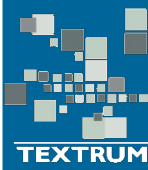

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1 # Emotion Regulation: A Heuristic Paradigm for
2 # Psychopathology

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5 ## Abstract

6 This paper analyses some of the key issues raised across the eight contributions of the present special issue. First,
7 the remarkable ubiquity of emotion regulation (ER) problems throughout psychopathology will be stressed, and the
8 merits of relying on emotion science to further our understanding of psychopathology will be discussed. Then, the
9 status of ER strategies in psychopathology will be discussed: Are they causes, consequences, mediators, or
10 moderators of psychopathology? Developing this question implies considering the functions served by ER
11 strategies and their interaction with the context in which they appear. Next, we examine the benefits of an ER
12 approach to psychopathology for clinical practice, both for case conceptualization and for psychological treatment.
13 Finally, some directions for future research are proposed. This paper analyses some of the key issues raised
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20 case conceptualization and for psychological treatment. Finally, some directions for future research are proposed.

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22 Keywords: Emotion regulation, transdiagnostic processes, psychopathology

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Introduction

For decades emotion has been neglected in clinical psychology. Early behaviorism viewed emotion as too introspective to be the object of a truly scientific inquiry (Watson, 1914); psychoanalysis considered emotion as the symptomatic consequence of inner conflicts, a perspective shared by cognitive therapists (Beck, 1976). Fortunately, this state of affair began to change at the end of the eighties, with the contribution of leading clinicians who attributed a central role to emotion in their etiological model of psychopathology (e.g. Barlow, 1984) or in their clinical intervention protocols (e.g. Greenberg, 2002). At about the same time, cognitive psychopathology started to develop, initially importing cognitive psychology models and paradigms in the field of psychopathology, which, in actuality, resulted in examining how *emotional* information was processed by individuals afflicted by given psychopathological disorder. Yet, it is only recently that the theoretical models constructed by emotion researchers are being used in psychopathology.

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The present special issue is thus extremely timely. Focusing on emotion regulation (ER), it addresses some of the most fundamental questions to which clinical psychologists are confronted: how do affective disturbances appear and how are they maintained, despite the will of the sufferers to escape them. In this concluding commentary, I will develop some of the issues raised across the eight contributions. First, I will comment on the remarkable ubiquity of ER problems throughout psychopathology, and of the merits of relying on emotion science to analyze this question. Then, I will question the status of ER strategies in psychopathology: Are they causes, consequences, mediators, or moderators of psychopathology? Developing this question will lead us to consider the functions served by ER strategies and their interaction with the context in which they appear. Next, I will concretize the benefits of an ER approach to psychopathology for clinical practice, both for case conceptualization and for psychological treatment. Finally, a conclusion will propose some directions for future research.

The Ubiquity of Emotion Regulation in Psychopathology

In 2001, Kring has shown that many of the DSM criteria for its axis I disorders were referring to emotion. Jazaieri, Urry and Gross (this issue) extended this seminal work in a detailed and systematic analysis of the DSM IV criteria for all disorders. They show that more than 40% of DSM disorders mention affective disturbance in their required criteria. However, only 21% clearly refer to problems in emotion regulation. Still, this observation is remarkable for several reasons. Indeed, the mention of emotional manifestations in diagnostic criteria was *a priori* unlikely given the long disregard of psychopathology and clinical psychology for emotion and for the concepts developed by emotion science. Further, the DSM criteria focus on observable symptoms, while most ER processes are intrapsychic and not directly observable. Despite this *a priori* unfavorable ground, Jazaieri et al.'s analysis clearly indicates that ER issues are at stake in many psychopathological disorders.

The ubiquity of ER in psychopathology is also evidenced in the consideration of positive ER by Hechtman, Raila, Chiao and Gruber (this issue). These authors transcended the dichotomy between allegedly "positive" and "negative" emotions and the simplistic notion that ER would consist in down-regulating "negative" emotions and in up-regulating "positive" ones. They show that deficits in regulating positive emotion might result in psychopathological problems, *e.g.* in alcohol abuse or depression. Indeed, difficulties might also result from the inability to down-regulate positive emotions, such as in bipolar disorder, or to expression negative emotions, such as the inhibition of appropriate anger in social anxiety.

73 Hechtman et al. (this issue) also bring to light two important facets of the ubiquity of ER. First, they demonstrate
74 that ER in its relation with psychopathology is an issue in many, if not in all, cultures. Culture shape the
75 understanding of emotion: They note, for instance, that, in contrast to the North-American culture, Asian cultures
76 consider that "positive" emotions are not unambiguously positive and, conversely, that "negative" emotions are not
77 necessarily all that negative. Cultures have consequently different prescriptions regarding appropriate ways to
78 regulate emotion, which might result in different prevalence of psychopathological disturbances, as documented by
79 Hechtman et al.

80 A second facet of ER ubiquity is highlighted by Hechman's *et al.* (this issue) detailed and documented multi-level
81 and trans-disciplinary analysis, establishing a new discipline: cultural neurosciences. Considering cultural variation
82 in psychopathology, they cover from the molecular level of ER, examining the implication of specific gene alleles
83 such as the 5-HTTLPR or the DRD4, to brain activity, behavior, to finally reach the molar level of culture. At each
84 level, they report cultural variations, which are then related to similar variations at other levels. In this complex
85 analysis, ER has proven to be a heuristic concept for establishing links across levels and for accounting for cultural
86 variations. Conversely, such multilevel analysis is remarkably informative in establishing the determinants of the
87 many facets of ER. In this line, such an approach provides insight for fixing the possibilities and limits of
88 psychological intervention on ER.

89 The Status of Emotion Regulation Strategies in Psychopathology

90 The very fact that some ER strategies are quoted as diagnostic criteria or symptoms in the DSM IV (Jazaieri et al.,
91 this issue) is raising the question of their status in etiological models. We have to disentangle what, in ER, is a
92 psychopathological process from what is a psychopathological symptom, i.e. the consequence of the process. In
93 other words, the question should be raised of whether ER disturbances or specificities are an "input" or an "output"
94 of the disorder. Providing that an ER strategy is possibly an input of a psychopathological disturbance, one should
95 wonder whether this ER strategy is a direct cause of the disturbance, or whether it mediates or moderates the
96 causal effect of another process, or whether, it is merely a consequence or symptom of the disturbance, without
97 any causal implication in the psychopathological disturbance.

98 This issue is central to many contributions of the present issue. For instance, three papers have focused on worry
99 or rumination as an *a priori* maladaptive ER strategy. Cooper, Miranda and Mennin (this issue) defend the notion
100 that individuals with generalized anxiety disorder (GAD), primed with anxiety, and who latter tend to avoid emotion,
101 subsequently display greater depth of worry. These findings show important functional links between emotional
102 avoidance and worry, congruently with the model of Borkovec, Alcain and Behar (2004) for which ruminative
103 worrying is a form of emotional avoidance that plays a major role in the maintenance of anxiety in GAD. In this
104 conceptualization, worry mediates the effects of anxiety and uncertainty on GAD symptoms. However, the present
105 data of Cooper et al. suggest that this might not be the case for all people with GAD, as this effect was observed
106 only in those who attempted to avoid the unpleasant emotion induced. This implies that alternative mediating paths
107 might exist. Additional research is needed to replicate these findings and, providing they are, to identify the
108 moderator.

109 LeMoult, Ardite, D'Avanzato and Joorman (this issue) studied rumination in a dysphoric sample, after the induction
110 of a social stress. They observed that the more people ruminated after the social stressor, the less they recovered
111 from the sadness it had induced. This clearly indicates that rumination directly impacts on the maintenance of low
112 mood, following a stressor. Interestingly, these authors observed that individuals suffering from high dysphoria and
113 who also present difficulties in disengaging their attention from emotional material, are also the ones who
114 manifested the higher level of rumination following the stressor. It nicely shows how the use of a given ER strategy
115 might be constraint by cognitive impairment or depletion of resources. Interestingly, LeMoult and collaborators
116 distinguished between trait and state rumination, observing the above mentioned effects only for state rumination.
117 This reinforces their interpretation that it is the actual use of that specific ER strategy, rumination, that yields the
118 unfortunate emotional disturbance consequences, and not a personality trait that could possibly act via a third
119 variable. In conclusion, Lemoult et al. (this issue) bring support to the notion that rumination is a causal determinant
120 of the maintenance of low mood in dysphoric individuals, and that these individuals are more likely to rely on this
121 ER strategy if their attentional disengagement capacities are limited.

122 Finally, Svaldi and colleagues (this issue) directly manipulated rumination (while the two previously mentioned
123 studies observed it). Following an induction of body dissatisfaction, obese women were invited to either ruminate
124 on, or accept their present thoughts and feelings. Svaldi et al. observed that mood and body satisfaction returned
125 to baseline (measured before the body dissatisfaction induction) in those who practiced acceptance of their
126 thoughts and feelings. In contrast, those who were instructed to ruminate maintained lower mood and more
127 distress about their body. The experimental design of the study brings strong support to notion that rumination is a
128 causal determinant of distress and low mood after the induction of a threat to the self.

129 Taken as a whole, these three contributions document that the rumination phenomena observed in
130 psychopathology are not merely symptoms of psychological disturbances. Rather, they suggest, at least the two
131 latter ones, that some ER strategies, such as rumination, might play a major role in the onset or in the maintenance
132 of psychopathological symptoms. The exact status of rumination in Cooper et al's (this issue) study, is still not fully
133 established; It is certainly not to be considered as a consequence or output, but its status as moderator or mediator
134 of GAD symptoms needs further research to be established.

135 Two other contributions to the present issue focused on a diagnosis, borderline personality disorder (BPD),
136 attempting to evidence its characteristics in terms of ER. Chapman, Dixon-Gordon and Walters (this issue) defend
137 the original and provoking hypothesis, that BPD is not a consequence of the inability to regulate emotion, as
138 commonly believed, but rather that it results from a tendency to over-regulate emotion. People suffering from BPD
139 would devote great effort and much resources to down regulate their emotions, depleting their resources and
140 consequently lacking the necessary resources for functional behavior. In their study, they observed that, compared
141 to healthy controls, BPD sufferers reported more intense emotions of fear nervousness and hostility following a fear
142 induction, and greater use of some ER strategies like distraction, reappraisal or emotion suppression (but less of
143 emotional acceptance). This finding is partly counter-intuitive, given that reappraisal is often *a priori* considered as
144 an adaptive ER strategy. Chapman and collaborators also observed that the lack of emotional acceptance in BPD
145 sufferers, when confronted with a stressor, was related to heightened hostility in response to the stressor. Overall
146 these observations suggest that some ER strategies might mediate the effect of a stressor on psychopathological
147 disturbances, while other ER strategies (e.g. acceptance) might act as a moderator.

148 Evans, Howard, Dudas, Denman and Dunn (in press) also induced negative emotion in people with varying
149 severity of BPD features. In different conditions, they observed either the spontaneous, or the instructed use of two
150 ER strategies: suppression and acceptance. In contrast to Chapman et al.'s study, Evan et al. did not observe
151 greater emotional responses to the mood induction. However, those with more BPD features manifested a slower
152 emotional recovery post induction. The partial divergence between the two studies regarding the observed
153 emotional responses to the stressor is difficult to explain. They both used film excerpts to induce emotion, although
154 the excerpt used by Chapman et al. (scene of a chase in the basement from "the silence of the lambs") might have
155 been more arousing and fear-inducing than the ones used by Evans et al. (scenes of emotional and physical
156 abuses in dysfunctional couples). Still, the theme of the latter excerpts might have been more relevant to BPD
157 concern than the theme of the former. Another significant difference is that Evans et al. considered the whole
158 continuum of borderline trait features in the general population, while Chapman et al. contrasted, in a student
159 population, healthy controls to students scoring within the clinical range of BPD.

160 Still, congruent with the observations of Chapman et al., Evans et al. observed that people with elevated BPD
161 features were not manifesting difficulties in using ER strategies, contrary to common belief. They also report a
162 positive correlation between the use of avoidant strategies and BPD features, but no relation with acceptance.
163 Unexpectedly, in this study, there was no evidence that acceptance was more effective in regulating emotion than
164 suppression.

165 In sum, taken together, the studies of Chapman et al. and of Evan et al. concur in seriously challenging the
166 commonly accepted notion that BPD is characterized by a deficit in ER. Rather, they suggest that BPD sufferers
167 are perfectly able to use ER strategies and that their problem might actually be that they over-use them or miss-use
168 them (this notion will be developed in the next section). In other words, they would concentrate all their resources
169 on regulating emotion, and might find themselves depleted when it comes to planning and enacting functional

behavior. Still, more research is needed to further examine whether BPD sufferers over-respond to emotion elicitation, and whether they are really effective in their use of ER strategies.

The question of the status of ER in psychopathology was also investigated from a different angle by Tull, Kiel, McDermott and Gratz (this issue). They examined in cocaine dependent patients with or without PTSD whether exposure to trauma reminders increases craving. They observed that indeed, when male participants with a PTSD experienced self-conscious emotions (shame and guilt) in response to a trauma reminder, their craving for cocaine increased. This suggests that trauma memories do not have a direct impact on cocaine craving. Rather, a possible interpretation of the present findings, is that this impact is moderated by how the trauma situation is appraised. If, and only if, this appraisal implies a threat to the self and a personal responsibility, resulting in self-conscious emotions, then craving will be potentiated.

To conclude the many and diverse contributions to the present issue all considered that ER is not just an epiphenomenon, or the symptomatic expression of psychopathological disorders. Rather, they all attribute to ER a role in the path leading to psychopathology, be it the one of direct cause, of moderator, or of mediator. Further, this ER based approach is yielding new perspectives on psychopathology, forcing us to reconsidered formerly well accepted notions, such as the one of an alleged deficit in ER in BPD. Conversely, some results are also intriguing as they question previous conceptions of ER. For instance, ER strategies, generally considered as adaptive such as reappraisal, seem to be linked to the maintenance of some psychopathological disturbance. Further, the same strategies seem not to be more efficacious than alleged adaptive strategies, such as acceptance, at least in certain settings or populations. To overcome this puzzle, we propose that ER strategies should not be considered in isolation, but rather in the perspective of the functions they serve in the context in which they appear. This notion is developed in the next section.

Plead For a Functional Perspective on Emotion Regulation

In studying the relation between ER and psychopathology, it is tempting to attempt to identify the ER strategies that would be adaptive and the one that would be maladaptive. However, the findings of several studies in the present special issue question this approach. Indeed, some have observed that certain psychopathological disorders are characterized by the greater use of *a priori* adaptive ER strategies, such as the over-use of reappraisal in BPD, as reported by Chapman et al. (this issue). Others (e.g. Evans et al. this issue) have failed to observe differences in effectiveness between strategies that are *a priori* considered as adaptive (e.g. acceptance) or maladaptive (e.g. suppression).

These observations militate for taking into consideration the *function* of given ER strategies. Indeed, an ER strategy might not be in itself and in all circumstances adaptive or maladaptive. One has to consider its function, i.e. the goal pursued, or the instrumental use of the ER strategy. This implies taking into consideration the context in which the ER strategy is used. For instance, cognitive reappraisal is unlikely to be adaptive if it entails disregarding important actual meanings in the emotional situation. These meanings might be unpleasant, and consequently they might trigger allegedly negative emotions, but they have to be taken into consideration in order to adapt to the reality of the situation. This might be the case, for example, in a situation in which a significant harm is willfully inflicted by a third party. Disregarding this specific (and realistic) appraisal of the situation, as it might be observed in avoidant or in socially anxious individuals, is likely to result in not stopping the abuse or in more abuse in the future. Conversely, suppression, an allegedly *a priori* maladaptive ER strategy, might be adaptive in urgency situation of dire strait in which action has to be performed without interference by emotional feelings that might trigger dysfunctional action tendencies. For instance, suppression of fear and disgust might be necessary to provide first assistance to severely wounded casualties of a car accident, while the spontaneous action tendency triggered by emotion would be to flight away.

Hence, I defend the notion that any given ER strategy cannot be considered *a priori* as adaptive or not. A taxonomy of the good versus bad ER strategies is meaningless. ER strategies have always to be understood in the light of the function they serve. Different ER strategies will be better suited according to the type of emotion to be regulated, to the context in which the emotion unfolds, and to the goal pursued by the individual. Here, like it is often the case in psychopathology, flexibility is the golden key for success (Bonanno, Papa, Lalande, Westphal, &

Coifman, 2004). Psychological health is likely to be best preserved for individuals who are able to vary the ER strategies they use according to the context and the goal they pursue. This notion might explain why individuals suffering from GAD are afflicted by emotional disturbances, while they seem to be perfectly able to use a variety of ER strategies. The fact is that they might not apply them appropriately to the context or to their goals, or that they might overuse them.

In his study of rumination, Watkins (2011) provides a nice illustration of the flexible approach to ER. He distinguished between two types of rumination (Watkins, 2008), one centered on the concrete and present aspects of one's state and experience ("how am I feeling now; what is going on now"), labeled concrete experiential rumination, and the other on the possible causes and consequences of concrete one's state and experience ("why am I feeling like that now; what will happen if I continue to feel this way"), labeled abstract analytic rumination. Studying depression, it appeared that abstract analytic rumination is generally depleting mood and generating other adverse consequences, while concrete experiential rumination has the opposite effect (Watkins, 2004). The former type of rumination was thus qualified as maladaptive and the latter as adaptive. However, further investigations revealed that the state of affair is not that Manichean. Indeed, it appeared that abstract analytic thinking is effective when one has to resolve problems involving high order goals and meaning (e.g., having to decide on whether re-orienting one's professional career), but ineffective when regulating low level goals, such as when regulating day to day moods, or being confronted to a daily hassle. Concrete experiential thinking holds exactly the opposite characteristics and is useful when dealing with concrete, present problems. Hence, Watkins (2011) concludes that psychological adaptation is best achieved by a flexible use of either type of rumination mode, according to the nature (level) of the goal at stake in each given situation.

The Benefits of Emotion Regulation Science for Clinical Intervention

Although recent, the application of ER science to psychopathology is rich in practical implications for clinical practice, both for case formulation and for intervention. Regarding case formulation, emotion science in general and ER in particular, provide many useful and empirically validated concepts for finely describing psychopathological phenomena. This is well illustrated in the systematic analysis of the DSM criteria by Jazaieri et al. (this issue) who also stress that the description of psychopathological phenomena would gain in precision and relevance if the taxonomies of ER strategies evidenced by emotion science would be used to define psychopathological disorders.

Pushing this reasoning a step further, some have even contended that emotion and its regulation could serve as a funding paradigm for psychopathology (e.g. Barlow, 2002). Emotion indeed bares many characteristics that make it an interesting model for psychopathology. First, it relates to many, if not all, facets of human behavior: Emotion includes feelings, physiological responses, cognitive changes, action tendencies, social interactions, etc.. Second, emotion recruits both conscious and non-conscious, automatic and voluntary, processes. Further, emotion science provides models articulating these phenomena and accounting for their inter-relationships (e.g. Power & Dalgleish, 2008). This body of research thus offers important insights on how automatic affective responses—the hallmark of psychopathology—might be modulated by voluntary behavior. In other words, it provides the theoretical basis to design psychological interventions, acting on voluntary behavior, that could modulate dysfunctional automatic affective responses. Third, emotion is intimately related to the values and goals pursued by the individuals (Carver & Scheier, 1990), and hence to their identity. These key features of emotion make it valuable as a reference model (i.e. a paradigm) for case formulation in psychopathology. Not only does it add precision and fineness in the definition of the relevant ER processes, but also, an ER-based approach to case formulation significantly contributes to moving from a descriptive approach to a theory-based, explanatory one (Barlow, 2004).

In this line, many authors of this special issue referred to a transdiagnostic approach in case formulation (Harvey, Watkins, Mansell & Shafran, 2004). This new look in psychopathology operates a Copernican revolution: Rather than attempting to decipher the processes and features that characterize a given psychopathological diagnosis considered as essential entities, it aims at identifying the psychological processes that bare psychopathological consequences across diagnoses. In this perspective, the diagnosis is less a central concern for psychopathology. The main intention of the transdiagnostic approach is to relate psychological processes to psychopathological

symptoms or profiles of symptoms. As developed in the preceding paragraphs, most of these transdiagnostic processes are related to ER, making this domain of science an important reference in psychopathology.

Another value of approaching psychopathology from an ER perspective is that it transcends the artificial barrier between allegedly “normal” versus “pathological” phenomena. We all experience emotions, and we most often attempt to regulate them in a way or another. As developed at the beginning of this paper, ER is ubiquitous. An ER-based perspective hence naturally leads to consider the full continuum ranging from normal to pathological phenomena. Consequently, it allows considering pre-morbid phenomena and potential resources or protective factors. This perspective hence encourages the design of preventive rather than curative interventions. It also contributes in a positive approach to psychopathology, considering the potential strength of the individual and how to reinforce them, rather than solely focusing on pathological processes.

The later paragraphs have already alluded to the incremental value of using an ER perspective for clinical intervention. It should be noted that this perspective, by its fundamental transdiagnostic characteristic, also changes our approach to the validation of psychological treatments. It suggests moving from evidence-based protocols for specific diagnoses, to interventions targeting the psychological processes involved in the onset or in the maintenance of psychopathology. Such validation would be determined by the intervention effectiveness in modulating target psychological processes (Barlow, 2004). Recent work is heading in that direction, such as interventions targeting rumination (Watkins, 2004), emotional acceptance (Philippot & Segal, 2009), or attentional biases for emotional material (Hakamata et al., 2010). In this endeavour, the knowledge build by ER science is a particularly relevant resource.

Conclusion and Future Directions

Obviously, emotion regulation science has a lot to offer to our understanding of psychopathology, and to the design of new clinical interventions. This domain of research is still incipient but it is deeply rooted in a rich and long tradition of research on emotion and emotion regulation that has developed outside the area of psychopathology. The times are now mature for the cross-fertilization between these two domains. The present issue shows how useful the concepts developed by ER science are for our understanding of psychopathology, for guiding clinical interventions, and for designing now psychological treatments.

Future research has to pursue this impetus, and to further move from a descriptive approach of psychopathology and of ER, to explanatory models. In this perspective, a major agenda will be to disentangle the interplay between ER strategies, the context in which they are used and the goals they entail, as well as the consequences they bare in terms of psychopathological symptoms and well-being. As suggested by some contributions of the present issue, the economy of ER should also be considered: to which extend the cost of using a given ER strategy is lower than the cost of not using it. This notion is well illustrated by the possible over-use, or rigid use, of some ER by individuals suffering from BPD. In these cases, inappropriate use of ER strategies leads to exhaustion and dysfunctional behavior. Finally, in a more general perspective, future research might investigate whether our suggestion regarding the flexible use of a range of ER strategies is indeed the best protection against psychopathological problems.

Evidently, this research will be complex, because of the interactive nature of the studied phenomena. But its promise of a new look on psychopathology is great.

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