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EMOTION DYSREGULATION IN BORDERLINE PERSONALITY DISORDER: A LITERATURE REVIEW

abstract

The goal of this literature review is to describe the state of art related to emotion dysregulation in BPD and to illustrate a possible descriptive model.

As of today, no consensus in literature is reached, but, from a conceptual point of view, most of the authors agrees with Linehan's theory in understanding emotion dysregulation both as affective instability and as a frequent recourse to dysfunctional regulation strategies. The latter is what emotion dysregulation is from an operational point of view. The descriptive model explained in this paper is a possible way to bridge the conceptual and operative views of emotion dysregulation in BPD.

keywords

emotion dysregulation, BPD, affective instability, dysfunctional strategies, descriptive model

Introduction The *goal* of this review is to describe the state of art related to emotion dysregulation in BPD, trying to group first empirical and theoretical studies with experimental and neuro-cognitive papers that debate this issue and to group then those with similar theoretical and conceptual directions.

We reviewed the most relevant studies from 2003 to 2014. The studies taken into consideration are experimental and neuro-experimental ones together with theoretical reviews and papers.

1. Three theoretical macro-conceptualizations derived from literature review Emotion dysregulation is acknowledged by most clinical models as the major and central clinical feature both in the pathogenesis and treatment of BPD, considered as “*primarily a disorder of the emotion regulation system*” (Linehan 1993: 43) and the main cause of additional emotional symptoms manifested (Glenn & Klonsky 2009; Putnam & Silk 2005).

Currently, a lack of conceptual clarity prevents to define unambiguously and precisely this construct:

in fact, we could identify f three possible macro-theoretical conceptualizations in the literature review.

1.1. The First Macro-Conceptualization: An Operative Definition of Emotion Dysregulation as Maladaptive and Inefficient Regulatory Strategies This conceptualization associates to emotion dysregulation the meaning of a broad use of *maladaptive and inefficient behaviors or strategies* undertaken by individuals to manage their emotional experiences.

Even if disadaptive in most cases, these actions represent a regulatory attempt by BPD subjects to cope with the emotions experienced and not just being overwhelmed by them.

Despite the great number of classifications of regulatory strategies, the literature considers as reference model the *Modal Model of Emotion Regulation*.

As *Figure 1* shows, there are five prototypical strategies (Gross & Thompson 2007).

The first one is the *situation selection*, consisting in approaching or avoiding certain people, places, or activities in order to limit as much as possible the experience of negative emotions.

Situation modification, refers to acting on specific situation-stimulus to modify its emotional impact. *Attentional deployment* is a strategy the individual chooses to focus on a specific aspect of certain situation.

The fourth strategy of *cognitive change* refers to the selection of possible meanings attributable to a specific situation in order to decrease its emotional impact.

The last strategy, *response modulation*, refers to the modulation, as direct as possible, of the emotional response from a physiological or experiential perspective.

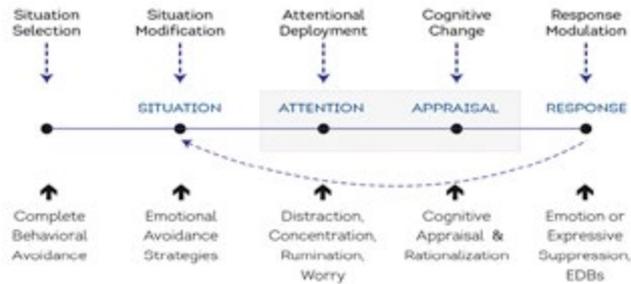


Fig. 1. The Modal Model of Emotion Regulation by Gross. *Above:* adaptive version; *below:* disadaptive version. Adapted from Fairholme *et al.*, 2010.

The difference between these strategies is the time they need in order to have a primary impact on the generative emotional process (Gross *et al.* 2006).

According to the above, the first four are “antecedent-focused” strategies, antecedent the activation of an emotional response, aimed to alter directional trajectory if this is disadaptive and not conform to individual’s objectives.

Instead, the fifth and last strategy, response modulation, is a “response-focused” strategy, subsequent to the activation of the emotional response, aimed at regulating the current emotional state.

Emotion regulation strategies act more effectively as operational unconscious mechanisms: the frequency of their employment and possibly their success in past emotional situations are two determiners of the unconscious operation (Bargh & Williams 2007).

Within psychopathology, it is possible that the *presence* of a *maladaptive* emotion regulation strategy could be more deleterious than the *absence* of an *adaptive* one (Aldao *et al.* 2009).

Each of the five strategies in the Modal Model (Gross 2007), has its maladaptive version. The maladaptive form of *situation selection* is the *complete behavioral avoidance*, which is utilized by individuals to avoid situations of emotional distress: this strategy seems to give emotional relief in the short term but not in the long term.

Distraction, concentration, rumination and worry are all examples of a maladaptive *attention deployment*: *rumination* is a verbal-linguistic strategy that implies a cognitive focalization on previous negative situations or on their perceived failure (Fairholme *et al.* 2010). It is the most harmful of all maladaptive versions of attention deployment.

Cognitive appraisal and rationalization are disadaptive versions of the strategy of *cognitive change*. The first one denotes the formulation of realistic interpretations of the emotional situation. Differently, rationalization implies justificatory interpretations given by the individual in order to alter the current emotional situation.

Finally, *emotional or expressive suppression and EDBs* are disadaptive versions of *response modulation*. The term “suppression” means, behaviorally, a disguise of emotions that consequently are experienced through artificial behaviors (Gross & Thompson 2007) while, emotionally, indicates the inhibition of the emotional experience itself.

EDBs mean “Emotion-driven behaviors” that are specific actions engaged according to the relevance of the emotional experience itself.

Having explained the theoretical framework of the first conceptualization of emotion dysregulation, we can now analyze the studies.

According to Schmahl *et al.* (2014), emotion dysregulation refers to “the *frequency*” with which patients use maladaptive strategies to regulate emotions and it is a *driving force behind*

several serious dysfunctional behavioral patterns, including suicidal ideation, suicide attempts, maladaptive interpersonal behaviors and impulsive coping behaviors, such as alcohol abuse” (Schmahl *et al.* 2014: 2).

Other authors focalized their studies on *several aspects* of the emotion regulation strategies. For example, in their review Putnam & Silk (2005), showed that BPD subjects, *in the short term*, seem to be able to utilize efficient strategies to alter the emotional tenor of a stimulus, intensifying the valence and arousal of negative stimuli as well as prolonging the duration of the effect of the stimulus.

Therefore, although these are baneful attempts, individuals with BPD demonstrate an operative capacity to modify, somehow, the emotional quality of a stimulus.

Conversely, *in the long term*, these regulatory strategies become inconsistent with the goals of the individual and deleterious to interpersonal functioning, probably because BPD subjects tend to experience much more negative emotions over the time than positive or neutral ones. Interesting findings by Pietrek *et al.* (2012) showed that at a neuromagnetic level, dysfunctional emotion regulation occurs at the level of response regulation, not at the level of input processing.

Other studies focalize their attention specifically on the *different types of dysfunctional emotion regulation strategies*.

For example, Dixon-Gordon (2014) examined in a sample of 84 BPD subjects, the role of positive and negative emotion differentiation in daily life in predicting urges for a range of maladaptive behaviors.

Emotion differentiation is an adaptive emotion regulation strategy, which describes the ability to make fine-grained distinctions between similarly valenced emotional states.

Not all the individuals have the same emotion differentiation capacities: some of them are high differentiators, who are able to distinguish between emotional states with similar valence (e.g. sadness, anger). On the contrary, others are low differentiators, because tend to describe their emotions in more global terms, based only on the valence property (e.g. pleasantness vs. unpleasantness), losing possible important information about their emotional experiences (Zaki *et al.* 2013).

The results showed that positive emotion differentiation is a potential protective factor in the relation between high BPD features and maladaptive behaviors; while negative emotion differentiation does not impact urges for these type of behaviors, suggesting that reducing impact urges may not be the mechanism by which emotion differentiation facilitates non-engagement in maladaptive behaviors.

Other studies analyzed *suppression*, a specific and recurrent dysfunctional emotion regulation strategy utilized by BPD subjects. Beblo *et al.* (2013), for example, investigated attempts to suppress or accept negative and positive emotions both in BPD patients and in healthy participants. Different important conclusions can be drawn from these findings.

First, the strategy of suppression is not always efficient in decreasing emotional negative states: rather, its action can paradoxically emphasize the intensity and occurrence of negative emotions. For this reason, the suppression strategy has been called “*ironic process*” because, regarding its initial purpose, it leads to an exactly opposite result (Lowenstein 2007). Moreover, according to the authors, intense negative emotions may lead to fear of emotional arousal. In accordance with this assumption, through stimulus generalization this fear may expand to fear of positive emotions, which subsequently lead BPD subjects to suppress them. This process could explain why BPD individuals suppress emotions with positive valence. Nevertheless, the attempt to suppress negative and positive emotions shows that these individuals *are not just acting out emotions without trying to regulate them*, confirming once again the operative definition of emotion dysregulation.

Last, but not least, the study of Vine & Aldao (2014) showed that *deficits in emotional clarity* might underpin regulatory dysfunctions and associated borderline symptomatology. In addition, they stressed other two facets of impaired emotion regulation in BPD individuals: the *access to emotion regulation strategies* and, to a lesser degree, *attention-shifting ability*. Chapman *et al.* (2011), focused particularly on the latter, showing that deficits in emotion regulation among persons with BPD specifically involve difficulty engaging response-focused emotion regulation strategies and *difficulty deploying attention away* from emotionally evocative stimuli and maladaptive attempts to control intense emotions.

Differently from the above mentioned studies, which consider emotion dysregulation in terms of inefficient strategies engaged by BPD subjects to regulate intense felt emotions, other authors refer to this construct with the term of “*affective instability*”, defined as marked intensity, reactivity and variability of moods (APA 2000). It is important to underline that this definition of emotion dysregulation leaves out every operative attempt (even if unsuccessful) made by individuals trying to manage their intense emotional state: in this case, it’s the quality of the emotion itself that leads to an unstable and dysfunctional emotional arousal. As reported by Doll *et al.* (2013), BPD is “characterized by “*stable instability*” of emotions, impulsivity, social relationships and self-image. Some authors focalized on *emotional reactivity*, one of the component of affective instability. For example, Kuo *et al.* (2014) in their study underlined that *emotional reactivity is a key process in BPD*.

Moreover, they added that “though not always explicitly defined “emotional reactivity”, many other models of BPD reference extreme changes in *emotional intensity or emotional lability* as key features of the disorder, including attachment-based, developmental, interpersonal, genetic and psychodynamic models” (*Ibidem*: 155).

The authors examined the differences in emotional reactivity in response to standardized and idiographic stimuli, and across three specific emotions (sadness, fear and anger). The findings show that idiographic or personally-relevant stimuli (primarily related to anger and sadness) were more effective in eliciting emotional reactivity in BPD compared to standardized stimuli. Another finding is that sufficient reactivity seem to be elicited *prior to engagement of regulation strategies* so that, emotion dysregulation would take place already at the level of the former, not necessarily with the presence of the latter.

Sansone & Sansone (2010) also examined emotional hyper-reactivity in BPD, seen as a low threshold for responsiveness and a greater responsiveness to the environment. Reviewing findings from clinical experience and empirical studies, they found out that BPD subjects may over-react to negative stimuli as well as positive or neutral ones. Their hyper-responsiveness in different environmental situations is related to relationship issues, mainly regarding themes of loss, abandonment and/or the encountering of limits.

1.2. The Second Macro-Conceptualization: Emotion Dysregulation Equated to “Affective Instability”

**1.3. The
Third Macro-
Conceptualization:
Emotion
Dysregulation as
the Combination
of Affective
Instability and
Maladaptive
Emotion
Regulation
Strategies**

The third and last definition could be seen as the product of the previous ones, because it explains emotion dysregulation as the *combination of affective instability*, including the *characteristics of the emotional response itself* (e.g. duration, intensity, frequency etc.), and the *maladaptive behaviors or strategies* engaged to manage the emotions experienced.

Mennin & Fresco (2010) explained these two domains of emotion dysregulation. The first relates to the *generative characteristics of the emotional experience*, including intensity, valence and durability of the emotional response. The second domain of dysregulation is related to the *regulative processes of an emotional experience*. Among these, there are *limited emotional knowledge and reduced awareness* that imply the individual's inability to clarify, classify and differentiate emotions from underlying motivations. These dysfunctions prevent to get a meaning from these experiences and respond effectively to the current situation; individuals could also have *cognitive negative reactions* to emotions, that imply an activation of negative expectations and beliefs regarding emotional states.

Another dysfunctional emotional process is the maladaptive management of responses to emotions: this feature is particularly characteristic of BPD and is indicated as a difficulty to recognize how and when increase or decrease responses to a specific current emotion. Consequently, individuals are not able to engage themselves in resolute behaviors or efficient regulatory strategies.

Dysregulation could occur in one of these features, such as for emotional intensity, which is a risk factor for the development of Borderline Personality Disorder.

The conceptual framework used for this conceptualization of emotion dysregulation is Linehan's biosocial theory (1993), emphasizes a biological emotional vulnerability that leads also to problems with emotion dysregulation in terms of an engagement of maladaptive strategies and a lack or limited access to more adaptive ones. In their theoretical review, Carpenter & Trull (2013) showed that emotion dysregulation is not an end-state, but a process incorporating multiple interactive components, derived from Linehan's biosocial theory. These components are an emotion sensitivity, a higher negative affectivity, a deficit of appropriate regulation strategies and a surplus of maladaptive regulation strategies. Emotion dysregulation seems to operate in a circular way, so that inadequate regulation strategies, derived from higher and unstable negative affectivity, reinforce in turn vigilance toward negatively valenced stimuli in the environment. Anyway, more research is needed to better elucidate the interactive way of operating of these four components.

Also Newhill *et al.* (2012) focalize their conceptualization of emotion dysregulation on Linehan's theory, but they took in consideration only the aspect of affective instability and not the operative disadaptive engaged strategies. In this case, emotion dysregulation consists of three dimensions: a high sensitivity or vulnerability to emotional stimuli, a high amplitude of emotional response to such stimuli and a slow return to emotional baseline after affective arousal.

Moreover, in their neuro-experimental study, Donegan *et al.* (2003) assessed amygdala reactivity in 15 BPD subjects compared to 15 NC subjects. They observed a greater left amygdala activation to facial expressions in BPD group compared with NC group, and a difficulty disambiguating neutral or threatening faces in the former too.

These findings discovered substantial amygdala activation as a key component of emotional vulnerability in BPD patients, especially in the contest of disturbed interpersonal relations and in processing emotional stimuli and reactions.

Besides in this neuro-scientific context, Ruocco *et al.* (2012), evaluated whether the magnitude of the volume reductions of hippocampus and amygdala and their associations with state-of-illness factors and psychiatric comorbid disorders could be considered as potential endophenotypes. The authors, reviewing 11 research studies, came to the conclusion that the

modest volume reductions of the amygdala and hippocampus cannot be attributed to illness state or comorbid psychopathology but they may hold promise as candidate endophenotypes for BPD.

Some authors add other causes/predictors to emotion dysregulation compared to those explicated by Linehan in the biosocial model.

For example Gorska (2013) added as causes of emotional dysregulation also the referential processes that indicate a dissociation of internal emotional schemas, all factors that seem to be conditioned more socially by relationships. The referential activity in BPD individuals stops at sub-symbolical level, so for the basic function of symbolization, mentalization or metacognition is then seriously compromised, leading to immature emotional representations, full of idiosyncratic details.

Consequently, for these subjects is impossible to integrate emotional experiences, the fundamental element that would have made emotion regulation possible.

If the previous studies refer to, eventually amplifying, Linehan's biosocial theory, others only partially support this model.

For example, Kuo & Linehan (2009) analyzed in particular three dimensions of the biosocial model (biological vulnerability, high emotional intensity and high reactivity) in a sample composed by 20 BPD, 20 SAD (*e.g. social anxiety disorder*) and 20 NC participants. Their findings revealed that if emotion dysregulation in BPD subjects is accounted for high baseline emotional intensity and biological vulnerability, this is not the case of high reactivity. In fact, these individuals seem to be not more reactive than nonclinical and socially anxious subjects. Moreover, it remains unclear whether emotional intensity is indeed a sequence of vulnerability (as proposed by Linehan's model) or whether it is an outcome of the transaction between an emotionally vulnerable individual and an invalidating environment.

Reeves *et al.* (2010) tested the main corollary of the biosocial theory, according to which emotional vulnerability and invalidation lead to emotional dysregulation, which ultimately leads to BPD symptoms.

In a very large nonclinical sample they found out that, contrary to predictions, a history of emotional invalidation was not related to self-reported BPD symptoms, suggesting that this variable may not play such an important role as predicted by Linehan's biosocial theory.

This finding was further corroborated by Gill & Warburton (2014), who showed in their study that emotionally validating parenting acts as a protective factor against the development of borderline traits, but it *doesn't correlate with emotional dysregulation*.

This finding is important because, according to the authors, it highlights that not all borderline etiology is mediated by emotional dysregulation. Other types of poor parenting, beyond the emotionally one, may play a role in BPD symptomatology.

Selby & Joiner (2009) proposed the Emotional Cascade Model, which is incremental to Linehan's theory.

In this conceptual framework, BPD arises from a complex network of interacting factors and at the center there are the emotional cascades. They originate primarily from an intense rumination process of negative events that results in emotional intensity and, consequently, in behavioral dysregulation.

In this case, *the strategy of rumination*, the disadaptive version of the strategy of attentional deployment (Gross & Thompson 2007), is the first responsible for both affective instability and behavioral dysregulation.

Moreover, according to this model, only dysregulated behaviors, in form of *distraction*, induce temporary reduction of negative emotion, leading to relief.

Finally, Beblo *et al.* (2010), investigated whether emotional intelligence was compromised in BPD subjects such that it could compromise the engagement of adaptive emotion regulation

strategies. Their findings showed that intense emotions could trigger dysfunctional emotion regulation strategies even when patients possess sufficient theoretical knowledge about optimal regulation strategies. Consequently, it seems plausible that an individual's selection of emotion regulation strategies is more influenced by the current emotional state rather than (or not exclusively) by abstract knowledge.

2. Discussion This systematic review reassesses the state of art related to emotion dysregulation in BPD as evidenced by literature. The state of art on emotion dysregulation in BPD underlines a great diversity of theoretical and conceptual lines derived mainly from the research results. From a detailed analysis of the literature, we can state that the emotion dysregulation is a core feature of BPD, but it has not yet been precisely defined the way it occurs within the disorder itself. From a conceptual point of view, most of the authors, taking in consideration the theory of Linehan, agrees in understanding emotion dysregulation both as affective instability relating to the quality and intensity of emotions, and as a frequent recourse to regulatory strategies in managing maladaptive emotions. However, from the operational point of view, according to some authors, emotion dysregulation would manifest within the BPD only as use of maladaptive strategies such as rumination and suppression, which would strengthen the intensity of the current emotional state. Further studies are needed to achieve greater consistency among the various theoretical positions and to test empirically the ways in which the emotional dysregulation occurs within the disorder.

3. Conclusions. A possible model of what happens in the “here and now” to BPD subjects could start from the interaction among values, objectives and action. Values are abstract concepts, they are socially shared, and the realisation of them is what could give worthiness to life. Objectives are both abstract and concrete, that is contextually determined. Objectives are the embodiment of values in real life through action, that is strictly contextual. Actions happen in the “here and now” and choosing an action means excluding other actions. If reality is probabilistic before acting, it becomes deterministic when we are acting.

Emotion Dysregulation in Borderline Personality disorder: a possible descriptive model To explain the link between the behavioural dysfunctionality of BPD subjects to their difficulty in emotion regulation we could start from two possible options. According to option a. values and objectives are intact (more simple), while option b. says that values and objectives are affected by developmental problems. We could tentatively start from option a. (even if it is not possible to ignore the option b.).

The first step is what happens when an intense emotion, for instance fear, takes the control of behaviour in a certain situation. The result could be a self-damaging action, such as self-cutting. A very high percentage of BPD subjects use to cut themselves, for instance in difficult social situations, mainly when they feel the risk of social exclusion, or abandonment. The result of this kind of action is a momentary emotional relief. This is also demonstrated from a neurobiological perspective: indeed we know that the amygdala, a part of the brain that is activated by emotionally relevant stimuli, is often over-activated in BPD subjects and that physical pain has the capability to reduce its over-activation.

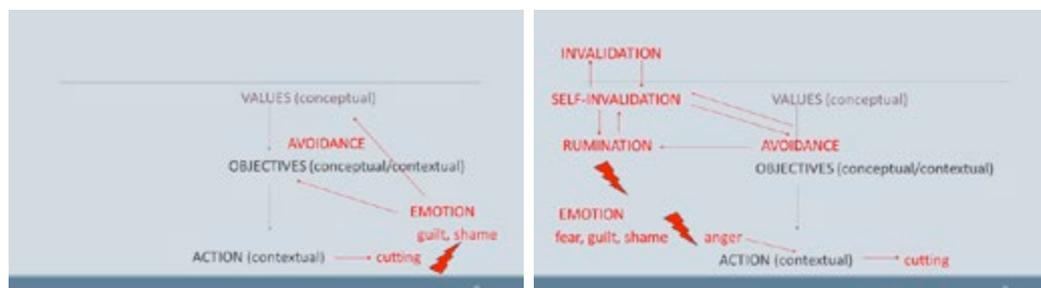
However relief is short because secondary emotions suddenly happen. Guilt or shame are typically secondary emotions raised by dysfunctional behaviour. A typical pattern happens in emotional eating, where binge eating is often caused by intense anxiety. Eating a lot of food helps to reduce the emotion, however both physical and psychological discomfort contribute to the appearance of secondary emotions. The problem here is what to do with secondary emotions.

A possible solution is behavioural avoidance, related to both values and objectives. Avoidance has recently been considered as an attempt to downregulate emotions in BPD. However

avoidant behaviour has serious consequences, mainly if we now take into consideration the option b. that we mentioned before. Option b. says that to become BPD it is necessary a long, problematic, developmental history. Linehan's model, previously mentioned, assumes that emotional vulnerability and environmental invalidation are two components of a negative developmental path. However it seems that to tolerate emotional invalidation future BPD subjects use to self-invalidate themselves. Self-invalidation is an attempt to cope with two poles of a dilemma: emotional dysregulation and environmental invalidation. Since the last one increases the former, and vice-versa, self-invalidation is a way to be accepted by an invalidating environment. To be concrete: if somebody tells me that I'm wrong because he/she doesn't understand my emotional difficulties, I feel invalidated and my negative emotions are at risk to increase. If I convince myself that I'm wrong, the invalidating environment is satisfied, however I don't regulate my emotions. Self-invalidation makes me weaker: I start to consider myself not adapted to life. The risk of avoidance is to increase self-invalidation and to reduce self-efficacy.

Cognitive rumination is a further attempt to cope with negative emotions raised by avoidance, self-invalidation, environmental invalidation. However rumination produces emotions such guilt and shame, that could finally change into anger. It is well known that to be angry is "better" than to be guilty, ashamed or anxious. From a subjective perspective to be angry means to be stronger. The final result is, unfortunately, that anger is finally self-directed. That is that it determines the possibility to act in a self-aggressive way. The vicious circle is so completed.

The figures summarise what is explained in the text.



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