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REVIEW

Perfectionism and psychological distress: a review of the cognitive factors

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Abstract

The authors review the role of cognitive processes and mechanisms involved in the relationship between maladaptive aspects of perfectionism and psychological distress. A brief introduction to the concept of perfectionism is made, giving particular relevance to its multidimensional nature that encompasses positive and negative aspects. The later facets and its relationship with a broad range of psychopathological conditions are emphasized. The main cognitive processes and cognitions underlying perfectionist behavior and its negative emotional consequences are analyzed. Special importance is given to the role of repetitive negative thinking (RNT) and how this cognitive process mediates the relationship between perfectionism and psychological distress. The authors propose a multilevel cognitive model in which the metacognitive beliefs about the value of RNT may explain the onset and maintenance of the cognitive mechanisms involved in perfectionism and its relationship with emotional disturbances. In this context, it is important to develop and test this model empirically, with instruments designed to investigate the metacognitive processes involved in perfectionism.

The clinical implications resulting from this model would be the development of cognitive-behavioral interventions designed to address levels of psychological distress across the many perfectionism-related disorders, focused directly on controlling levels of RNT (worry/rumination) and managing symptoms of anxiety and depression.

Keywords: Perfectionism, Psychological distress, Cognitions, Worry, Rumination, Metacognitions.

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Introduction

Perfectionism is a personality disposition characterized by exceedingly high standards for performance accompanied by tendencies for overly critical self-evaluations of one's behavior [1].

While perfectionism was initially proposed as an unidimensional disposition [2] focused on intrapersonal aspects, more recent investigation has described it as a multidimensional construct encompassing both personal and interpersonal facets. For instance, Hewitt and Flett [3] developed the Multidimensional Perfectionism Scale (H&F-MPS) which assesses three dimensions of perfectionism: (a) Self-Oriented Perfectionism (SOP); (b) Socially-Prescribed Perfectionism (SPP); and (c) Other-Oriented Perfectionism (OOP). The distinction between self and social components of perfectionism is also incorporated in the Multidimensional Perfectionism Scale of Frost, Marten, Lahart, and Rosenblate [4] (F-MPS). This instrument includes four intrapersonal dimensions, which includes having high personal standards/striving for excellence, being organized, having concerns about making mistakes and doubts about own actions, and two interpersonal dimensions concerning parental criticism and parental expectations.

Is perfectionism adaptive or maladaptive?

It has been suggested since Hamachek [5] that perfectionism comprises both normal and negative (neurotic) aspects. Thereafter, these two forms have been diversely referred to as adaptive and maladaptive perfectionism [6], positive striving and maladaptive evaluative concerns [7], healthy and unhealthy perfectionism [8], conscientious and self evaluative perfectionism [9], and positive and negative perfectionism [10]. This multiplicity of names and conceptualizations is rather confusing and a clarification of the nomenclature would be warranted. Factor analytic studies of the multidimensional instruments that assess perfectionism [3, 4, 9] may help achieve this objective, revealing that virtually any measure of perfectionism reflects two basic forms of perfectionism [11]. According to these authors, using a dimensional approach, the facets of perfectionism from several instruments are combined to form two independent dimensions of perfectionism: (a) perfectionistic strivings (PS), and (b) perfectionistic concerns (PC).

PS is a dimension that comprises those facets of perfectionism that capture perfectionistic personal standards and self-oriented striving for perfection. This dimension has been associated to positive characteristics, processes, and outcomes such as higher levels of extroversion, conscientiousness, endurance, positive affect, satisfaction with life, active coping styles, achievement, academic performance, perceived social support, and to lower levels of external control, depression, suicidal ideation, self-blame, and perceived hassles [1, 11].

On the other hand, PC is a composite of concern over mistakes, need for approval, rumination, and perceived parental pressure. It involves experiencing anxiety about doing things incorrectly, failing to meet standards, being judged by others, and worrying about performance [12]. In contrast with PS, PC has been associated to negative characteristics, processes, and outcomes such as neuroticism, low self-esteem, negative affect, anxiety, depression, and suicidal ideation [1, 11]. In the group-based approach to conceptualize perfectionism, the facets of perfectionism are combined to form two groups of perfectionists: (a) healthy perfectionists, associated with positive characteristics and (b) unhealthy perfectionists, associated with negative characteristics [11].

In sum, the PS dimension is associated with positive psychological outcomes and positive characteristics and unrelated or even inversely related to those negative characteristics commonly associated with perfectionism, whereas the PC dimension has been linked with inverse associations to positive outcomes [13-16].

Why is the study of perfectionism relevant?

The concept of perfectionism is complex, not only because of its multidimensionality but also due to its diverse functional effects. Some of its facets are linked to positive outcomes, whereas others are associated with negative consequences. Thus, research on this trait may enlighten us regarding which are the specific aspects of perfectionism that we should accept or even encourage, in the right measure, and those that we should eliminate developing the adequate treatment or preventive strategies.

Most of the literature concurs on the fact that some negative facets of perfectionism are consistently associated with psychological distress (PD) in the form of a broad range of psychological problems identified in both clinical and non-clinical samples [17].

Though perfectionism has been linked with negative outcomes, a growing number of investigators advocate the need for an increment in the study of the relationship between perfectionism and more positive psychological variables and desirable outcomes [11, 12]. Some studies have demonstrated a positive association between perfectionistic striving and positive affect [16, 18].

Another line of investigation has shown that most perfectionists express their perfectionism in multiple spheres, and that, in most of these domains, being perfectionistic was internally motivated. The dimensions viewed as more adaptive, including self-oriented perfectionism [19], organization, and personal standards [20], were those showing consistent and unique correlations with the overall number of domains of perfectionism. Furthermore, being perfectionistic in a greater number of domains was not related to lower satisfaction with life or negative affect. On the contrary, it was associated with higher satisfaction [19] and the number of domains in which perfectionism is

expressed was correlated with positive affect [20]. Other positive psychological outcomes with which perfectionism may be related are psychological well-being and life satisfaction. For instance, the study of Hill et al. [12] confirmed the predominantly adaptive nature of perfectionistic strivings. In their study this dimension was strongly associated with psychological well-being, satisfaction with life and positive mood.

Cognitive framework of perfectionism

In recent years, some authors have drawn attention to functional processes that cut across disorders and may offer a parsimonious explanation for the high rates of comorbidity between disorders [21]. It has been advocated that studying such processes in samples that encompass multiple, relevant disorders is more useful for identifying improved phenotypes that map onto neural systems and intervention targets than a traditional disorder-based approach [22]. An additional advantage of this transdiagnostic perspective is that treating these common processes rather than individual disorders may increase treatment flexibility and transportability [23].

Recently, Egan, Wade, and Shafran [24] reviewed all the evidence on the role of perfectionism across a number of psychopathological conditions and argued that this personality trait should also be considered a transdiagnostic process. Even if we do not regard this trait formally as a "process", there is no doubt that perfectionism embodies a set of cognitive and behavioral characteristics that act across several different psychological disorders as a common vulnerability factor [21].

Furthermore, we think that this transdiagnostic approach provides a heuristic new avenue for investigating the underlying mechanisms responsible for the common negative consequences that perfectionism has in so many different disorders. For this purpose, we should move from the earlier correlational studies to more complex ones, in which the cognitive characteristics and mechanisms that mediate the causal links between the dispositional variable (i.e. perfectionism) and the psychological disturbances could be discriminated and fully understood.

Shafran, Cooper, and Fairburn [25] developed a cognitive-behavioral model that highlighted some of the relevant cognitive characteristics involved in clinical perfectionism. Firstly, perfectionists set goals that are hardly feasible. Secondly, they can not achieve these objectives because, from the beginning, they were unrealistically high. Thirdly, the constant pressure to pursue an impossible perfection, with the inevitable failure as outcome, reduces productivity and performance, leading to procrastination or task avoidance. Fourthly, this cycle determines harsh self-criticism and self-depreciation, which predisposes the perfectionist to experience emotional distress in the form of anxiety or dysphoric mood [26]. In this context, fear of failure and related beliefs are core psychopathological characteristics of clinical perfectionism and its principal motivational force. For instance, SOP has been associated with an inability to tolerate errors [27] and fear of failure [28].

Why are perfectionists so afraid of failing? For intrapersonal reasons, but also because of interpersonal aspects: the latter are consubstantiated in what Campbell and Di Paula [29] call "conditional acceptance" that is, the belief that we can only be loved by others if we are perfect in everything we do. Thus, perfectionists have the perception that they will only be accepted and respected by others if they are perfect or have a perfect performance. This fear of being rejected by others leads to a spiral of increasing perfectionism, in order to avoid failure and consequently please other people. For instance, the study of Conroy, Kaye and Fifer [30] showed that, in a non-clinical sample, only SPP and not SOP was strongly associated with beliefs that failure led to aversive interpersonal consequences. For some individuals, the fear of failure and of not being able to live up to their standards can be so intense that it leads them to use some avoidance strategies, such as working long hours, rechecking completed assignments, and redoing tasks, which may be used to distract oneself from unwanted thoughts and feelings (e.g. doubts about one's abilities, self-critical thoughts, feelings of inadequacy). Other strategies include a delay in initiating tasks, abandon them midway, or avoid them entirely [2, 31, 32, 34]. However, at some point, perfectionists will abandon the avoidance strategies, because not meeting their standards or goals is more painful and intolerable than the experience of negative affect itself.

Although the above mentioned processes and contents are important for defining the cognitive setting of perfectionism, many gaps remain, in terms of knowing the full extent of the cognitive characteristics and processes involved in perfectionism and its relationship with psychological distress. In the next sections we will review some of the cognitive mechanisms putatively responsible for the initiation/maintenance of perfectionist behavior, particularly negative forms of perseverative thinking.

Perseverative thinking

In normal conditions, perseverative thinking constitutes a common human experience that only has negative consequences when it becomes persistent, excessive, and uncontrollable. In these circumstances, it may be associated with psychological distress (e.g. anxiety/depression). This pathological perseverative thinking has also been designated as repetitive negative thinking (RNT). Ehring et al. [35] define RNT as a style of thinking about one's problems (current, past, or future) or negative experiences (past or anticipated) that shows three key characteristics: (a) the thinking is repetitive, (b) it is at least partly intrusive, and (c) it is difficult to disengage from.

A number of different emotional problems have been found to be related to heightened levels of RNT in the

form of worry and/or rumination. Worry, that has been more studied in relation to anxiety disorders, including generalized anxiety disorder (GAD), involves a negative, relatively uncontrollable chain of thoughts concerning future events whose outcome is uncertain [36]. Rumination, a vulnerability factor and associated feature of depression [37, 38] involves a negative, repetitive style of thinking, partly about present symptoms or concerns [39], but mainly about past loss or failure [40].

Segerstrom et al. [41] mentioned that there is a significant correlation between measures of worry and rumination in both clinical and non-clinical samples. Additionally, no clear-cut specificity of the association between anxiety and worry and between rumination and depression has been found. Thus, worry and rumination appear to share many more similarities than differences [41, 42]. Both are negatively self-focused and this characteristic has been shown to perpetuate negative thought and affect [42]. Both involve difficulty in departing attention from negative material, as evident in patterns of neural activation [43] and both share the subjective experience of difficulty in controlling negative thoughts [44]. Finally, as Ruscio et al. [44] have emphasized, both reflect unproductive fixation on largely unsolvable problems in ways that hamper effective coping [45], with similar negative consequences for mood, cognition, interpersonal function, and physical health [46]. Another important commonality for both worry and rumination is the increase of negative affect and decrease of positive affect, which may help to explain the high correlation and comorbidity between anxiety and depressive disorders, with up to 60% of subjects with GAD developing major depressive disorder (MDD) in their lifetime [47, 48].

All these similarities between worry and rumination led to the suggestion that both cognitive styles represent essentially the same core process of RNT which is not limited to anxiety and depressive disorders but may be present in many Axis I disorders [49]. Thus, RNT is probably a transdiagnostic process that shows the same characteristics across disorders (i.e. a tendency to engage in negative thinking in a repetitive, uncontrolled manner), whereby only the content is disorder-specific [21, 49]. However, as it has been pertinently emphasized by Ehring et al. [35], research into RNT as a transdiagnostic process is complicated by the fact that current definitions and measures of this variable are mostly focused on a specific content and are therefore disorder-specific. For example, the Response Style Questionnaire (RSQ) [50], regarded as the standard measure of depressive rumination, focuses on depression-related repetitive thoughts. Similarly, the Penn State Worry Questionnaire (PSWQ) [51], focuses on the type of thoughts typical for GAD. Thus these measures are "contaminated" with specific-disorder content. To circumvent this problem, some authors suggested that a transdiagnostic definition of RNT needs to be focused on its characteristics as a process (e.g. repetitiveness, intrusiveness, and difficulty to disengage from), to be independent of a specific content and to be applicable to past, present, and future concerns [49]. Congruent with this "content-free" perspective some new instruments have been developed to measure RNT, such as the Perseverative Thinking Questionnaire (PTQ) [49] and the Repetitive Thinking Questionnaire (RTQ) [52].

Worry, rumination, and perfectionism

It has been proposed that worry constitutes a strategy used by individuals to avoid threat and distract them from upsetting topics [53]. Specifically, Santanello and Gardner [54] have tested this hypothesis by investigating which is the role of experiential avoidance in the relationship between maladaptive perfectionism and worry. Experiential avoidance involves attempts to elude uncomfortable internal experiences by trying to suppress or control these unpleasant private events and/or avoid the situations that produce them. Santanello and Gardner [54] reported that experiential avoidance may partially mediate the association between maladaptive perfectionism and worry.

Several dimensions of perfectionism have been associated with anxiety and worry [55-59]. Regarding Frost et al. MPS [4], the dimensions concern over mistakes, doubts about actions, parental expectations and parental criticism have been associated with anxiety and worry. In which respects Hewitt and Flett [3] MPS, results are more ambiguous in the sense that both SOP (i.e. a more adaptive dimension) and SPP (i.e. a more negative dimension) have been those showing more significant correlations with worry [56, 58-60]. Rumination has also been associated with perfectionism. Spasojevic and Alloy [61] consider that rumination constitutes the link between various risk factors, including dispositional self-criticism, which may be one of the most robust predictors of maladjustment in perfectionists [62]. For example, Flett et al. [63] showed that a ruminative response orientation leading to depression was associated with perfectionist cognitions.

In perfectionism, worry and rumination involve self-focused thinking in which individuals tend to negatively appraise themselves, feelings, behaviors, situations, life stresses, and their ability to cope. The content of these repetitive negative thoughts typically involves themes of failure, doubts about actions, and uncertainty to achieve important personal goals (64).

Perfectionism, repetitive negative thinking, and psychological distress

The transdiagnostic nature of RNT may be particularly relevant to explain simultaneously the mechanisms by which a risk factor that is also transdiagnostic (i.e. perfectionism) leads to multiple disorders (i.e. multifinality) and why one individual with perfectionism develops one set of symptoms while another develops another set of symptoms (i.e. divergent trajectories) [65].

In which respects perfectionism, it is important to distinguish between two levels of phenomena: one that has a trait nature (i.e. dispositional perfectionism) and the other that is governed by the later but nevertheless possess a more fleeting state-like nature (i.e. perfectionistic thoughts). Understanding the relationship between them is crucial to clarify which dimensions of the trait predict negative psychological outcomes on the long-term, but also how the dispositional variables relate to the perfectionistic thoughts (and to which of these) to predict the affect tonality in the short-term. RNT with a perfectionistic content may be of particular relevance to explain the variance in positive and negative affect over and beyond the variance explained by dispositional perfectionism. Thus, understanding the cognitive mechanisms that mediate the link between perfectionism and psychological distress may increment the predictive validity in the prediction of short-term variations in affect [66]. Flett et al. [67] developed the Perfectionistic Cognitions Inventory (PCI), an instrument that measure perfectionistic automatic thoughts which explains significant unique variance in emotional distress. A study by Flett et al. [63] reported that the frequency of perfectionist thoughts, rumination, and SPP were all significantly associated with general measures of depression, anxiety, and anxious arousal, while SOP was only associated with depression. After controlling for levels of rumination, the relationship between dispositional perfectionism (SPP and SOP) and psychological distress became non-significant, suggesting that rumination may play a mediating role. O'Connor et al. (64) further investigated the Flett et al. [63] hypothesis that rumination could be a mediator in the relationship between perfectionism and emotional distress, testing the effects of direct mediation. Results showed that rumination partially mediates the effects of perfectionism in emotional distress. Furthermore, O'Connor et al. [64] reported that perfectionists are characterized by the tendency to experience frequent repetitive thoughts about their behavior and problems, which are not necessarily restricted to cognitions about the need to be perfect. Thus, O'Connor et al. [67] findings suggest that a more general RNT process is involved in perfectionism. However, a major limitation of the PCI is its unidimensional nature, only focusing on negative perfectionistic thoughts. More recently, a new measure, the Multidimensional Perfectionism Cognitions Inventory (MPCI), developed in Japan [68], but with an available English version (MPCI-E) [66], constitutes a promising new instrument. The MPCI has the advantage of being multidimensional, covering positive and negative cognitions associated with dispositional perfectionism along three dimensions: PS, pursuit of perfection (PP), and concern over mistakes (CM). PS shows a positive correlation with positive affect, PP a positive correlation with negative affect, and CM a negative correlation with positive affect and a positive correlation with negative affect [66].

An important issue needing further clarification is whether some of the dimensions of perfectionism are more strongly associated with RNT than others. In the study by O'Connor et al. [64], SPP was the dimension that was most strongly associated with rumination, although SOP was also (but less significantly) correlated. Individuals who are concerned about the excessively high expectations that others have for them (i.e. high SPP) will tend to ruminate in an attempt to regain control over something they can not control (i.e. other's expectations). This hypothesis would be consistent with the work of Nolen-Hoeksema et al. [37], who noted that individuals with high levels of rumination are concerned about being able to control their environment and as such, rumination may function as a cognitive coping strategy.

In contrast, in the Flett et al. study [67] it was SOP that was associated with perfectionist thinking. This differential relationship of the various perfectionist dimensions with RNT warrant further investigation and clarification in studies, namely using the higher order dimensions: PS and PC instead of the sub-dimensions. The investigation of the cognitive contents that are specifically associated with each dimension may also be relevant in this distinction; the cognitive component linked to PS may be primarily focused on cognitions relevant to the self and the need to achieve success, whereas for PC, the cognitive contents may be more related with interpersonal themes, self-worth, and fear of failure.

Cognitive coping, emotion regulation, and perfectionism

Dunkley et al. [15] reported that two main dimensions of perfectionism could be considered: personal standards perfectionism and evaluative concerns perfectionism also known as Self-Critical Perfectionism (SCP) [18]. These two forms correspond roughly to the already mentioned higher order dimensions of PS and PC. Dunkley et al. [18] stated that there is a need to understand how PC perfectionists typically respond to minor stressors that occur on a daily basis, as opposed to major life events, because minor stressors account for greater variance in distress than do major life events that occur infrequently. In their study, Dunkley et al. [15] found that hassles, avoidant coping, and perceived social support were unique mediators that fully explained the relation between evaluative concerns perfectionism and distress.

The study of Dunkley et al. [18] examined the dispositional and situational influences of SCP on the stress, appraisal, and coping process as an explanation for its relations with high daily negative affect and low daily positive affect. The results showed that the relation between SCP and negative affect was fully mediated by hassles and avoidant coping, and that the relation between SCP and avoidant coping was fully mediated by low perceived efficacy and self-blame, with the latter being related to avoidant coping both directly and indirectly through perceived criticism.

It is important to note that PS and PC are usually significantly correlated: many people high in one dimension of perfectionism are also high in the other dimension [e.g. 9, 18]. PS often show positive relationships with positive characteristics, processes, and outcomes only after the overlap with PC has been taken into account [1]. But also PC show clearer positive relationships with negative characteristics, processes, and outcomes after the overlap with PS has been taken into account [11, 12]. Both PS and PC perfectionists amplify or generate stress by engaging in self-critical evaluations and focusing on the negative aspects of events (i.e. rumination) and/or anticipating future threats (i.e. worry). Although individuals who are PS perfectionists may experience increased levels of stress, the negative impact of possessing this maladaptive characteristic might be offset by the tendency of these individuals to engage in active, problem-focused coping [15]. Conversely, the reason why PC are more associated with lower positive characteristics (e.g. positive affect) than PS, may be that people high in PC use cognitive coping strategies that are more harmful than helpful, which in turn impact negatively in emotion regulation (ER).

The concept of ER is too broad to be discussed here. Thus, we will only focus on some aspects of cognitive emotion regulation (CER). CER refers both to the role that cognitions play in regulating emotional responses (i.e. regulation of emotions through cognitions) and the cognitive way of managing the intake of emotionally arousing information (i.e. cognitive coping that the individual uses to deal with a stressful situation) [69]. In order to know more about how cognitive processes regulate emotions, some instruments such as the Cognitive Emotion Regulation Questionnaire (CERQ) have been developed [69]. The CERQ includes nine distinct scales covering nine cognitive coping strategies typically used in response to stressful events. Four of them may be considered "less adaptive" and relate to negative responses: (a) self-blame, (b) blaming others, (c) rumination, and (d) catastrophizing. The remaining sub-scales are related to more positive or adaptive coping responses: (e) acceptance; (f) refocus on planning; (g) positive refocusing; (h) positive reappraisal; and (i) putting into perspective. The strongest and most consistent relationships between the report of emotional problems (i.e. anxiety and depression) and emotion regulation strategies were with rumination, catastrophizing, and self-blame [70]. Studies on perfectionism and coping have shown that the dimensions and facets of perfectionistic strivings and perfectionistic concerns demonstrate differential relationships with different forms of coping because individuals with maladaptive forms of perfectionism (i.e. PC) have cognitive processes that put them in a position of increased risk for developing psychological disorders [15, 18].

The study of Rudolph et al. [71] investigated the association between CER, measured by the CERQ and perfectionism assessed with the H&F-MPS and the PCI. The findings from PCI confirmed that individuals with high levels of perfectionistic cognitions are characterized by having maladaptive cognitive coping responses. High scores in PCI were also associated with perseverative thoughts (i.e. rumination) about stressful events and a tendency to catastrophize about them. Even in the absence of negative life events, perfectionists have a tendency to magnify their errors and limitations. These two negative cognitive coping strategies (i.e. rumination and catastrophizing) were also accompanied by a lack of positive coping strategies such as positive re-evaluation, and were the most significant predictors of depression.

Repetitive negative thinking, metacognitions, and perfectionism

Why are PC perfectionists more likely to react to stress with maladaptive cognitive coping processes (e.g. RNT) even when they know that this way of thinking has negative emotional consequences? The answer may be in the role and value that people attribute to this kind of thinking. Individuals who worry or ruminate expect some positive consequences from this process. In other words, they hold certain beliefs (i.e. metacognitions) that are invested with a positive value in the sense that it is useful to think about their thinking in order to correct past failures or prepare for future threats and challenges.

The metacognitive activity is related with thinking about thinking itself. Thus, metacognition refers to the psychological structures, knowledge, events, and processes involved in the control, modification, and interpretation of thinking [72]. The importance of metacognitions is due to the fact that they may constitute an important factor in the development and maintenance of psychological disorders.

The Self-Regulatory Executive Function (S-REF) model [73] provides a conceptualization of metacognitive factors as components of information processing involved in the development and persistence of psychological disturbances. A basic principle of this model is that cognitions in psychological disorders include a metacognitive component composed of positive and negative beliefs that influences appraisals. This higher-order cognitive level also involves procedural metacognitions that form plans or programs for guiding cognition and action. It is this metacognitive component that contributes to maladaptive response styles, i.e. engaging in unhelpful coping strategies such as worry/rumination, which in turn contribute to the development and persistence of psychological distress. The importance of metacognitions in psychological distress led to the development of several instruments designed to assess this cognitive activity, such as the Metacognitions Questionnaire (MCQ) [74] that comprises five factors: (1) positive beliefs about worry, (2) negative beliefs about thoughts concerning uncontrollability and danger, (3) cognitive confidence, (4) negative beliefs concerning the consequences of not controlling thoughts, and (5) cognitive self-consciousness.

A key question arising from the S-REF model is whether metacognitive beliefs are linked to dysfunctional cognitive processes involved in psychological disorders. For instance, the S-REF model has motivated recent research on different dimensions of metacognition in GAD [75], obsessive phenomena [76], post-traumatic stress disorder (PTSD) [77], and depression [78]. In depression, the study of Papageorgiou and Wells [79] revealed that all patients held positive and negative beliefs about rumination. Positive beliefs reflected themes concerning rumination as a coping strategy (e.g. "I need to ruminate about my problems to find answers to my depression"). Negative beliefs reflected themes concerning uncontrollability and harm associated with rumination (e.g. "Ruminating about my problems is uncontrollable") and interpersonal and social consequences of rumination (e.g. "People will reject me if I ruminate"). Therefore, this study provided support for the notion that both positive and negative metacognitive beliefs may be related to ruminative thinking in individuals with depression.

In this context, we propose that a similar metacognitive model for the relationship between perfectionism and psychological disorders may have heuristic value and its investigation warrant further clarification for the role of the multilevel dysfunctional cognitive processes involved. By multilevel we mean an approach that considers that cognitive processes function on two interrelated levels: the meta-level and the object-level [80]. Information flowing from the meta-level to object-level is named control, and thereby, the meta-level notifies the object-level what to do next [81, 82]. It is believed that this metacognitive regulation plays a significant role in psychopathology [64], and specifically, it is important to determine if RNT is driven by metacognitive beliefs (e.g. cognitive confidence, positive beliefs about worry/rumination, cognitive self-consciousness, negative beliefs about uncontrollability of thoughts and danger, need to control thoughts).

In stressful situations, maladaptive perfectionists become preoccupied with their self-worth, acceptance by others, and the quality and quantity of their performance. The excessive need of control of oneself and of the environment and the heightened sense of responsibility of these individuals drive them to "be perfect", avoid failure, and reduce the risk that "something bad" might happen. However, the doubts about their actions and capabilities, and the fear of failure may lead them to worry about not being able to perform adequately in the future, and ruminate over their past failures in order to continuously maintain the integrity of the ideal self-concept and escape from the emotional distress associated with the feeling of having failed their unrealistic goals. This cognitive "milieu", which may be repetitive and intrusive is likely to generate negative affect, but could be maintained by some reason (i.e. metacognition) about the usefulness of thinking that way.

Discussion

As previously mentioned, maladaptive perfectionism (i.e. PC) is associated with a wide range of problems that cut across several psychopathological conditions and therefore has a transdiagnostic nature [24]. A crucial question is how can we explain the negative influence of perfectionism in so many different and specific diagnoses? It is probable that there are common cognitive mechanisms underlying this transversal action of perfectionism. As previously stated, metacognitive beliefs are representations tied to plans or procedural knowledge that determine the style of thinking, and may constitute an important vulnerability factor for the development and maintenance of maladaptive thinking styles (i.e. RNT). The identification of its nature and functions within the context of information-processing models may enhance our knowledge of the cognitive processes involved in a wide range of disorders (e.g. depression, GAD, and obsessive–compulsive disorder (OCD) and traits (e.g. perfectionism). Therefore an important avenue for investigation is to study the hypothesis that these metacognitions set the rules that guide the cognitive maladaptive cognitive styles of perfectionists, including RNT (e.g. worry and rumination), which in turn is implicated in the mediation between perfectionism and psychological distress.

Positive beliefs about the benefits of rumination/worrying motivate people to use these cognitive processes, as coping strategies. Worry has been proposed to be a method utilized by individuals to avoid threat and distract themselves from upsetting topics [53]. Therefore, it is likely that perfectionists may worry in order to distract themselves from negative experiences, such as self-criticism. Individuals may also find that worrying is valuable in the attempt to anticipate future threats and situations where performance would not be "perfect". Thus, worry helps such individuals to continue to avoid the experiences with which they do not want to be in contact. When the situation about which they worry rarely happens, the experience of worrying is negatively reinforced, strengthening its value as an effective strategy to avoid threat [53]. Perfectionists may also find valuable to think about past actions (e.g. rumination) in the attempt to ponder where they have failed and avoid errors by preparing for future better performance.

Although avoidance strategies often briefly and immediately diminish unwanted internal events, the problem is that experiential avoidance strategies are not effective in the long term [83]. Repeated efforts to avoid aversive thoughts or feelings often result in a "rebound" effect—an increase in the thought or feeling that one intends to avoid [84]. Thus, inevitably at some point, perfectionists end up evaluating these repetitive thinking as uncontrollable and harmful, setting in motion a vicious cycle of metacognition-RNT -negative effect that contributes to perpetuate the dysfunctional self-evaluation scheme and associated emotional disturbance.

The transdiagnostic nature of perfectionism has also important implications in treatment: treating perfection-

ism might result in symptomatic relief across a number of domains and should reduce a variety of psychopathologies. Thus, perfectionism should be focused on specifically, and addressed adequately and directly in treatment. This approach may be more beneficial than traditional single disorder based approaches which target maintaining factors of each disorder sequentially [24].

In which respects the treatment of the dysfunctional forms of perfectionism, it is crucial to develop treatment strategies that address the modification of the cognitive processes that are at work in maladaptive perfectionists, both in terms of their form (i.e. repetitiveness, intrusiveness, and difficulty to disengage from) and their content. Flett and Hewitt [85] underscore the need to consider as targets some key cognitive factors in the development of perfectionism, such as the ruminative response style, the tendency to experience perfectionistic automatic thoughts, and the role of core irrational beliefs. Shafran et al. [34] described the techniques to treat perfectionism highlighting strategies to increase motivation to change and self-monitoring of the maintaining mechanisms in the clinical perfectionism model. Cognitive biases including dichotomous thinking and selective attention should be addressed, as well as self-criticism. The aim of treatment is not to remove striving for personal standards or lowering standards, rather is to modify the dysfunctional self-evaluation scheme and reframe objectives and performance. For instance the study of Stoeber and Janssen [1] shows that accommodative coping strategies such as positive reframing is helpful in dealing with personal failures, being a coping strategy that works particularly well for people high in perfectionistic concerns, to achieve higher satisfaction at the end of the day.

These are all important objectives to deal with in the context of the cognitive therapy of perfectionism. However, in our opinion we must go beyond these established therapeutic aims in order to incorporate in the treatment objectives the modification of higher-level cognitive mechanisms (i.e. metacognitions). Some authors [64] have proposed that the modification of positive and negative beliefs about worry and/or rumination may be beneficial in the treatment of specific disorders, such as depression. This view must be expanded, and in the case of perfectionism, the benefits of confronting and modifying these metacognitions would be even more important and considerable for the different psychiatric disorders that are preferentially associated with perfectionism. The main objective of cognitive therapy interventions designed to intervene in these metacognitive mechanisms would be to challenge the positive value of metacognitive beliefs and rules about worry and rumination, in order to achieve the interruption of repetitive negative thinking processes and the development of executive control of processing that can be channeled into the acquisition of more adaptive thinking styles for dealing with threat, failure, uncertainty, and imperfection.

In sum, an important direction for research is to clarify whether perfectionists, following their perceived "failures" develop metacognitive beliefs about the functional value of worry/rumination as valid cognitive strategies for the analysis of failures and re-appraisal of standards and goals. From an applied perspective, it is worthwhile examining whether the modification, in terms of cognitive restructuring, of the positive beliefs about engaging in perseverative negative thinking reduces vulnerability to psychological distress in general and to specific disorders in particular.

Abbreviations

CER: Cognitive emotion regulation; CERQ: Cognitive emotion regulation questionnaire; CM: Concerns over mistakes; ER: Emotion regulation; GAD: Generalized anxiety disorder; MCQ: Metacognitions questionnaire; MDD: Major depressive disorder; MPCI: Multidimensional perfectionism cognitions inventory; MPCI-E: Multidimensional perfectionism cognitions inventory English version; MPS: Multidimensional perfectionism scale; OCD: Obsessive-compulsive disorder; OOP: Other-oriented perfectionism; PC: Perfectionistic concerns; PCI: Perfectionistic cognitions inventory; PD: Psychological distress; PP: Pursuit of perfection; PS: Perfectionistic strivings; PSWQ: Penn state worry questionnaire; PTQ: Perseverative thinking questionnaire; PTSD: Post-traumatic stress disorder; RNT: Repetitive negative thinking; RSQ: Response style questionnaire; Self-critical perfectionism; SOP: Self-oriented perfectionism; SPP: Socially-prescribed perfectionism; S-REF: Self-regulatory executive function

Competing interests

The authors declare no conflict on interest.

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