy. From an interpersonal emotion regulation model, safety people contribute to the maintenance of an anxiety disorder by serving as maladaptive response-dependent and response-independent intrinsic interpersonal emotion regulation strategies.

Safety people are frequent and subtle forms of avoidance strategies. Whether intentional or not, the safety person reduces the patient's distress by creating a sense of safety. Only repeated and prolonged exposure to threat in the absence of safety people or other safety signals and avoidance behaviors can lead to long-lasting changes in harm expectancy (Hofmann, 2008), relearning of safety relative to the learned alarm response and decrease in anxious apprehension. Other examples may include the partner who reassures the patient with obsessive compulsive disorder that the stove in the house is turned off or the husband who reassures the patient with generalized anxiety disorder that the bills will be paid. Whenever another person provides reassurance and relieve for irrational concerns, the clinician might want to explore the possibility for maladaptive interpersonal emotion regulation processes.

Aside from serving the role as a safety person, other people might be used in a multitude of ways to regulate one's anxiety. For example, individuals with high levels of social anxiety might spend an excessive amount of time on social networking sites in order to satisfy the

need to belong and to compensate for the lack of social support in close relationships (for review, see Nadkarni & Hofmann, 2012). Another example might be a person who displays anger towards another individual in order to regulate his/her own social anxiety.

The interpersonal model of emotion regulation provides a theoretical framework for understanding the social factors that contribute to the maintenance of the disorder. Educating the patient's partner about his or her role in this process might further strengthen the efficacy of an intervention.

Depression—Although there is a relatively large literature examining the associations between depression and marital interaction, the findings are ambiguous and contradictory (for a review, see Rehman, Gollan, & Mortimer, 2008). Marital distress and depression are closely associated and inter-related (e.g., Fincham, Beach, Harold, & Osborne, 1997). The majority of studies in this area examine the communication within a conflict or problem-solving paradigm. These studies suggest that marital communication in a relationship where one spouse is depressed is characterized by more frequent negative communications and less frequent positive communications (Johnson & Jacob, 1997; Rehman et al., 2008). Therefore, most intervention studies have attempted to improve communication patterns using behavioral principles. However, these studies have revealed disappointing results (e.g., Rehman et al., 2008).

Different intervention targets emerge when adopting an interpersonal emotion regulation view. For example, it has been shown that helping behaviors of husbands were viewed less positively by the partner when the wife showed depressive symptoms (Pasch, Bradbury, & Davila, 1997). Similarly, maladaptive communication was not consistently associated with depression, but it depended on the partner's emotional state: Wives communicated more negatively with husbands in a problem-solving task only when they reported depressive symptoms and underwent a negative mood induction (Rehman, Ginting, Karimiha, & Goodnight; 2010). In other words, the wife's emotional state moderated the relationship between marital conflict and depression. Therefore, communication trainings are unlikely to succeed unless the functional relationship between the partner's behaviors and patient's emotions are being addressed (i.e., how does the partner contribute to the patient's maladaptive emotion regulation strategies?). For example, the husband might employ extrinsic interpersonal emotion regulation toward his wife in order to deal with his own frustration at work. Communication and problem solving trainings without considering such interpersonal emotion regulation processes might even accentuate the problem.

Discussion

The intrapersonal model of emotion regulation (e.g., Gross, 2002; Gross & John, 2003; Gross & Levenson, 1997) has made an important contribution to the clinical field (Aldao, Nolen-Hoeksema, & Schweizer, 2010). However, the intrapersonal model does not consider the communicative function of emotions and the self-regulatory processes that include social aspects. Social factors do not only act as input or moderating variables of the model. Rather, the model presented here suggests that emotions happen within a social context and are partly regulated through other people. Based on a recently proposed framework (Zaki &

Williams, 2013), I distinguished intrinsic vs. extrinsic response-independent vs. response-dependent interpersonal emotion regulation strategies for mood and anxiety disorders. Depending on the context, interpersonal strategies be adaptive if they serve as a buffer of emotional stress and maladaptive if they contribute to the maintenance of the problem. An example of a maladaptive response-dependent and independent intrinsic emotion regulation strategy is the presence of a safety person for an individual with panic disorder and agoraphobia. Frequent or habitual use of interpersonal emotion regulation strategies can conceivably reduce the patient's sense of control of his/her own emotion experience. Therefore, it is quite possible that interpersonal emotion regulation can become maladaptive if a patient becomes dependent on specific individuals or social groups in order to regulate one's own emotions. This model offers a transdiagnostic perspective of emotional disorders by considering the broader social context of an individual's behavior and emotional experience.

Despite these advantages, an interpersonal model of emotion regulation shows a number of weaknesses. First and foremost, this is a new model and there are no instruments available to measure interpersonal emotion regulation strategies. Therefore, the direct empirical evidence for the impact of these strategies on emotional distress, including mood and anxiety disorders, is relatively weak. Any assessment instrument will need to consider the influence of the cultural context, because interpersonal emotion regulation strategies are directly related to social standards and expectations. Finally, it remains unknown how interpersonal and intrapersonal emotion regulation strategies interact and the relative importance of these strategies are unexplored.

Although this review was primarily focused on mood and anxiety disorders, very similar issues probably also apply to other disorders. A fuller understanding of these issues can significantly advance our understanding of emotional disorders and can lead to new and improved treatment strategies.

Acknowledgments

Author Note

Dr. Hofmann is supported by NIMH grant R01AT007257.

References

Abramowitz JS, Tolin DF, Street GP. Paradoxical effects of thoughts suppression: A meta-analysis of controlled studies. Clinical Psychology Review. 2001; 21:683–703. [PubMed: 11434226]

Ainsworth, MDS.; Blehar, MC.; Waters, E.; Wall, S. Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Erlbaum; 1978.

Aldao A, Nolen-Hoeksema S, Schweizer S. Emotion-regulation strategies across psychopathology: a meta-analytic review. Clinical Psychology Review. 2010; 30:217–237. [PubMed: 20015584]

Alloy LB, Abramson LY, Tashman NA, Steinberg DL, Hogan ME, Whitehouse WG, et al. Developmental origins of cognitive vulnerability to depression: Parenting, cognitive, and inferential feedback styles of the parents of individuals at high and low cognitive risk for depression. Cognitive Therapy and Research. 2001; 25:397–423.

Amstadter A. Emotion regulation and anxiety disorders. Journal of Anxiety Disorders. 2008; 22:211–221. [PubMed: 17349775]

Bargh JA, Ferguson MJ. Beyond behaviorism: On the automaticity of higher mental processes. Psychological Review. 2000; 126:925–945.

Barrett LF, Mesquita B, Ochsner KN, Gross JJ. The experience of emotion. Annual Review of Psychology. 2007; 58:373–403.

Berking M, Ebert D, Cuijpers P, Hofmann SG. Emotion regulation skills training enhances the efficacy of impatient cognitive behavioral therapy for major depressive disorder: A randomized controlled trial. Psychotherapy and sychosomatics. 2013; 82:234–245.

Berking M, Wirtz CM, Svaldi J, Hofmann SG. Emotion regulation predicts symptoms of depression over five years. Behaviour Research and Therapy. 2014; 57:13–20. [PubMed: 24754907]

Bonanno GA, Burton CL. Regulatory flexibility: An individual difference perspective on coping and emotion regulation. Perspective of Psychological Science. 2013; 8:591–612.

Bowlby, J. Attachment and loss: Vol. 2. Separation: Anxiety and anger. New York: Basic Books; 1973.

Bowlby, J. Attachment and loss: Vol. 1 (2nd. ed.). New York: Basic Books; 1982.

Brown, GW.; Harris, T. Social origins of depression: A study of psychological disorder in women. New York, NY: Free Press; 1978.

Buss, AH. Self-consciousness and social anxiety. San Francisco: Freeman; 1980.

Cacioppo JT, Hawkley LC. Social isolation and health, with an emphasis on underlying mechanisms. Perspectives in Biology and Medicine. 2003; 46:S39–S52. [PubMed: 14563073]

Cacioppo JT, Hawkley LC, Thisted RA. Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago health, aging, and social relations study. Psychology and Aging. 2010; 25:453–463. [PubMed: 20545429]

Campbell-Sills L, Barlow DH, Brown TA, Hofmann SG. Acceptability of negative emotion in anxiety and mood disorders. Emotion. 2006a; 6:587–595. [PubMed: 17144750]

Campbell-Sills L, Barlow DH, Brown TA, Hofmann SG. Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. Behaviour Research and Therapy. 2006b; 44:1251–1263. [PubMed: 16300723]

Carver, CS.; Scheier, MF. On the self-regulation of behavior. New York: Cambridge University Press; 1998.

Cassidy J. Emotion regulation: influences of attachment relationships. Monographs of the Society for Research in Child Development. 1994; 59:228–283. [PubMed: 7984163]

Cioffi D, Holloway J. Delayed costs of suppressed pain. Journal of Personality and Social Psychology. 1993; 64:274–282. [PubMed: 8433273]

Cisler JM, Olatunji BO, Feldner MT, Forsyth JP. Emotion regulation and the anxiety disorders: An integrative review. Journal of Psychopathology and Behavioral Assessment. 2010; 32:68–82. [PubMed: 20622981]

Coan JA. Adult attachment and the brain. Journal of Social and Personal Relationships. 2010; 27:210–217.

Coan, J. The social regulation of emotion. In: Decety, J.; Cacioppo, JT., editors. Handbook of social neuroscience. New York: Oxford University Press; 2011. p. 614-623.

Cohen S. Social relationships and health. American Psychologist. 2004; 59:676–684. [PubMed: 15554821]

Cole PM, Martin SE, Dennis TA. Emotion regulation as a scientific construct: Methodological challenges and directions for child development research. Child Development. 2004; 75:317–333. [PubMed: 15056186]

Cooley, CH. Human nature and the social order. New York: Charles Scribner's Sons; 1902.

Darwin, C. Expression of the emotions in man and animals (reprinted edition). New York: Philosophical library; 1955/1872.

Derryberry D, Rothbart MK. Reactive and effortful processes in the organization of temperament. Development and Psychopathology. 1997; 9:633–652. [PubMed: 9448999]

Duval, S.; Wicklund, R. A theory of objective self-awareness. New York: Academic Press; 1972.

Eisenberg N, Spinrad TL, Eggum ND. Emotion-related self-regulation and its relation to children's maladjustment. Annual Review of Clinical Psychology. 2010; 6:495–525.

Feng X, Shaw DS, Silk JS. Developmental trajectories of anxiety symptoms among boys across early and middle childhood. Journal of Abnormal Psychology. 2008; 117:32–47. [PubMed: 18266484]

Fenigstein A, Scheier MF, Buss AH. Public and private self- consciousness: Assessment and theory. Journal of Consulting and Clinical Psychology. 1975; 43:522–527.

Fincham FD, Beach SR, Harold GT, Osborne LN. Marital satisfaction and depression: Different causal relationships for men and women? Psychological Science. 1997; 8:351–357.

Fraley RC, Shaver PR. Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. Review of General Psychology. 2000; 4:132–154.

Gergen, KJ. The concept of self. NY: Holt, Rinehart, & Winston; 1971.

George LK, Blazer DG, Hughes DC, Fowler N. Social support and the outcome of major depression. The British Journal of Psychiatry. 1989; 154:478–485. [PubMed: 2590779]

Greenberg, LS. Emotion-focused therapy. Washington, DC, US: American Psychological Association; 2011.

Gross JJ. Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. Journal of Personality and Social Psychology. 1998; 74:224–237. [PubMed: 9457784]

Gross JJ. Emotion regulation: Affective, cognitive, and social consequences. Psychophysiology. 2002; 39:281–291. [PubMed: 12212647]

Gross JJ, John OP. Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. Journal of Personality and Social Psychology. 2003; 85:348–362. [PubMed: 12916575]

Gross JJ, Levenson RW. Hiding feelings: The acute effects of inhibiting negative and positive emotion. Journal of Abnormal Psychology. 1997; 106:95–103. [PubMed: 9103721]

Haber MG, Cohen JL, Lucas T, Baltes BB. The relationship between self-reported received and perceived social support: A meta-analytic review. American Journal of Community Psychology. 2007; 39:133–144. [PubMed: 17308966]

Higgins ET. Self-discrepancy: A theory relating self and affect. Psychological Review. 1987; 94:309–340.

Higgins ET, Pittman TS. Motives of the human animal: Comprehending, managing, and sharing inner states. Annual Review of Psychology. 2008; 59:361–385.

Hofer MA. Psychobiological roots of early attachment. Current Directions in Psychological Science. 2006; 15:84–88.

Hofmann SG. Cognitive processes during fear acquisition and extinction in animals and humans: Implications for exposure therapy of anxiety disorders. Clinical Psychology Review. 2008; 28:199–210. [PubMed: 17532105]

Hofmann SG, Heering S, Sawyer AT, Asnaani A. How to handle anxiety: The effects of reappraisal, acceptance, and suppression strategies on anxious arousal. Behaviour Research and Therapy. 2009; 47:389–394. [PubMed: 19281966]

Hofmann SG, Sawyer AT, Fang A, Asnaani A. Emotion dysregulation model of mood and anxiety disorders. Depression and Anxiety. 2012; 29:409–416. [PubMed: 22430982]

James WW. What is emotion? Mind. 1884; 4:188–204.

James, WW. Psychology. Cambridge, MA: Harvard University Press; 1984/1892. original work published 1892

Johnson SL, Jacob T. Marital interactions of depressed men and women. Journal of Consulting and Clinical Psychology. 1997; 65:15–23. [PubMed: 9103730]

Joiner TE Jr. Shyness and low social support as interactive diatheses, and loneliness as mediator: Testing an interpersonal-personality view of depression. Journal of Abnormal Psychology. 1997; 106:386–394. [PubMed: 9241940]

Kashdan TB, Rottenberg J. Psychological flexibility as a fundamental aspect of health. Clinical Psychology Review. 2010; 30:865–878. [PubMed: 21151705]

Lakey B, Orehek E, Hain KL, VanVleet M. Enacted support's links to negative affect and perceived support are more consistent with theory when social influences are isolated from trait influences. Personality and Social Psychology Bulletin. 2010; 36:132–142. [PubMed: 19875827]

Lazarus RS. Toward better research on stress and coping. American Psychologist. 2000; 55:665–73. [PubMed: 10892209]

Lazarus, RS.; Folkman, S. Stress, Appraisal, and Coping. New York: Springer; 1984.

Leslie AM. Pretense and representation: The origins of “Theory of Mind.”. Psychological Review. 1987; 94:412–426.

Lunkenheimer ES, Shields AM, Cortina KS. Parental emotion coaching and dismissing in family interaction. Social Development. 2007; 16:232–248.

Lynch TR, Trost WT, Salsman N, Linehan MM. Dialectic behavior therapy for borderline personality disorder. Annual Review of Clinical Psychology. 2007; 3:181–205.

Markus HR, Kityama S. Culture and the self: Implications for cognition, emotion, and motivation. Psychological Review. 1991; 98:224–253.

Marroquín B. Interpersonal emotion regulation as a mechanism of social support in depression. Clinical Psychology Review. 2011; 31:1276–1290. [PubMed: 21983267]

Mayr E. Behavior programs and evolutionary strategies. American Scientist. 1974; 62:650–659. [PubMed: 4440939]

Mead, GH. Mind, self, and society. Chicago: University of Chicago Press; 1934.

Mennin DS, Heimberg RG, Turk CL, Fresco DM. Preliminary evidence for an emotion regulation deficit model of generalized anxiety disorder. Behaviour Research and Therapy. 2005; 43:1281–1310. [PubMed: 16086981]

Mikulincer, M.; Shaver, PR. Attachment in adulthood: Structure, dynamics, and change. New York: Guilford Press; 2007.

McGinn LK, Newman MG. Status update on social anxiety disorder. International Journal of Cognitive Therapy. 2013; 6:88–113.

Mor N, Winquist J. Self-focused attention and negative affect: A meta- analysis. Psychological Bulletin. 2002; 128:638–662. [PubMed: 12081086]

Morris AS, Silk JS, Steinberg L, Myers SS, Robinson LR. The role of the family context in the development of emotion regulation. Social Development. 2007; 16:361–388. [PubMed: 19756175]

Murray L, Creswell C, Cooper PJ. The development of anxiety disorders in childhood: An integrative review. Psychological Medicine. 2009; 39:1413–1423. [PubMed: 19215631]

Nadkarni A, Hofmann SG. Why do people use facebook? Personality and Individual Differences. 2012; 52:243–249. [PubMed: 22544987]

Nolen-Hoeksema S, Morrow J. Effects of rumination and distraction on naturally-occurring depressed mood. Cognition and Emotion. 1993; 7:561–570.

Posner MI, Rothbart MK. Developing mechanisms of self-regulation. Development and Psychopathology. 2000; 12:427–441. [PubMed: 11014746]

Preston SD, de Waal FB. Empathy: Its ultimate and proximate bases. Behavioural Brain Sciences. 2002; 25:1–20.

Rehman US, Gollan J, Mortimer AR. The marital context of depression: Research, limitations, and new directions. Clinical Psychology Review. 2008; 28:179–198. [PubMed: 17573169]

Rekart KN, Mineka S, Zinbarg RE, Griffith JW. Perceived family environment and symptoms of emotions disorders: The role of perceived control, attributional style, and attachment. Cognitive Therapy and Research. 2007; 31:419–436.

Rusting C, Nolen-Hoeksema S. Regulating responses to anger: Effects of rumination and distraction on angry mood. Journal of Personality and Social Psychology. 1998; 74:790–803. [PubMed: 9523420]

Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist. 55:68–78.

Ryan RM, Kuhl J, Deci EL. Nature and autonomy: An organizational view of social and neurobiological aspects of self-regulation in behavior and development. Development and Psychopathology. 1997; 9:701–728. [PubMed: 9449002]

Salovey P, Mayer JD. Emotional intelligence. Imagination, Cognition and Personality. 1990; 9:185–211.

Sarbin TR. A preface to a psychological analysis of the self. Psychological Review. 1952; 59:11–22. [PubMed: 14912187]

Shamir-Essakow G, Ungerer JA, Rapee R. Attachment, behavioral inhibition, and anxiety in preschool children. Journal of Abnormal Child Psychology. 2005; 33:131–143. [PubMed: 15839492]

Steinberg L. Cognitive and affective development in adolescence. Trends in Cognitive Sciences. 2005; 9:69–74. [PubMed: 15668099]

Stice E, Ragan J, Randall P. Prospective relations between social support and depression: Differential direction of effects for parent and peer support? Journal of Abnormal Psychology. 2004; 113:155–159. [PubMed: 14992668]

Taylor, GJ.; Bagby, RM.; Parker, JDA. Disorders of affect regulation: alexithymia in medical and psychiatric illness. Cambridge: Cambridge University Press; 1997.

Thompson RA. Emotion regulation: A theme in search of definition. Monographs of the Society for Research in Child Development. 59:25–52. [PubMed: 7984164]

Travis L, Lyness JM, Shields CG, King DA, Cox C. Social support, depression, and functional disability in older adult primary-care patients. The American Journal of Geriatric Psychiatry. 2004; 12:265–271. [PubMed: 15126227]

Wegner DM, Schneider DJ, Carter SR, White TL. Paradoxical effects of thought suppression. Journal of Personality and Social Psychology. 1987; 52:5–13. [PubMed: 3820078]

Yap MBH, Allen NB, Ladouceur CD. Maternal socialization of positive affect: The impact of invalidation on adolescent emotion regulation and depressive symptomatology. Child Development. 2008; 79:1415–1431. [PubMed: 18826533]

Warren SL, Huston L, Egeland B, Sroufe LF. Child and adolescent anxiety disorders and early attachment. Journal of the American Academy of Child and Adolescent Psychiatry. 1997; 36:637–644. [PubMed: 9136498]

Wegner DM, Zanakos S. Chronic thought suppression. Journal of Personality. 1994; 62:615–640.

Wirtz CM, Hofmann SG, Riper H, Berking M. Emotion regulation predicts anxiety over a five-year interval: A cross-lagged panel analysis. Depression and Anxiety. 2014; 31:87–95. [PubMed: 24151095]

Zaki J, Williams WC. Interpersonal emotion regulation. Emotion. 2013; 13:803–810. [PubMed: 24098929]

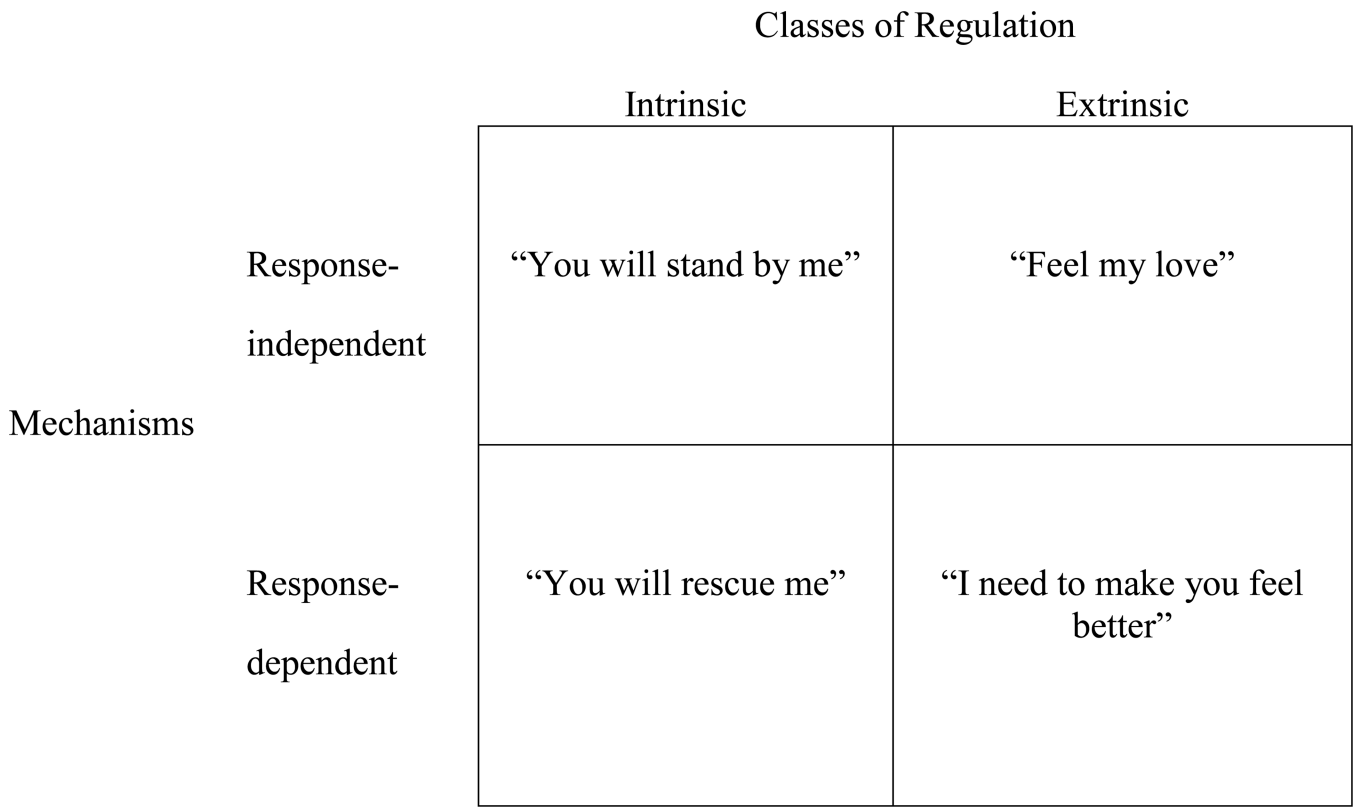

Figure 1.
Clinical scenarios of interpersonal emotion regulation (adopted from Zaki and Williams, 2013) Mechanisms