Managing emotions in panic disorder: A systematic review of studies related to emotional intelligence, alexithymia, emotion regulation, and coping

Abdellah Oussi, Karim Hamid, Cyrille Bouvet

Version of Record: https://www.sciencedirect.com/science/article/pii/S0005791623000022
Manuscript_9babeba2a1bef548bf0cb72f26e59215

Managing Emotions in Panic Disorder: A systematic review of studies related to Emotional Intelligence, Alexithymia, Emotion Regulation, and Coping.

Abdellah Oussi [1]*, Karim Hamid[2], Cyrille Bouvet [1]

[1] *CLIPSYD Research Unit, UFR SPSE, Paris Nanterre University, 200 avenue de la République, 92001, Nanterre Cedex, France.*
[2] CHU Mohamed VI, Marrakech, Maroc

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Competing Interest

The authors report no declarations of interest.

* Corresponding author

E-mail addresses: oussi_01@yahoo.fr (A.Oussi)*, psychologuetcc@yahoo.com (K.Hamid)

bouvet.cyrille@neuf.fr (C.Bouvet).

Phone: 212644993387*

[1] CLIPSYD laboratory, UFR SPSE, University Paris Nanterre, 200 avenue de la République, 92001 Nanterre Cedex, France
[2] CHU Mohamed VI

Managing Emotions in Panic Disorder: A systematic review of studies related to Emotional Intelligence, Alexithymia, Emotion Regulation, and Coping.

1. ABSTRACT

Background and objectives: Panic disorder is defined by recurring and unexpected panic attacks, accompanied by anticipatory anxiety about future attacks and their consequences. This generally involves avoiding situations and behaviors that can produce panic attacks (American Psychiatric Association [APA], 2013). Among anxiety disorders, panic disorder is associated with some of the greatest burdens in terms of personal suffering, occupational disability, and societal cost. The objective of this article is to systematically identify and review the empirical literature on emotional management processes and strategies associated with panic disorder, with the aim of evaluating their role in the development and maintenance of panic disorder, in order to better understand the pathogenesis of the disorder and guide clinicians to improve their current treatments.

Methods: Four databases were searched for studies which were based on self-reported questionnaires or a methodology based on an experimental procedure.

Results: Of the 1719 articles identified, 61 referred to different aspects of emotional management. People living with PD are characterized by low emotional intelligence levels, excessive use of suppression, impaired cognitive reappraisal, high levels of alexithymia and maladaptive coping strategies.

Limitations: Most of the reviewed studies used measures of emotional management in cross-sectional models and were based on self-assessment reports.

Conclusions: Improving emotional intelligence levels is key to increasing emotion regulation flexibility for people living with PD. Automatic cognitive reappraisal impairment in these people indicates low importance of cognitive restructuring in psychotherapeutic treatment.

KEYWORDS

Panic disorder, Emotional intelligence, Alexithymia, Emotion regulation, Coping.

2. Introduction

Panic disorder (PD) is a condition defined by recurring and unexpected panic attacks accompanied by anticipatory anxiety about future attacks and their consequences (American Psychiatric Association, 2013). Of all the anxiety disorders, PD is associated with some of the greatest burdens in terms of personal suffering, occupational disability, and overuse of medical resources (Wittchen et al., 2011).

Different theoretical models of PD postulate that it results from a combination of: biological, psychological and environmental vulnerabilities, with some emphasis on cognitive factors (Oussi & Bouvet, In Press). Although these models group together numerous variables and appear to be complete, it can be noted that the resulting treatments, although effective, could be improved, since at least 25% of the patients do not fully recover following these treatments (Springer et al., 2018). Additionally, relapses in two years and persistence of symptoms remain common outcomes (Carpenter et al., 2018). While some of these models highlight the role of some emotional management strategies in the development and maintenance of PD, like experiential avoidance and safety-seeking behaviors (Barlow, 2000), most of these models focus mainly on cognitive factors such as neuroticism, perceived control and anxiety sensitivity (e.g., Fava & Morton, 2009; Pilecki et al., 2011). Naragon-Gainey and Watson (2018) noted that these factors were insufficient to differentiate PD from other anxiety disorders. Other factors such as emotional management skills could help us improve our understanding of the nature of PD, and therefore our treatments (identifying potentially harmful strategies and promoting their modification can constitute one of the objectives of treatment). This is important in particular because empirical research has clearly indicated that PD is related to various emotional dysregulations (Aldao et al., 2010; Cisler et al., 2010), and that emotion regulation and coping strategies can play a major role as mechanisms of change in PD treatments (Meuret et al., 2012; Strauss et al., 2019, Wesner et al., 2014).

To our knowledge, there is no systematic review of the empirical literature on emotional management strategies related to PD. The objective of this article is to systematically identify and review them, and evaluate their role in the development and maintenance of PD, in order to better understand the pathogenesis of the disorder and guide clinicians to improve their current treatments.

3. Definition of concepts

The theoretical field of emotional management considered in the present study is based on the conceptual framework of affect regulation by John & Eng (2014). In comparison with Gross (1998) and Koole (2009) emotion regulation (ER) models, this comprehensive framework includes, in addition to Gross (1998)'s emotion regulation (ER) process model, two other major approaches, namely, individual differences in coping with stress and individual differences in emotional intelligence (EI). This framework is sufficiently general to serve as a framework that can help organize, interpret, and compare the various individual differences in affect regulation. Alexithymia will be added to this framework as it reflects deficits in both cognitive processing and ER (Taylor et al., 1997), and helps to better understand individual differences in ER (Swart et al., 2009). Although several areas of overlap exist between these four approaches, they nevertheless differ from one another, especially in terms of the nature of the cognitive and behavioral processes involved.

Emotional intelligence (EI): Although different models of EI exist (Muyia, 2009), the majority of them include dimensions which assess the ability to perceive, understand, express, use and regulate emotions (Schutte et al., 2013). What is unique about this approach is that it emphasizes individual differences rather than basic processes like ER. Peña-Sarrionandia et al. (2015) argue that because of EI, individuals demonstrate a certain consistency in their ER habits. They can thus be characterized by a certain style of ER which helps to make them predictable to others and also has certain consequences for long-term adaptation.

Alexithymia: This is defined as difficulty in realizing, identifying, discriminating and expressing one's own feelings and the feelings of others (Sifneos, 1988). Several studies on the relationship between alexithymia and EI have noted that they are strongly and inversely associated, but can be differentiated from one another (Fukunishi et al., 1997).

Emotion regulation (ER): This can be defined as "the process of initiating, avoiding, inhibiting, maintaining or modulating the occurrence, form, intensity or duration of internal emotional states, physiological processes, attentional, motivational states and / or concomitant behavioral processes of emotion with the aim of accomplishing a biological or social adaptation linked to affect or to the achievement of individual objectives" (Eisenberg & Spinrad, 2004, p. 338). Such regulation can be automatic or voluntary, conscious or unconscious (Mauss et al., 2007).

Coping: Lazarus and Folkman (1987) defined coping as a continuous change in cognitive and behavioral efforts to manage specific external and / or internal demands that are assessed as distressing or beyond the person's resources. While ER includes both conscious and unconscious processes and examines strategies for dealing with specific positive and negative emotions, coping excludes unconscious or involuntary processes (such as rumination) and primarily focuses on reducing negative affect associated with stress in general, and extends over longer periods (e.g., bereavement).

In the following, we will analyze the role of these different emotional management strategies in the development and maintenance of PD.

4. Bibliographic research methodology

The current systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). PsycINFO, MEDLINE, PubMED, and Academic Search Premier databases were searched for articles, using all possible combinations of terms from two lists to identify

relevant research. The keywords were selected using lists of referenced words ("MeSH terms" and "EBSCOhost Indexes"). The first list included "panic disorder" OR "panic attacks" OR "panic". The second list included "coping" OR "emotion regulation" OR "emotional intelligence" OR "alexithymia" OR "suppression" OR "acceptance" OR "cognitive appraisal" OR "experiential avoidance". These latter four specific strategies were added to the list, because they are specifically studied in several studies on emotional management strategies, and they are trans-conceptualized in the three components of John & Eng (2014) framework (ER: Berking et al., 2008; EI: Mayer & Salovey, 1997; Coping: Carver et al., 1989).

Inclusion criteria: In order to be included in the review, articles had (a) to be published in a peer-reviewed journal, (b) to be published between: Jan 1990 (first PD models appearance)-Sep 2021, (c) to include participants over 18 years of age living with PD, d) to be written in English and e) exploring emotion management in PD in response to daily life events, stressful situations or to panic-attacks. Because biological challenge procedures, which are used to model panic in laboratory, elicit panic-like reactions to bodily sensations (Zvolensky & Eifert, 2000), we included studies that utilize such laboratory panic models.

Exclusion criteria: Studies on agoraphobia without PD, as well as studies on coping and ER strategies in situations of biological challenge were not included unless participants had a history of PD.

Procedure: 1719 articles were retrieved (fig. 1). Once duplicates were removed, articles were screened at title, abstract, and full text levels. Inter-rater reliability was assessed by a co-author who screened 20% of the results at title and abstract levels (340 titles). The inter-rater reliability result was kappa = 0.68 ($p < 0.001$) which indicates substantial agreement (>.6, McHugh, 2012). All 77 full texts were screened by the first author, and discussed with the team if needed. 14 additional studies were identified by manual searching of reference lists. In the end, 61 articles were selected; of these, five articles are about EI, 18 articles are about

alexithymia, 21 articles are about ER and 18 articles are about coping. One article was related to both alexithymia and EI (Onur et al., 2013).

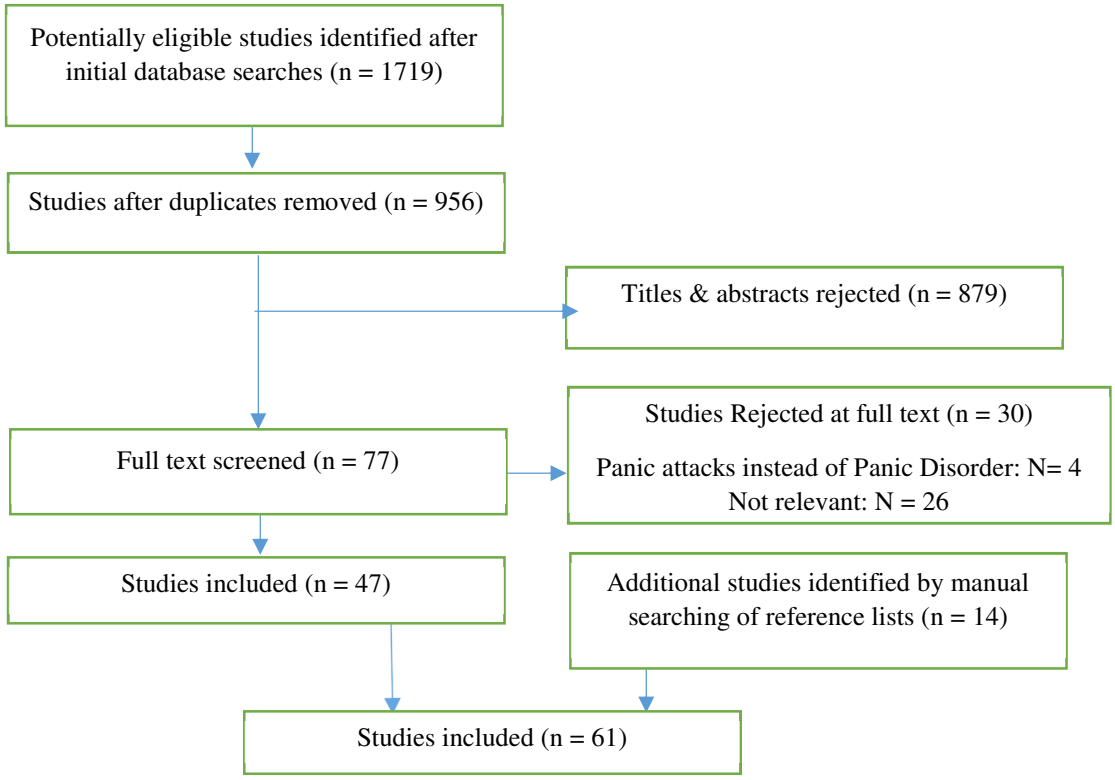

Fig. 1. *Flowchart of studies included in the review*

The following information were extracted from included studies: 1) population; 2) sample size; 3) mean age; 4) gender; 5) study design; 6) emotional management strategy; 7)

emotional management questionnaire; 9) psychometric properties; 10) experimental paradigm; 11) outcome measure. The Effective Public Health Practice Project tool (EPHPP; Thomas et al., 2004) was selected as a narrative review approach, and was used to appraise the quality of the papers. The EPHPP has been shown to be valid (Thomas et al., 2004) and reliable (Armijo-Olivo et al., 2012), and can be adapted to include the components which are relevant to non-intervention studies. Quality ratings of weak, moderate and strong were conducted for each domain of the tool and are summarized in Table 1 (see appendix 1). Quality assessment on each study was conducted by the first author. A co-author rated a random sample of 20% of the papers and showed moderate agreement between ratings with a kappa reliability result of 0.53 ($p < 0.001$) (McHugh, 2012).

5. Results

4.1 Emotional intelligence in panic disorder

4.1.1 Evaluating emotional intelligence

Table 2 summarizes the key characteristics of the measures used in each of the studies listed. Two theoretical approaches should be distinguished: the first approach regards EI as an objective cognitive skill assessed by intelligence-type tests ("maximum performance" tests) (EI ability: Salovey & Mayer, 2004), and a second approach regards EI as a subjective personality trait (trait EI) assessed using "personality" type questionnaires (Nelis et al., 2009). Collectively, the measures used in these studies have relatively good metrics. The conclusions drawn from the literature on EI in PD have a relatively good psychometric basis.

4.1.2 Emotional intelligence ability

Perna et al. (2010) examined EI in patients with PD and agoraphobia (PDA) compared to non-clinical participants. The results showed that patients with PDA have lower levels of understanding and management of emotions than non-clinical participants. No difference was found between the two groups regarding the perception of emotions and linking cognitive

orientations to emotions. These same results were found in another study by Lizeretti et al. (2014). In addition, compared to patients with generalized anxiety disorder (GAD), patients with PDA demonstrated better skills in terms of identifying emotions and linking thought with emotion.

4.1.3 Trait emotional intelligence

Summerfeldt et al. (2011) studied the association between different anxiety disorders and the trait EI by comparing a clinical sample (participants with PD, obsessive-compulsive disorder (OCD) and social anxiety disorder (SAD)) with a sample of non-clinical participants. All three clinical groups had a lower total EI score than the non-clinical group. However, PD and OCD groups did not differ from the non-clinical participants on the Interpersonal IE score (understanding and identifying emotions in other people). Intrapersonal EI (understanding and identifying one's own emotions) was low in all three clinical groups compared to the non-clinical participants, but was higher in the SAD group than in the PD and OCD groups. In another comparative study by Onur et al. (2013), the results showed that the total EI score of the non-clinical participants was significantly higher than that of the major depressive disorder (MDD) and GAD groups. However, unlike other studies (Perna et al., 2010; Summerfeldt et al., 2011), there was no difference between the non-clinical participants and PD in terms of the total EI score. In a third study, Lizeretti et al. (2012) noted significant differences between the PDA group and the non-clinical participants for two subscale scores: 'attention to one's emotions', and 'management of negative and positive emotions'. In addition, the study found negative correlations between perceived self-efficacy, and the intensity of agoraphobia.

4.1.4 Summary of studies examining the relationships between PD and EI.

Research on the relationships between EI and PD is sparse (Table 3). In summary, people with PD have: (1) low EI scores (ability and trait) compared to non-clinical

participants, specifically in terms of understanding and managing emotions, (2) EI scores similar to those of people with other anxiety disorders (GAD, OCD), but inferior to those of people with SAD on the interpersonal side (empathy and identifying emotions of other people), (3) EI levels that may negatively impact their agoraphobia levels.

4.2 Alexithymia and panic disorder

4.2.1 Evaluation of alexithymia

The Toronto Alexithymia Scale-20 (TAS-20: Taylor et al., 2003) is the scale that has been used in all studies linking PD and alexithymia. It focuses on three factors: (a) difficulty identifying subjective emotional feelings, and distinguishing feelings and bodily sensations from emotional arousal, (b) difficulty describing feelings to other people, and (c) the limitation of imaginative capacities, presented by poor externally oriented thinking. A study by Taylor et al. (2003) confirms the structure and internal consistency of each of the three factors (Cronbach's alphas from 0.61 to 0.79).

4.2.2 Empirical studies

18 studies compared alexithymia levels between PD groups, non-clinical participants, and patients with other anxiety and depressive disorders (Table 4). In several studies, the total TAS-20 score was higher for PD patients than for non-clinical participants (e.g., Cucchi et al., 2012; Zou et al., 2016). This result was due mainly to an increased score for the factor "difficulty identifying feelings". One study (Iancu et al., 2001) did not identify any significant difference between the PD group and non-clinical participants, although a higher frequency of TAS scores was found among PD group (39% vs. 4%). The authors explained that this result could be because of the small sample size (n = 24).

In comparison with other anxiety disorders, Parker et al. (1993) and Zeitlin and McNally (1993) found that people with PD scored significantly higher than people with specific phobia and OCD on the TAS-20. Cox et al. (1995) noted no significant difference

between the PD and SAD groups. Another study (Bankier et al., 2001) noted that among several disorders (PD, OCD, and Depression), PD was the only disorder that was significantly associated with a low TAS-20 score.

Five studies evaluated the relationship between alexithymia and PD symptomatology. In Majohr et al.'s (2011) study, a positive correlation between alexithymia and dissociation was noted in PD patients. In two studies, Izci et al. (2014) and Zou et al (2016) noted a positive correlation between the overall PD symptomatology and TAS-20 scores. Specifically, De Berardis et al. (2007) noted that the two first subscales of TAS-20 were predictors of PD severity.

The high rates of alexithymia observed in PD groups compared to non-clinical participants have been interpreted as a personality trait (Taylor et al., 1997), and as a secondary reaction that alleviates pain (Wise et al., 1990). The results of several longitudinal studies (e.g., Marchesi et al, 2014, Rufer et al., 2010) demonstrated that TAS-20 score decreased after treatment (pharmacological or cognitive-behavioral) and the decrease was significantly related to the reduction in anxiety, suggesting that alexithymia should be considered to be a secondary reaction.

4.2.3 Summary of studies examining the relationships between PD and alexithymia

In summary, people living with PD have: (1) elevated alexithymia levels compared to non-clinical participants, especially in terms of identification and description of feelings; (2) high alexithymia levels compared to people with specific phobia (mixed results are noted for OCD and no difference was seen with SAD); (3) alexithymia levels which can be modulated by pharmacological or psychological treatment; (4) alexithymia levels which predict PD symptomatology, such as dissociation.

4.3 Emotion regulation strategies in PD

4.3.1 Evaluating emotional regulation strategies

Table 5 briefly summarizes the key characteristics of the measures used in each of the studies reviewed. Most of these studies used measures with good internal consistency with well-documented validation. However, validation data regarding facial expression recognition tests was not reported in several studies. These latter measures require further validation before final conclusions can be drawn about their validity. LPP experimental paradigm, although its accuracy in predicting ER accurately is questionable, was considered in this study given the growing body of research related to LPP mainly in ER (e.g., Liu et al., 2019; Yang et al., 2021).

4.3.2 Empirical studies

21 studies (Table 6) were identified as part of this work. The studies investigated ER difficulties such as non-acceptance and suppression (seven), cognitive reappraisal (five), experiential avoidance (five), and identification of facial expressions (four).

4.3.2.1 Acceptance and suppression

Baker et al. (2004), in comparing a group of PD people with a group of non-clinical participants, found that PD group had: (1) a marked tendency to suppress and restrict the experience and expression of certain negative emotions, namely anger, sadness and anxiety, (2) greater awareness of changes in their emotions, (3) but, with a greater difficulty in labeling them.

Three studies were carried out in the laboratory. Levitt et al. (2004) examined the effects of acceptance versus suppression of emotions and thoughts in the context of a biological challenge procedure (15 min exposure to 5.5% CO2) in a sample of PD people. Participants were randomly assigned to one of three conditions: a 10-minute soundtrack describing either acceptance or emotional suppression or a neutral narrative (non-clinical group). The results indicated that although the acceptance group reported panic symptoms and

physiological measures similar to those in the other two groups, they felt less anxiety and showed more willingness to participate in a second challenge, thanks to the acceptance strategies used. The authors concluded that the lack of any difference between the suppression and non-clinical groups suggests that suppression may be the "default" ER strategy in PD people.

In another study by Campbell-Sills et al. (2006b), a clinical group (including PD), and non-clinical participants, watched an emotion-provoking film. The film elicited similar increases in negative emotions for both groups. However, clinical participants rated the resulting emotions as less acceptable and suppressed their emotions to a greater extent. These results suggest that taking into account individuals' beliefs about emotions as well as their "instantaneous" assessments of emotional acceptability may contribute to the overall experience of emotions and / or may influence the choice of ER strategies.

Two studies investigated the role of acceptation / suppression in PD treatment. Strauss et al (2019) noted that suppression decreased after therapy and this decrease was followed by symptoms reduction. Wang et al (2016) concluded that brief emotion acceptance training could decrease aversive stimulus-induced sympathetic hyperactivity in patients with PD.

4.3.2.2 Cognitive reappraisal

Zhang et al. (2016) and Li et al (2018) studied the evolution over time of cognitive reappraisal in PD group using the late positive potential (LPP) that appears approximately 300ms after the onset of the stimulus, and is reduced when an unpleasant stimulus is reappraised more positively. In the non-clinical group, the authors found that unpleasant images preceded by negative descriptions led to increased amplitudes in the LPP, compared to unpleasant images preceded by neutral descriptions. In contrast, in the PD group, a greater LPP was observed when unpleasant pictures were preceded by neutral descriptions. The authors concluded that cognitive reappraisal is impaired in PD patients. However, when PD

patients were trained to use cognitive reappraisal, no significant difference was found between them and non-clinical participants (Ball et al., 2013; Reinecke et al., 2015).

4.3.2.3 Experiential avoidance

Several studies noted that after controlling for neuroticism facets and anxiety sensitivity (AS), experiential avoidance was no longer associated with PD symptoms (e.g., Naragon-Gainey and Watson, 2018). This suggests an overlap between these three variables (neuroticism, AS, and experiential avoidance); however, they represent related dimensions rather than a single construct (Carleton et al., 2007). In a four-year longitudinal study, Spinhoven et al. (2017) found that after controlling for neuroticism and AS, emotional avoidance predicted maintenance and relapse of anxiety disorders (including PD) rather than the development of new cases of PD.

4.3.2.4 Recognition of facial expressions

Two studies (Cai et al., 2012 ; Wang et al., 2013) have noted that the recognition of emotions in patients with PD was significantly lower than that of non-clinical participants, especially in terms of recognition of sadness, anger, disgust and fear, but not after controlling for depression or trait-anxiety (Kessler et al, 2007). Aydin et al. (2019) found that GAD group performed more poorly than PD and non-clinical participants in terms of emotion recognition. However, there was no significant difference between the PD group and the non-clinical participants.

4.3.3 Summary of studies examining ER strategies in PD

In comparison to non-clinical participants, the emotional profile of PD patients is characterized by a marked tendency to suppress and restrict the experience and expression of negative emotions, and a greater difficulty in labeling emotions. Studies also confirm that suppressing emotions may be the "default" emotion regulation strategy for PD patients.

Cognitive reappraisal may be impaired in these patients, and suppression can play a major role as mechanisms of change in PD treatments.

Laboratory studies have found that PD people' perceptions and beliefs about emotions, may increase the negativity of an emotional experience and / or may influence the choice of ER strategies. Finally, the results of studies on the recognition of emotional facial expressions remain mixed, probably because of the differences in terms of the measurements used.

4.4 Coping and panic disorder

4.1 Evaluating coping strategies

Most studies (Table 7) used coping-state (situational factor) measurements, assessing the frequency with which coping strategies were used when participants were faced with a specific stressful event. As an alternative, other studies have analyzed the trait-coping (dispositional factor) by focusing on the usual way people respond to stressful situations. Laboratory studies were focused on coping in response to panic attacks, in situations of biological challenges. Overall, the tools used in these studies have relatively good metrics.

4.2 Empirical studies

Feldner et al. (2004) conducted a review of the empirical literature on the role of coping in PD. The authors concluded that PD people use fewer problem-focused coping strategies (based on reducing the demands of the situation and/or increasing one's own resources to deal with them) and instead use avoidance coping and distraction strategies in comparison with non-clinical people. Overall, 18 studies were identified as part of our review which have been published since the review by Feldner et al. (2004) (Table 8).

In comparison with non-clinical participants, Savoia et al. (2004) noted that although PD people and non-clinical participants had a similar number of stressful life events reported in the previous year, PD people reported the use of "problem solving" and positive reappraisal strategies less frequently than control participants. In another study, Xiong et al. (2011)

showed that the scores for self-blame, help-seeking, avoidance and rationalization (attempt to logically justify unacceptable behavior) were higher in the PD group compared to the non-clinical participants.

Several studies have compared coping strategies for those with PD and those with several other anxiety disorders. For example, Marques et al. (2009) noted that all the anxious patients (PD, GAD, and SAD) had lower overall coping scores than the control group. In two other studies, Panayiotou et al. (2014) and Pozzi et al. (2015) noted that anxiety disorders (PD, GAD, and specific phobia) were similar with regard to coping strategies, characterized primarily by avoidance, self-blame, and support-seeking. In another study, Shütte et al. (2016) compared three coping strategies with illness (rumination, defense against threats and seeking information) in three clinical populations (hypochondriasis, PD and depression) and a population of non-clinical participants. The results showed no significant differences between the clinical groups in terms of the three coping strategies.

Three longitudinal studies were identified as part of this work. The first study, by Yamada et al. (2004), showed that seeking social support is an appropriate coping strategy that promotes improvement in agoraphobia. In a second longitudinal study over 16 weeks, Zimpel et al. (2018) evaluated spiritual / religious coping strategies in a group of PD people. No association was found between the levels of these strategies at baseline and improvement in PD symptomatology after 16 weeks. In a 10-year longitudinal study, Asselmann et al. (2016) noted that the number of negative life events at baseline, but not the low levels of perceived coping efficiency, predicted the onset of PD. In a similar study, Asselmann et al. (2017) noted that, daily hassles which refer to demands and conditions in everyday life (that are perceived as irritating or stressful), predicted the incidence of PD only in people with low perceived coping.

Three studies were carried out in the laboratory. Nazemi and Dager (2003) compared the coping strategies of participants with PD and non-clinical participants in the context of general stressful situations and a specific experimental situation which involved confinement in a magnetic resonance imaging scanner during a biological challenge (sodium lactate infusion). In comparison to these two situations, because the participants knew that they could end the experience via a 'panic button' at any time, the PD group used more problem-solving coping strategies and fewer emotion-focused coping strategies (attempts to regulate the emotional tensions induced by the situation) in significant ways in the experimental situation than in the general stress situation. This underlines the important role of feelings of control over the selection of coping strategies. In the second study, in the context of a biological challenge (inhalation of 35% CO2 and 65% O2) (Schmidt et al., 2005), PD people reported greater use of positive reappraisal and avoidance strategies. Likewise, Kaplan et al. (2012) noted that PD people who had a higher perception of the effectiveness of avoidance-oriented coping strategies in reducing anxiety-related thoughts, reported increased severity of panic symptoms during the yohimbine challenge versus the placebo challenge (saline). However, the frequency of use of avoidance-oriented coping strategies had no impact on the severity of PD symptomatology.

Wesner et al. (2014) noted that in a cognitive behavioral group therapy (CBGT), the use of positive reappraisal and acceptation was related to a decrease in panic attacks and anticipatory anxiety, however in another study, Wesner et al. (2019) noted no difference between intervention (CBGT +cognitive coping strategies) and control (CBGT) groups in symptoms severity.

4.3 Summary of studies examining coping in PD

In summary, people with PD: (1) use more coping strategies focused on avoidance (behavioral and cognitive), self-blame, positive reappraisal and help-seeking than non-clinical participants, (2) use fewer problem-solving-focused coping strategies than non-clinical

participants, (3) use the same coping strategies as participants with other anxiety disorders such as GAD, specific phobia and hypochondria. Additionally, the number of negative events and low levels of perceived coping efficiency in response to daily hassles and problems increase the risk of PD development.

Regarding coping in response to panic attacks, PD patients: (1) frequently use avoidance and distraction as coping strategies, (2) may use more coping strategies focused on problem resolution, when they have a high sense of control. These results highlight the role of avoidance as a primary coping style and a potential maintenance mechanism for PD.

6. Discussion and conclusion

This literature review on the emotional management processes associated with PD first revealed that research in this area has developed significantly over the past thirty years. In terms of methodology, a strength of the literature is the use of various methods (naturalistic and laboratory studies) and different measurements according to different theoretical conceptualization (e.g., trait EI or EI ability). In addition, the literature covers a wide spectrum of emotional management approaches (e.g., EI, ER,..). However, several methodological challenges inherent in the articles studied should be mentioned. First, grey literature was excluded, which may have provided more information from which to infer other emotion management strategies in PD. Nevertheless, the present review emphasizes the paucity of peer-reviewed research on some aspects of this important emerging topic (e.g, EI). Secondly, although self-assessment reports provide necessary information (LeDoux & Hofmann, 2018), they are sometimes inaccurate due to misunderstanding, recall or response bias, or social desirability (Kozak & Cuthbert, 2016). Additionally, most research on ER strategies has focused on cognitive reappraisal and expressive suppression, excluding the potential for strong conclusions on the relative effectiveness of other strategies. Thirdly, most studies have used cross-sectional models, which may not provide an adequate summary given

their occurrence in naturalistic contexts (Park et al., 2019). Finally, more frequent use of controlled laboratory research would provide definitive answers in terms of the affective consequences of emotional management strategies relevant to panic attacks.

In terms of the results, studies have shown that PD people have low emotional self-perceptions (trait EI) compared to non-clinical participants, characterized by low feelings of self-control (difficulty managing emotions, impulses and stress), and by difficulties in understanding, expressing and managing their own emotions (Lizeretti et al., 2014 ; Perna et al., 2010 ; Summerfeldt et al., 2011). These EI difficulties thus guide the choice of ER strategies. PD people tend to use non-acceptance and are less proactive in their ER and therefore engage in strategies that occur late in the ER process model (Gross, 1998), such as expressive suppression. These ER strategies then act as mediators in the relationship between trait EI and PD. From a practical point of view, in addition to working on the interoceptive exposure with the objective to violate expectations about the loss of control during panic attacks (e.g., Barlow et al., 2018; Gloster et al., 2015), this underlines the importance of improving general perception of control over stress, impulsions and general emotions (positive and negative) of PD people, even if these emotions are not directly related to panic attacks. This will allow them to learn to regulate emotions at a very early stage and show flexibility in their choice of strategies (Pena-Sarrionandia et al., 2015).

Regarding the role of cognitive reappraisal in PD, studies by Zhang et al (2016), and Li and Wang (2018) found that automatic cognitive reappraisal is impaired in PD people as they could not automatically adjust their emotional state, indicating that reappraisal of emotions in PD may involve the unconscious level more than the conscious one. From a theoretical point of view, this enhances the conditioning stages of physical sensations described in Barlow's (1988) PD model, and explains the occurrence of intense, and/or nocturnal panic attacks in the absence of a conscious perceived threat or danger. From a

practical point of view, this suggests that working on cognitive reappraisal using cognitive therapy techniques, like altering appraisals about the panic itself, may not be efficient, and confirms the results of several studies which found that effective CBT for PD is based on interoceptive exposure while excluding other components such as cognitive restructuring (Longmore & Worrell., 2007; Pompoli et al., 2018). Most of the therapeutic changes from "dangerous" to "safe" appraisals occur as an automatic consequence of interoceptive exposure (Barlow, 1989), and do not need to be worked at consciously using cognitive therapy techniques.

7. Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

8. Declaration of Competing Interest

The authors report no declarations of interest.

Table 1: *Quality assessment ratings*

Author / Year	Selection Bias	Confounders	Data Collection
Perna et al (2010)	Strong	Moderate	Strong
Lizeretti et al (2014)	Strong	Moderate	Strong
Summerfeldt et al (2011)	Moderate	Weak	Strong
Lizeretti et al (2012)	Moderate	Weak	Strong
Onur et al (2013)	Weak	Moderate	Strong
Parker et al (1993)	Moderate	Weak	Moderate
Zeitlin and McNally (1993)	Moderate	Weak	Moderate
Cox et al (1995)	Moderate	Weak	Moderate
Fukunishi et al (1997)	Moderate	Weak	Strong
Marchesi et al (2000)	Moderate	Strong	Strong
Bankier et al (2001)	Moderate	Weak	Strong
Iancu et al (2001)	Moderate	Moderate	Strong

Marchesi et al (2005)	Moderate	Weak	Strong
De Berardis et al (2007)	Moderate	Moderate	Strong
Galderisi et al (2008)	Strong	Weak	Strong
Rufer et al (2010)	Moderate	Moderate	Strong
Cucchi et al (2012)	Moderate	Strong	Strong
Marchesi et al (2013)	Moderate	Moderate	Strong
Majohr et al (2011)	Strong	Weak	Strong
Izci et al (2014)	Moderate	Weak	Strong
Zou et al (2016)	Strong	Weak	Moderate
Park et al (2019)	Weak	Weak	Moderate
Baker et al (2004)	Moderate	Moderate	Moderate
Oguz et al (2019)	Moderate	Weak	Moderate
Levitt et al (2004)	Strong	Moderate	Weak
Campbell-Sills (2006a)	Moderate	Weak	Moderate
Campbell-Sills (2006b)	Strong	Moderate	Moderate
Wang et al (2016)	Moderate	Weak	Moderate
Strauss et al (2019)	Moderate	Weak	Strong
Ball et al (2013)	Moderate	Weak	Moderate
Reinecke et al (2015)	Moderate	Weak	Moderate
Breuninger et al (2016)	Moderate	Weak	Moderate
Zhang et al (2016)	Moderate	Weak	Moderate
Li et al (2018)	Moderate	Weak	Moderate
Berman et al (2010)	Moderate	Moderate	Strong
Kämpfe et al (2012)	Moderate	Moderate	Strong
Spinhoven et al (2017)	Moderate	Strong	Strong
Naragon-Gainey and Watson (2018)	Moderate	Moderate	Strong
Kirk et al (2019)	Weak	Moderate	Strong
Kessler et al (2007)	Moderate	Moderate	Weak
Wang et al (2013)	Moderate	Weak	Weak
Cai et al (2016)	Moderate	Weak	Weak
Aydin et al., (2019)	Moderate	Moderate	Moderate

Author / Year	**Selection Bias**	**Confounders**	**Data Collection**
Savoia et al (2004)	Moderate	Weak	Moderate
Yamada et al (2004)	Moderate	Moderate	Moderate
Marques et al (2009)	Moderate	Moderate	Strong
Xiong et al (2011)	Moderate	Weak	Moderate
Panayiotou et al (2014)	Moderate	Weak	Strong
Asselmann et al (2015)	Moderate	Moderate	Weak
Asselmann et al (2017)	Moderate	Moderate	Weak
Sandin et al (2015)	Strong	Moderate	Strong
Pozzi et al (2015)	Strong	Weak	Strong
Shütte et al (2016)	Moderate	Weak	Moderate
Kim et al (2017)	Moderate	Weak	Strong
Zimpel et al (2018)	Moderate	Moderate	Strong
Wesner et al (2014)	Moderate	Moderate	Moderate
Wesner et al (2019)	Strong	Moderate	Strong

Cho et al (2021)	Moderate	Moderate	Moderate
Nazemi et al (2003)	Moderate	Weak	Moderate
Schmidt et al (2005)	Moderate	Moderate	Moderate
Kaplan et al (2012)	Moderate	Moderate	Moderate

Table 2: *Psychometric properties of EI measures used in studies on the relation between PD and EI*

Measures / Authors	Type	Format	Measures	Tool subscales	Internal consistency	Validation
Italian version of the Mayer-Salovey-Caruso Emotional Intelligence Scale (MSCEIT) (Mayer et al., 2001)	Administered Test	141 items (8 tasks)	EI Ability Experiential EI Quotient Strategic EI Quotient	Perception of emotions Facilitation of thought with emotion Understanding emotions Managing emotions	0,86 0,77 0,75 0,86	Well documented
Bar-On Emotional Quotient Inventory: Short (EQ-i: S) (Bar-On, 2002)	Self evaluation	51 items	EI Trait	Intrapersonal Interpersonal Adaptability Stress management	0.73 to 0.96 (M) 0.75 to 0.97 (F)	Well documented
Spanish version of Trait Meta-Mood Scale (TMMS-24) (Fernández-Berrocal et al., 2004)	Self evaluation	24 items	EI Trait	Attention to Emotions Emotional Clarity Emotional Repair	0.9 0.9 0.86	Well documented
Turkish version of the Revised Emotional Intelligence Scale (EIS-34) (Onur et al., 2013)	Self evaluation	34 items	EI Trait	Intrapersonal factor Interpersonal factor Situational factor	0,97 0,96 0,43	Well documented

EI: Emotional intelligence ; M : Male ; F : Female

Table 3: *Synopsis of studies examining the relations between PD and EI*

Studies	Sample	IE measurement	Results
EI Ability			
Perna et al (2010)	51 PDA, 49 NC DSM-IV-TR	MSCEIT	PDA patients showed a lower Strategic EI ability than healthy controls (F = 11.85; p <0.001), both for comprehension (F = 5.82; p <0.05) and management of emotional capacities (F = 6.76). ; p <0.05), and a general propensity to attribute a negative emotional valence to different stimuli (F = 6.76; p <0.05). EI did not appear to affect the clinical severity of Agoraphobia.
Lizeretti et al (2014)	80 PDA, 66 GAD DSM-IV-TR	MSCEIT	PDA patients present with a low EI, without finding any significant differences between PDA and GAD. Patients demonstrate better identification and facilitation skills, but have difficulty in emotional understanding and regulation skills. Emotional difficulties were associated with the presence of personality disorders: schizotypal (r = -0.4; p <0.01), dependent (r = -0.23; p <0.01) and avoidant (r = -0.17; p <0.01).
Trait EI			
Summerfeldt et al (2011)	64 PD, 65 OCD, 169 SAD, 169 NC DSM-IV-TR	EQ-i: S	The three anxiety disorders showed a lower total EI score than the control group (F = 71.43, p <.001). PD and OCD did not differ from controls in Interpersonal EI score. Intrapersonal EI was reduced in all the three clinical groups compared to controls (β = -. 22, p <.0005), but with a higher level in SP.
Lizeretti et al (2012)	99 PDA, 101 NC DSM-IV-TR	TMMS-24	There are significant differences between the PD and control groups regarding scores on two subscales: Emotional Attention (F = 5.574, p <0.05) and Emotional Regulation (F = 4.926, p <0, 01). Associations were found between, perceived self-efficacy and symptoms of anxiety (r = -. 414, p = .000) and Agoraphobia (r = -. 363, p = .006).
Onur et al (2013)	54 PD, 40 GAD 70 MDD, 56 NC DSM-IV-TR	EIS-34	No difference between the NC group and the PD. For the EIS-34 subscale score (Intrapersonal factor), the NC group was statistically significantly higher than the MDD (p <0.01), PD (p = 0.04) and GAD (p = 0, 02). There was no difference between groups for the EIS-34 (Interpersonal) or EIS-34 (Situational) subscales.

EI: Emotional Intelligence; PDA: Panic Disorder with Agoraphobia; GAD: Generalized Anxiety Disorder; SAD: Social Anxiety Disorder; OCD: Obsessive Compulsive Disorder; MDD: Major Depressive Disorder; NC: non-clinical group; DSM: Diagnostic and Statistical Manual.
EI Assessment Tools: MSCEIT: Mayer-Salovey-Caruso Emotional Intelligence Scale (Mayer et al., 2001); EQ-i: S: Brief inventory of the Emotional Quotient (Bar-On, 2002); TMMS: Meta-Mood Scale Trait, Spanish version (Fernández-Berrocal et al., 2004), EIS-34: Emotional Intelligence Scale, Turkish version (Onur et al., 2013).

Table 4: *Synopsis of studies examining the relations between PD and alexithymia*

Studies	Study design	Results
Alexithymia in PD		
Parker et al (1993)	T, (30 PD, 32 SAD DSM-III-R)	46.7% PD have alexithymia, 12.5% for the Social Phobia group (t = 3.6; p <0.007).
Zeitlin and McNally (1993)	T, (27 PD, 31 OCD, DSM-III-R)	High rates of alexithymia were found in the PD group, compared to the OCD group, even after controlling for AS (F = 16.21; p <0.001). Alexithymia and SA scores were more strongly correlated in PD than in OCD (r = 0.57; p <0.01 vs r = 0.21; p> 0.05 for OCD).
Cox et al (1995)	T, (PD, SAD, DSM-III-R)	34% of PD patients and 28.3% of Social phobia were classified as alexithymic, no significant difference between the two groups.
Fukunishi et al (1997)	L 6 months (26 PD, 24 SP, 25 NC, DSM-IV)	Before pharmacological treatment, total TAS score was significantly higher for the PD group compared to NC (t = 3.91, p <0.001) and for the SP group compared to NC (t = 2.56, p <0.05). After treatment, all significant differences between the three groups were eliminated.
Marchesi et al (2000)	T, (29 PD, 35 GAD, 49 MDD, 113 NC, DSM-IV)	The total TAS-20 score was higher in depressed and anxious patients than in NC (F = 19.4; p <0.0001), with higher (DIF) score (F = 29.4; p <0.0001), and (only in depressed patients) higher (DCF) score (F = 5.8; p <0.0001) than in NC.
Bankier et al (2001)	T, (123 PD, 59 OCD, 24 SOM, 28 DD, DSM-IV)	PD was the only disorder associated with lower total TAS-20 scores (P = 0.000). Factor 3 (outward thinking) was significantly associated with OCD and PD (P = 0.001).
Iancu et al (2001)	T, (24 PD, 24 NC, DSM-IV)	A higher frequency of TAS score (score> 73) was found in PD (39% vs. 4% among controls). But the difference in the means between the two groups is not significant after controlling for depression.
Marchesi et al (2005)	L 14 months (52 PD, 52 NC)	The PD group is more alexithymic and anxious than the NC before ((p <0.001) and after remission (p = 0.01).
De Berardis et al (2007)	T (84 PD, DSM-IV)	Both DIF and DCF subscales were predictors of PD severity (p <0.001).
Galderisi et al (2008)	T (28 PD, 32 NC, DSM-IV)	Alexithymia (TAS-20> = 61) and borderline alexithymia (TAS-20 between 52 and 60) were significantly more frequent in the PD group than in NC (29 vs. 0% and 39 vs. 9%, respectively, p <0.000002), with higher DIF scores (F = 25.08; p <0.000005).
Rufer et al (2010)	L 6 months (54 PD, DSM-IV)	Total TAS-20 scores decreased over time (p = 0.001), with DIF and DCF significantly decreasing (p = 0.0012 and p = 0.01), while factor 3 (outward thinking) has remained widely stable.
Cucchi et al (2012)	T (139 PD, 30 PA, 157 NC, DSM-IV)	The PD group had higher alexithymia and AS levels than the NC (p <0.001).

Studies	Study design	Results
Onur et al (2013)	T (54 PD, 40 GAD, 70 MDD, 56 NC, DSM-IV-TR)	The PD group obtained a higher score than the NC on the TAS-20 score ($p < 0.001$) and on the DIF and DCF subscales ($p < 0.001$).
Marchesi et al (2013)	L 6 months (21 PD, 256 NC, DSM-IV-TR)	The PD group, compared to NC, showed similar TAS-20 scores during the pre-morbid phase, a significant increase during the crisis phase ($p = 0.009$ and $p < 0.007$) and a significant decrease after improvement in symptoms ($p < 0.001$ and $p = 0.002$), while no change was observed for GC.
Alexithymia and the symptoms of PD		
Majohr et al (2011)	T (95 PD, DSM-IV)	Positive correlation between alexithymia and dissociation ($r = 0.28$; $p < 0.01$). A specific link observed between DIF and "depersonalization / derealization" ($\beta = 0.25$; $p < 0.05$). Patients who showed the pathological form of dissociation had higher levels of alexithymia ($F = 13$; $p < 0.001$), in DIF ($F = 20.6$; $p < 0.001$) and DCF ($F = 0.2$; $p < 0.05$).
Izci et al (2014)	T (60 PD, 62 NC, DSM-IV-TR)	The rates of alexithymia were respectively 35% and 11.3% in PD and NC ($p = 0.003$). DIF was significantly higher in the PD group ($p = 0.03$). A moderate positive correlation between PAS and TAS scores ($r = 0.447$; $P = 0.01$).
Zou et al (2016)	T (142 PD, 146 NC)	DIF and DCF scores were significantly higher in patients with PD than in controls. Significant positive correlations were noted among CT, alexithymia and PD severity. Alexithymia as a mediator between the different types of CT and PD severity, except sexual abuse.
Park et al (2019)	L (26 PD, 62 GAD, 56 SP, DSM 5)	PD patients with higher levels of overall momentary emotional clarity reported greater overall momentary emotional regulation success and fewer overall subsequent momentary symptoms ($p < 0.01$).

PD: Panic Disorder; SpP: Simple Phobia; SAD: Social Anxiety Disorder; OCD: Obsessive Compulsive Disorder; GAD: Generalized Anxiety Disorder; MDD: Major Depressive Disorder; SOM: Somatoform Disorder; PA: Panic Attacks; T: Transverse; L: longitudinal; DSM: Diagnostic and Statistical Manual; NC: Non-Clinical participants; DIF: Difficulty Identifying Feelings; DCF: Difficulty Communicating Feelings; PAS: Panic Agoraphobia Scale (Bandelow, 1999).

Table 5: *The psychometric properties of measures used in evaluating emotion regulation strategies in PD*

Measures / Authors	Type	Format	Tool subscales	Internal consistency	Validation
Courtauld Emotional Control Scale (CECS) (Watson & Greer, 1983)	Self evaluation	21 items	Anger control Response to sadness Response to anxiety	0.86 0.88 0.88	Well documented
Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004)	Self evaluation	36 items	Non-acceptance, Objectives, Impulse, Awareness of emotions, Access to strategies, Emotional clarity	Total = 0.93 >0.8 for each subscale	Well documented
Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003; Abler & Kessler 2009)	Self evaluation	10 items	Reappraisal Suppression	0.79 0.73	Well documented
Acceptance and Action Questionnaire (AAQ) (Hayes et al., 2004)	Self evaluation	9 items	Experiential avoidance	0.76	Well documented
Meta Evaluation Scales (MES) (Mayer & Stevens, 1994)	Self evaluation	12 items	Acceptance of Emotions Emotional clarity	None reported	Well documented
Levels of Emotional Awareness Scale (LEAS) (Lane et al., 1990)	Self evaluation	1 item	Awareness and expression of emotional experience	None reported	None reported
Turkish version of the Leahy Emotional Schema Scale (LESS) (Batmaz & Özdel, 2015)	Self evaluation	50 items	Uncontrollability, weakness, understandability, avoidance, rationality, acceptance, rumination, dissimilarity, denial, duration, validation, consensus, dangerousness, guilt	Turkish version 0.76	Well documented
Facially Expressed Emotion Labeling (FEEL) (Kessler et al., 2002)	Administered test	6 tasks	Recognition of 06 emotions: anger, sadness, disgust, fear, happiness and surprise	0.77	None reported
ChaeLee Korean Facial Expressions of Emotion (CKFEE) (Lee et al., 2004)	Administered test	170 stimuli	Recognition of 04 emotions: anger, sadness, fear and happiness	None reported	None reported
Japanese and Caucasian Facial Expressions of Emotion (JACFEE) (Biehl et al., 1997)	Administered test	56 stimuli	Recognition of 7 emotions: anger, contempt, disgust, fear, happiness, sadness and surprise.	None reported	None reported
Turkish version of Reading the Mind from the Eyes Test (RMET) (Yildirim et al., 2011)	Administered test	32 stimuli	Recognition of primary emotions (happiness, sadness, anger, fear, surprise, shame) and complex emotions (irritation, discouragement and bewilderment).	None reported	Well documented

Table 6: *Synopsis of studies examining emotion regulation strategies in PD*

Studies	Sample	Results
Acceptation / Suppression		
Baker et al (2004)	48 PD, 531 NC DSM-II-R	The PD group reported a marked tendency to suppress and restrict the experience and expression of negative emotions of anger, sadness and anxiety ($p < 0.001$), greater awareness of feelings ($p = 0.001$) and a greater difficulty in labeling emotions ($p = 0.001$).
Oguz et al (2019)	56 PD, 52 OCD, 52 NC DSM 5	The two clinical groups obtained higher scores than the control group on uncontrollability ($p < 0.001$), comprehensibility ($p = 0.01$), rumination ($p < 0.001$), discordance ($p < 0.001$), dangerousness ($p < 0.001$), guilt ($p = 0.019$), and on the total LESS score ($p < 0.001$). No difference was found between the two clinical groups on the 14 LESS subscales.
Levitt et al (2004)	80 PD, DSM-IV	The acceptance group was less anxious and less avoidant than the suppression or control groups in terms of subjective anxiety and willingness to participate in a second challenge ($p < 0.05$), but not in terms of panic symptoms or physiological measurements reported. No significant differences noted between suppression and control groups.
Campbell-Sills (2006a)	16 PD, 43 A / H, 30 NC DSM-IV	The film elicited similar increases in negative emotions for both groups; however, clinical participants rated the resulting emotions as less acceptable ($p < 0.05$) and suppressed their emotions more ($t = 2.36$, $p = 0.02$). For all participants, high levels of suppression were associated with increased negative emotions during film and the post-film recovery period.
Campbell-Sills (2006b)	17 PD, 43 A / H DSM-IV	Similar levels of subjective distress during film between the two groups, but the acceptance group showed less negative affect during the post-film recovery period ($F = 6.11$, $p = 0.02$). The suppression group showed increased heart rate and the acceptance group decreased heart rate in response to the film ($F = 5.51$, $p = 0.01$). No difference between the two groups in skin conductance or respiratory sinus arrhythmia.
Wang et al (2016)	48 PD DSM-IV-TR	The mean change in LF/HF ratio from baseline to active stimulus (HRV) was significantly lower in the emotion regulation group than in the no-regulation group (emotion regulation group, 0.13; no-regulation group, 2.31; $t=-2.67$; $p<.05$).
Strauss et al (2019)	29 PD, 26 NC DSM-IV-TR	Reappraisal did not change until late stages of therapy and was generally not associated with treatment outcome. Suppression decreased significantly ($t = -3.03$, $p = .003$) and exhibited a reciprocal relationship with biased cognitions. Symptom reduction followed decreases in suppression.
Cognitive reappraisal		
Ball et al (2013)	18 PD, 23 GAD, 22 NC	Greater use of suppression in patients ($p < 0.05$), with no difference between GAD and PD. Patients and controls did not differ on the use of reappraisal, but GAD reported less use of reappraisal than PD ($p < 0.005$). Self-rated subjective experience during the behavioral task in the GAD and PD groups did not differ in any condition ($p > 0.09$).
Reinecke et al (2015)	18 PD, 18 NC DSM-IV	Patients showed increased neuronal activation in limbal-prefrontal areas ($p < 0.001$) and reduced heart rate variability during regulation of accidental emotions ($p = 0.047$). During intentional regulation (reappraisal), group differences were considerably reduced ($p = 0.044$).
Breuninger et al (2016)	21 PD, 27 NC DSM-IV	The use of emotion regulation strategies during the experience of stress did not differ between groups, but patients reported strong difficulties in perceiving and managing emotions ($p < 0.001$), with low use of cognitive reappraisal ($p = 0.049$).

Studies	Sample	Results
Zhang et al (2016)	23 PD, 22 NC DSM-IV	In the control group, unpleasant pictures preceded by negative descriptions had increased amplitudes (LPP) compared to unpleasant pictures preceded by neutral descriptions (t = 2.46; p = 0.023). In the PD group, a greater LPP was observed for unpleasant pictures preceded by neutral descriptions (t = 3.23; p = 0.004).
Li et al (2018)	23 PD, 22 NC DSM-IV	(Same protocol as Zhang et al (2016)): Patients with PD could not automatically adjust their emotional state to be in line with the previous neutral descriptions when viewing the negative images➔ Impaired cognitive reappraisal
Experiential avoidance		
Berman et al (2010)	6 PD, 12 OCD, 10 SP 5 GAD, DSM-IV	Regardless of the EA level, the physical concern dimension of AS was significantly associated with anxiety symptoms (p <0.01). EA did not add any additional variance beyond the dimensions of the AS.
Kämpfe et al (2012)	369 PD, DSM-IV	AS and EA were moderately correlated with each other (r = -. 50, p <.01). EA explained additional variance for the subscales: anticipatory anxiety (p = 0.049) and impact on daily life (p = 0.03), but not for panic attacks, agoraphobic avoidance..
Spinhoven et al (2017)	290 PD	After controlling for neuroticism and anxiety sensitivity, emotional avoidance predicted the maintenance and relapse of anxiety disorders (including PD) (OR = 1.38) rather than the development of PD.
Naragon-Gainey and Watson (2018)	50 PD, 110 GAD 103 MDD, DSM-IV	After taking into account the contribution of neuroticism facets, experiential avoidance was no longer only associated with PD.
Kirk et al (2019)	109 PD, 145 SP > = 12 ASI-3 physical subscale	The severity of panic symptoms, but not experiential avoidance, was directly and positively associated with the time spent on preventive avoidance behaviors.
Recognition of facial expressions		
Kessler et al (2007)	37 PD, 43 NC DSM-IV	Recognition of emotions in PD patients was worse than that of NC (p = 0.003), especially sadness (p = 0.017) and anger (p = 0.006). The PD group showed a tendency to interpret non-anger emotions as anger (p = 0.029). These differences disappeared when the depression or anxiety trait were brought under control.
Wang et al (2013)	24 PD, 20 NC DSM-IV	The mean threshold for recognizing threat-related facial expressions was significantly higher in the PD group compared to NC (p = 0.041).
Cai et al (2016)	21 PD, 34 NC DSM-IV	Compared to NC, patients showed lower precision when recognizing the emotions of disgust (p = 0.03) and fear (p = 0.01), but higher precision when recognizing the surprise (p = 0.01).
Aydin et al., (2019)	44 PD, 37 GAD, 44 NC DSM 5	GAD participants showed poorer performance than PD and NC in accurately recognizing emotions. No significant difference in recognition scores between PD and NC groups.

PT: Panic Disorder; OCD: Obsessive Compulsive Disorder; A / H: anxiety and mood disorders; GAD: Generalized Anxiety Disorder; NC: Non-clinical group; DSM: Diagnostic and Statistical Manual; EE: Experiential Avoidance; AS: Anxiety Sensitivity; LPP: Late Positive Potential.

Table 7: *The psychometric properties of coping measures used in studies on the relations between PD and coping strategies*

Tool / Authors	Stress factor	Format	Measures	Coping subscales	Internal consistency	Validation
Coping measures in the response to stress and anxiety						
Japanese and Chinese versions of the Modified Ways of Coping Checklist (RWCCL) (Vitaliano et al., 1985),	A self-selected stressor	42 items	Frequency of use of the strategy	1) Problem solving 2) Seeking social support 3) Self-blame, 4) Positive reappraisal, 5) Avoidance	None reported	None reported
COPE (Carver, 1989) Italian and Greek versions of Brief-COPE (Carver, 1997)	A recent stressor	60 items 28 items	Frequency of use of the strategy	1) Active coping, 2) Planning 3) Seeking instrumental social support, 4) Seeking emotional social support, 5) Expression of feelings, 6) Behavioral disengagement, 7) Distraction, 8) Suppression of activities, 9) Positive reinterpretation, 10) Restriction, 11) Denial, 12) Acceptance, 13) Religion, 14) Substance use	Greek version 0.54 to 0.91	Well documented
Emotional Approach Coping Scale (EACS) (Stanton et al., 2000)	Usual stress	8 items	Usual stress response	1) Processing of emotions 2) Emotional expression	0.91 0.91	Well documented
Self-Control and Coping Skills (SSC) (Perkonigg & Wittchen, 1995)	Difficulties of life	11 items	Perception of the person facing the difficulties of life	Perceived effectiveness of coping	0.81	None reported
Brazilian Portuguese version of "The abbreviated Religious-Spiritual Coping Scale" (RCOPE-BREF) (Panzini & Bandeira, 2005)	Stressful situations	49 items	Frequency of use of the strategy	S / R Positive Coping S / R Negative Coping	0.98 0.86	Well documented
Korean and Brazilian versions of the Ways of Coping Questionnaire (WCQ) (Folkman et al., 1986)	Stressful situations	50 items	Frequency of use of the strategy	1) Confrontation, 2) Distancing, 3) Self-control, 4) Seeking social support, 5) Accepting responsibility, 6) avoidance, 7) Problem solving and 8) Positive reappraisal	Korean version 0.77 to 0.89	Korean version documented
Freiburg Questionnaire on Coping with Illness (FKV)(Muthny, 1989)	Sickness	30 items	Frequency of use of the strategy	1) Problem analysis, 2) cognitive avoidance and dissimulation, 3) Relativization through comparison, and 4) Compliance with treatment.	0.69 to 0.94	None reported
Tool / Authors	**Stress factor**	**Format**	**Measures**	**Coping subscales**	**Internal**	**Validation**

					consistency	
Sort Illness Coping Scales (TSK) (Klauer & Filipp, 1993)	Sickness	22 items	Frequency of use of the strategy	1) Rumination, 2) Defense of threat, 3) Searching for information.	0.76 to 0.82	Well documented
Coping measures in response to panic						
Panic Attack Coping Questionnaire (PACQ) (Borden et al., 1988)	Panic attack	27 items	1) Frequency of use of the strategy 2) Effectiveness of the strategy in dealing with anxiety symptoms 3) Effectiveness of the strategy in dealing with anxious thoughts.	Frequency of avoidance Reduction of symptoms Reduction of anxious thoughts	0.74 for the avoidance score on each of the 03 subscales	None reported
The Panic Appraisal Inventory (PAI) (Telch et al., 1989)	Panic attack	10 items	Confidence in the execution of coping strategies	Coping in response to panic attack	0.88	None reported

Table 8: *Synopsis of studies examining the relation between TP and coping strategies*

Studies	Study design	Coping measurement	Results
Naturalistic studies			
Savoia et al (2004)	T, 43 PD, 43 NC DSM-III-TR	WCQ	PD patients reported the use of 'problem solving' strategies (38.87% vs. 56.46%, f = 19.59; P <0.01) and positive reappraisal (28.02% vs. 47. 45%, f = 19.43; P <0.001) less frequently than controls.
Yamada et al (2004)	L (2 Y), 30 PD DSM-III-TR	RWCCL	Baseline PD severity was not correlated with the three coping strategies. At the end of the study, no significant correlation was found between the coping strategies and the severity of the panic attacks, however the severity of the agoraphobia and the social support seeking coping strategy were significantly correlated (t = -2.79; p = 0.01).
Marques et al (2009)	T, 23 PD, 29 GAD, 23 SAD, 101 NC DSM-IV-TR	EACS	All the anxious patients showed low scores on the overall EACS as well as on its two subscales, as the NC. For the PD (β = -4.2; p = 0.002). A low EACS score was also associated with higher anxiety sensitivity (F = 5.43, P = 0.0013) and higher severity of anxiety symptoms (F = 7.60, P = 0.0001).
Xiong et al (2011)	T, 40 PD, 40 NC	RWCCL	Self-blame, help-seeking, positive reappraisal, avoidance, and rationalization scores were higher in the PD group (P <0.05). The PDSS score was influenced by the level of positive reappraisal and help-seeking. It was positively correlated with positive reappraisal (β = 0.422, P <0.01), negatively correlated with help seeking (β = –0.339, p <0.05).
Panayiotou et al (2014)	T, 94 (PD, GAD, SP), DSM-IV-TR	Brief-COPE	The clinical groups were similar with regard to coping strategies (avoidance and self-blame). Patients with anxiety disorders used avoidance strategies more than NCs (p <0.01).
Asselmann et al (2015; 2017)	L (10 Y), 42 PD, 89 AGO, 51 GAD DSM-IV	SSC	The negative events at baseline predicted the onset of PD (OR = 1.06, p <0.001). The low level of perceived coping efficiency does not increase the risk of PD onset. Daily burdens predicted the incidence of panic attacks and PD only in people with low perceived coping efficiency (PA: OR = 1.6; 95% CI 1.3; 2.1; p = .001; PT: OR = 2.0; 95% CI 1.4; 2.8; p = .001).
Sandin et al (2015)	T, 168 PD, DSM-IV	PSES	Self-efficacy predicted panic severity after controlling AS and catastrophic interpretations (p <0.001).
Pozzi et al (2015)	T, 148 (PD, GAD, AD) DSM-IV-TR	Brief-COPE	No difference in coping between PD and GAD. PD was mainly related to support-seeking and avoidance strategies (behavioral and cognitive) (p <0.001).
Shütte et al (2016)	T, 30 PD, 30 Hyp, 30 D, DSM-IV-TR	TSK FKV	No significant difference was found between the 04 groups on: Rumination, Defense to Threats and Information Seeking.
Kim et al (2017)	T, 545 PD DSM-IV-TR	WCQ	Women reported lower levels of confrontation strategies (t = 2.65, p = 0.008) and help-seeking (t = 3.25; p = 0.001) than men.
Zimpel et al (2018)	L (16W), 101 PD DSM-IV	RCOPE-BRIEF	No association between the two spiritual / religious coping strategies (positive and negative) and improvement in PD symptomatology.
Wesner et al (2014)	48 PD, 75 NC	CSI	The use of more adaptive coping strategies was related to a decrease in panic attacks and anticipatory anxiety (positive reappraisal (r = .289; p =.046 and r = .309; p = .033,for acceptance).

| Studies | Study design | Coping measurement | Results |

Wesner et al (2019)	T, 65 PD, DSM 5	CSI	No difference between intervention (CBGT +cognitive coping strategies) and control (CBGT) in symptoms severity.
Cho et al (2021)	T, 84 PD, DSM-IV	PAI	The perceived effectiveness of coping strategies was a predictor of agoraphobic avoidance above and beyond AS and the other two dimensions of PAI (anticipation of panic, consequences of panic) ($p < 0.001$).
Laboratory studies			
Nazemi et al (2003)	T, 13 PD, 11 NC DSM-IV	RWCCL	The PD group used more problem-solving-focused coping ($p < 0.01$) and less emotion-focused coping ($p < 0.01$) in the experimental situation than in the general stress situation. Both groups similarly used these two coping strategies in the specific experimental setting.
Schmidt et al (2005)	T, 45 PD, NC DSM-IV-TR	RWCCL PAI	PD patients reported using emotion-focused coping strategies more than NC ($t = 4.47$, $p < 0.05$), and extensive use of positive reappraisal strategies ($t = 5.22$, $p < 0.05$) and avoidance ($t = 5.30$, $p < 0.05$).
Kaplan et al (2012)	T, 22 PD, 20 NC DSM-IV	COPE PACQ	PD patients who had higher perceived efficacy of avoidance-oriented coping strategies reported increased severity of panic symptoms during yohimbine challenge compared to placebo ($t = 4.03$; $p < 0.001$) .

PD: Panic Disorder; GAD: Generalized Anxiety Disorder; SAD: Social Anxiety Disorder; AGO: Agoraphobia; Hypoch: hypochondriasis; D: Depression; AD: anxiety disorder; NC: non clinical; T: transverse; L: longitudinal; DSM: Diagnostic and Statistical Manual; PDSS: Panic Disorder Severity Scale (Shear and Maser, 1994).
Coping questionnaires: WCQ: Ways of Coping Questionnaire (Folkman et al., 1986); RWCCL: Way of Coping Check-List Revised (Vitaliano et al., 1985); EACS: Emotional Approach Coping Scale (Stanton et al., 2000); Brief-COPE (Carver, 1997); SSC: Scale for Self-Control and Coping Skills (Perkonigg & Wittchen, 1995); PSES: Panic Self-efficacy Scale (Taylor & Amow, 1988); TSK: Sort Illness Coping Scale (Klauer & Filipp, 1993); FKV: Freiburg Questionnaire on Coping with Illness (Muthny, 1989); RCOPE-BREF: The abbreviated Religious-Spiritual Coping Scale (Panzini & Bandeira, 2005); PAI: The Panic Appraisal Inventory (Telch et al., 1989); COPE Inventory (Carver et al., 1989); PACQ: Panic Attack Coping Questionnaire (Borden et al., 1988); PDSS: Panic Disorder Severity Scale.

9. Appendix 1

Table *Quality assessment components and ratings for EPHPP instrument (adapted from Thomas et al., 2004)*

Components	Strong	Moderate	Weak
Selection bias	Very likely to be representative of the target population and greater than 80% participation rate	Somewhat likely to be representative of the target population and greater than 80% participation rate	All other responses or not stated
Confounders	Controlled for at least 80% of confounders	Controlled for 60 - 79% of confounders	Confounders not controlled or not stated
Data collection	Tools are valid and reliable	Tools are valid but reliability not stated	No evidence of validity or reliability

10.References

Abler, B., & Kessler, H. (2009). Emotion Regulation Questionnaire — Eine deutschsprachige Fassung des ERQ von Gross und John = Emotion Regulation Questionnaire — A German version of the ERQ by Gross and John. Diagnostica, 55 (3), 144–152. APA PsycInfo.https://doi.org/10.1026/0012-1924.55.3.144

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. Clinical Psychology Review, 30 (2), 217–237. APA PsycInfo.https://doi.org/10.1016/j.cpr.2009.11.004

Asselmann, E., Wittchen, H.-U., Lieb, R., Höfler, M., & Beesdo-Baum, K. (2016). Does low coping efficacy mediate the association between negative life events and incident psychopathology? A prospective-longitudinal community study among adolescents and young adults. Epidemiology and Psychiatric Sciences, 25 (2), 171–180. APA PsycInfo.https://doi.org/10.1017/S204579601500013X

Asselmann, E., Wittchen, H.-U., Lieb, R., & Beesdo-Baum, K. (2017). A 10-year prospective-longitudinal study of daily hassles and incident psychopathology among adolescents and young adults: Interactions with gender, perceived coping efficacy, and negative life events. Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services, 52 (11), 1353–1362. APA PsycInfo.https://doi.org/10.1007/s00127-017-1436-3

Aydın, O., Balıkçı, K., Çökmüş, FP, & Ünal Aydın, P. (2019). The evaluation of metacognitive beliefs and emotion recognition in panic disorder and generalized anxiety disorder: Effects on symptoms and comparison with healthy control. Nordic Journal of Psychiatry, 73 (4/5), 293–301. Psychology and Behavioral Sciences Collection.

Baker, R., Holloway, J., Thomas, PW, Thomas, S., & Owens, M. (2004). Emotional processing and panic. Behavior Research & Therapy, 42 (11), 1271–1287. Academic Search Premier.

Ball, TM, Ramsawh, HJ, Campbell-Sills, L., Paulus, MP, & Stein, MB (2013). Prefrontal dysfunction during emotion regulation in generalized anxiety and panic disorders. Psychological Medicine, 43 (7), 1475–1486. Academic Search Premier.

Bandelow, B. (1995). Panic and Agoraphobia Scale. *PsycTESTS*. APA PsycTests. https://doi.org/10.1037/t73289-000

Bankier, B., Aigner, M., & Bach, M. (2001). Alexithymia in DSM-IV disorder: Comparative evaluation of somatoform disorder, panic disorder, obsessive-compulsive disorder, and depression. Psychosomatics: Journal of Consultation and Liaison Psychiatry, 42 (3), 235–240. APA PsycInfo.https://doi.org/10.1176/appi.psy.42.3.235

Barlow DH. Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. American Psychologist. 2000 Nov; 55 (11): 1247–63.

Barlow, D. H., & Farchione, T. J. (2018). *Applications of the unified protocol for transdiagnostic treatment of emotional disorder* (D. H. Barlow & T. J. Farchione, Eds.; 2017-43856-000). Oxford University Press; APA PsycInfo.

Bar-On, R. (2002). Emotional Quotient Inventory—Short Form. *PsycTESTS*. APA PsycTests. https://doi.org/10.1037/t03760-000

BATMAZ, S., & ÖZDEL, K. (2015). Psychometric properties of the Turkish version of the Leahy Emotional Schema Scale-II. Leahy Duygusal Şema Ölçeği-II'nin Türkçe Sürümünün Psikometrik Özellikleri., 16, 23–30. Academic Search Premier.

Berman, NC, Wheaton, MG, McGrath, P., & Abramowitz, JS (2010). Predicting anxiety: The role of experiential avoidance and anxiety sensitivity. Journal of Anxiety Disorders, 24 (1), 109–113. APA PsycInfo.https://doi.org/10.1016/j.janxdis.2009.09.005

Biehl, M., Matsumoto, D., Ekman, P., Hearn, V., Heider, K., Kudoh, T., & Ton, V. (1997). Matsumoto and Ekman's Japanese and Caucasian Facial Expressions of Emotion (JACFEE): Reliability Data and Cross-National Differences. Journal of Nonverbal Behavior, 21 (1), 3–21. MLA International Bibliography.https://doi.org/10.1023/A:1024902500935

Borden, J. W., Clum, G. A., Broyles, S. E., & Watkins, P. L. (1988). Panic Attack Coping Questionnaire. *PsycTESTS*. APA PsycTests. https://doi.org/10.1037/t27145-000

Breuninger, C., Sláma, D., Krämer, M., Schmitz, J., & Tuschen-Caffier, B. (2017). Psychophysiological Reactivity, Interoception and Emotion Regulation in Patients with Agoraphobia During Virtual Reality Anxiety Induction. Cognitive Therapy & Research, 41 (2), 193–205. Psychology and Behavioral Sciences Collection.

Bullis, JR, Boettcher, H., Sauer-Zavala, S., Farchione, TJ, & Barlow, DH (2019). What is an emotional disorder? A transdiagnostic mechanistic definition with implications for assessment, treatment, and prevention. Clinical Psychology: Science and Practice, 26 (2). APA PsycInfo.https://doi.org/10.1037/h0101755

Cai, L., Chen, W., Shen, Y., Wang, X., Wei, L., Zhang, Y., Wang, W., & Chen, W. (2012). Recognition of facial expressions of emotion in panic disorder. Psychopathology, 45 (5), 294–299. APA PsycInfo.https://doi.org/10.1159/000334252

Campbell-Sills, L., Barlow, DH, Brown, TA, & Hofmann, SG (2006a). Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. Behavior Research and Therapy, 44 (9), 1251–1263. APA PsycInfo.https://doi.org/10.1016/j.brat.2005.10.001

Campbell-Sills, L., Barlow, DH, Brown, TA, & Hofmann, SG (2006b). Acceptability and suppression of negative emotion in anxiety and mood disorders. Emotion, 6 (4), 587–595. APA PsycArticles.https://doi.org/10.1037/1528-3542.6.4.587

Carleton, R. N., Sharpe, D., & Asmundson, G. J. G. (2007). Anxiety sensitivity and intolerance of uncertainty: Requisites of the fundamental fears? Behaviour Research and Therapy, 45(10), 2307–2316. APA PsycInfo. https://doi.org/10.1016/j.brat.2007.04.006

Carver, CS (1997). You want to Measure Coping But Your Protocol's Too Long: Consider the Brief COPE. International Journal of Behavioral Medicine, 4 (1), 92. SPORTDiscus with Full Text.

Carver, CS, Scheier, MF, & Weintraub, JK (1989). Assessing coping strategies: A theoretically based approach. Journal of Personality and Social Psychology, 56 (2), 267–283. APA PsycArticles.https://doi.org/10.1037/0022-3514.56.2.267

Cisler, JM, Olatunji, BO, Feldner, MT, & Forsyth, JP (2010). Emotion regulation and the anxiety disorders: An integrative review. Journal of Psychopathology and Behavioral Assessment, 32 (1), 68–82. APA PsycInfo.https://doi.org/10.1007/s10862-009-9161-1

Catanzaro, SJ (1993). Mood regulation expectancies, anxiety sensitivity, and emotional distress. Journal of Abnormal Psychology, 102 (2), 327–330. APA PsycArticles.https://doi.org/10.1037/0021-843X.102.2.327

Cho, Y., Choi, Y., & Kim, S. (2021). Role of panic appraisal in predicting the severity of panic and agoraphobic symptoms. Journal of Clinical Psychology, 77 (1), 298–311. APA PsycInfo.https://doi.org/10.1002/jclp.23028

Cox, BJ, Swinson, RP, Shulman, ID, & Bourdeau, D. (1995). Alexithymia in panic disorder and social phobia. Comprehensive Psychiatry, 36 (3), 195–198. APA PsycInfo.https://doi.org/10.1016/0010-440X(95)90081-6

Cucchi, M., Cavadini, D., Bottelli, V., Riccia, L., Conca, V., Ronchi, P., & Smeraldi, E. (2012). Alexithymia and anxiety sensitivity in populations at high risk for panic disorder. Comprehensive Psychiatry, 53 (6), 868–874. APA PsycInfo.https://doi.org/10.1016/j.comppsych.2012.01.005

De Berardis, D., Campanella, D., Gambi, F., La Rovere, R., Sepede, G., Core, L., Canfora, G., Santilli, E., Valchera, A., Mancini, E ., Salerno, RM, Moschetta, FS, & Ferro, FM (2007). Alexithymia, fear of bodily sensations, and somatosensory amplification in young outpatients with panic disorder. Psychosomatics: Journal of Consultation and Liaison Psychiatry, 48 (3), 239–246. APA PsycInfo. https://doi.org/10.1176/appi.psy.48.3.239

Eisenberg, N., & Spinrad, TL (2004). Emotion-Related Regulation: Sharpening the Definition. Child Development, 75 (2), 334–339. Psychology and Behavioral Sciences Collection.

Feldner, MT, Zvolensky, MJ, & Leen-Feldner, EW (2004). A critical review of the empirical literature on coping and panic disorder. Clinical Psychology Review, 24 (2), 123–148. APA PsycInfo.https://doi.org/10.1016/j.cpr.2004.02.001

Fernandez-Berrocal, P., Extremera, N., & Ramos, N. (2004). Validity and Reliability of the Spanish Modified Version of the Trait Meta-Mood Scale. Psychological Reports, 94(3,Pt1), 751–755. APA PsycInfo. https://doi.org/10.2466/PR0.94.3.751-755

Folkman, S., Lazarus, RS, Dunkel-Schetter, C., DeLongis, A., & Gruen, RJ (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology, 50 (5), 992–1003. APA PsycArticles.https://doi.org/10.1037/0022-3514.50.5.992

Fukunishi, I., Kikuchi, M., Wogan, J., & Takubo, M. (1997). Secondary alexithymia as a state reaction in panic disorder and social phobia. Comprehensive Psychiatry, 38 (3), 166–170. APA PsycInfo.https://doi.org/10.1016/S0010-440X(97)90070-5

Galderisi, S., Mancuso, F., Mucci, A., Garramone, S., Zamboli, R., & Maj, M. (2008). Alexithymia and cognitive dysfunctions in patients with panic disorder. Psychotherapy and Psychosomatics, 77 (3), 182–188. APA PsycInfo.https://doi.org/10.1159/000119738

Gámez, W., Chmielewski, M., Kotov, R., Ruggero, C., Suzuki, N., & Watson, D. (2014). The Brief Experiential Avoidance Questionnaire: Development and initial validation. Psychological Assessment, 26 (1), 35–45. APA PsycArticles.https://doi.org/10.1037/a0034473

Gratz, KL, & Roemer, L. (2004). Multidimensional Assessment of Emotion Regulation and Dysregulation: Development, Factor Structure, and Initial Validation of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology & Behavioral Assessment, 26 (1), 41–54. SocINDEX with Full Text.

Gross, JJ (2015). Emotion Regulation: Current Status and Future Prospects. Psychological Inquiry, 26 (1), 1–26. Business Source Ultimate.

Gross, JJ, & Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. Clinical Psychological Science, 2 (4), 387–401. APA PsycInfo.https://doi.org/10.1177/2167702614536164

Hayes, SC, Strosahl, K., Wilson, KG, Bissett, RT, Pistorello, J., Toarmino, D., Polusny, MA, Dykstra, TA, Batten, SV, Bergan, J., Stewart, SH, Zvolensky, MJ, Eifert, GH, Bond, FW, Forsyth, JP, Karekla, M., & McCurry, SM (2004). MEASURING EXPERIENTIAL AVOIDANCE: A PRELIMINARY TEST OF A WORKING MODEL. Psychological Record, 54 (4), 553–578. Business Source Ultimate.

Iancu, I., Dannon, PN, Poreh, A., Lepkifker, E., & Grunhaus, L. (2001). Alexithymia and suicidality in panic disorder. Comprehensive Psychiatry, 42 (6), 477–481. APA PsycInfo.https://doi.org/10.1053/comp.2001.27893

Izci, F., Gültekin, BK, Saglam, S., Koc, MI, Zincir, SB, & Atmaca, M. (2014). Temperament, character traits, and alexithymia in patients with panic disorder. Neuropsychiatric Disease and Treatment, 10. APA PsycInfo.http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2014-30735-001&lang=fr&site=ehost-live

Ji Eun Kim, In Han Song, Sang-Hyuk Lee, Kim, JE, Song, IH, & Lee, S.-H. (2017). Gender Differences of Stressful Life Events, Coping Style, Symptom Severity, and Health-Related Quality of Life in Patients With Panic Disorder. Journal of Nervous & Mental Disease, 205 (9), 714–719. Academic Search Premier.

John, O. P., & Eng, J. (2014). Three approaches to individual differences in affect regulation: Conceptualizations, measures, and findings. In J. J. Gross (Ed.), *Handbook of emotion regulation., 2nd ed.* (2013-44085-020; pp. 321–345). The Guilford Press; APA

Kämpfe, CK, Gloster, AT, Wittchen, H.-U., Helbig-Lang, S., Lang, T., Gerlach, AL, Richter, J., Alpers, GW, Fehm, L., Kircher, T. , Hamm, AO, Ströhle, A., & Deckert, J. (2012). Experiential avoidance and anxiety sensitivity in patients with panic disorder and agoraphobia: Do both constructs measure the same? International Journal of Clinical and Health Psychology, 12 (1), 5–22. APA PsycInfo.

Kaplan, JS, Arnkoff, DB, Glass, CR, Tinsley, R., Geraci, M., Hernandez, E., Luckenbaugh, D., Drevets, WC, & Carlson, PJ (2012). Avoidant coping in panic disorder: A yohimbine biological challenge study. Anxiety, Stress & Coping: An International Journal, 25 (4), 425–442. APA PsycInfo.https://doi.org/10.1080/10615806.2011.609587

Kashdan, TB, Zvolensky, MJ, & McLeish, AC (2008). Anxiety sensitivity and affect regulatory strategies: Individual and interactive risk factors for anxiety-related symptoms. Journal of Anxiety Disorders, 22 (3), 429–440. Academic Search Premier.

Kessler, H., Bayerl, P., Deighton, RM, & Traue, HC (2002). Facially Expressed Emotion Labeling (FEEL): PC-Gestützter Test zur Emotionserkennung = Facially Expressed Emotion Labeling (FEEL): A computer-based test for emotion recognition. Verhaltenstherapie & Verhaltensmedizin, 23 (3), 297–306. APA PsycInfo.

Kessler, H., Roth, J., Von Wietersheim, J., Deighton, RM, & Traue, HC (2007). Emotion recognition patterns in patients with panic disorder. Depression & Anxiety (1091-4269), 24 (3), 223–226. Psychology and Behavioral Sciences Collection.

Kim, JE, Song, IH, & Lee, S.-H. (2017). Gender differences of stressful life events, coping style, symptom severity, and health-related quality of life in patients with panic disorder. Journal of Nervous and Mental Disease, 205 (9), 714–719. APA PsycInfo.https://doi.org/10.1097/NMD.0000000000000696

Kirk, A., Meyer, JM, Whisman, MA, Deacon, BJ, & Arch, JJ (2019). Safety behaviors, experiential avoidance, and anxiety: A path analysis approach. Journal of Anxiety Disorders, 64, 9–15. APA PsycInfo.https://doi.org/10.1016/j.janxdis.2019.03.002

Klauer T, Filipp SH (1993) Trierer Skalen zur Krankheitsbewältigung (TSK). Göttingen: Hogrefe.

Kozak, MJ, & Cuthbert, BN (2016). The NIMH Research Domain Criteria Initiative: Background, Issues, and Pragmatics. Psychophysiology, 53 (3), 286–297. SPORTDiscus with Full Text.

Lane, R. D., Quinlan, D. M., Schwartz, G. E., Walker, P. A., & Zeitlin, S. B. (1990). The Levels of Emotional Awareness Scale: A Cognitive-Developmental Measure of Emotion. Journal of Personality Assessment, 55(1/2), 124. Business Source Ultimate.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, *1*(3), 141–169. Academic Search Premier.

LeDoux, JE, & Hofmann, SG (2018). The subjective experience of emotion: A fearful view. Current Opinion in Behavioral Sciences, 19, 67–72. APA PsycInfo.https://doi.org/10.1016/j.cobeha.2017.09.011

Levitt, JT, Brown, TA, Orsillo, SM, & Barlow, DH (2004). The Effects of Acceptance Versus Suppression of Emotion on Subjective and Psychophysiological Response to Carbon Dioxide Challenge in Patients With Panic Disorder. Behavior Therapy, 35 (4), 747–766. APA PsycInfo.https://doi.org/10.1016/S0005-7894(04)80018-2

Li, X.-L., & Wang, H.-Y. (2018). Unconscious cognitive dysfunction in emotion dysregulation and psychopathology of panic disorder: Evidence from the late positive potential. *NeuroReport: For Rapid Communication of Neuroscience Research*, *29*(1), 6–7. APA PsycInfo. https://doi.org/10.1097/WNR.0000000000000913

Liu, W., Liu, F., Chen, L., Jiang, Z., & Shang, J. (2019). Cognitive reappraisal in children: Neuropsychological evidence of up-regulating positive emotion from an ERP study. *Frontiers in Psychology*, *10*. APA PsycInfo. https://doi.org/10.3389/fpsyg.2019.00147

Lizeretti, NP, Costa, MV, Gimeno-Bayón.A. (2014). Emotional Intelligence and Personality in Anxiety Disorders. Advances in Psychiatry.http://dx.doi.org/10.1155/2014/968359

Lizeretti, NP, & Ruiz, AR (2012). Inteligencia emocional percibida en pacientes diagnosticados de trastorno de pánico con agorafobia = Perceived emotional intelligence in outpatients diagnosed with panic disorder with agoraphobia. Ansiedad y Estrés, 18 (1), 43–53. APA PsycInfo.

Majohr, K.-L., Leenen, K., Grabe, HJ, Jenewein, J., Nuñez, DG, & Rufer, M. (2011). Alexithymia and its relationship to dissociation in patients with panic disorder. Journal of Nervous and Mental Disease, 199 (10), 773–777. APA PsycInfo.https://doi.org/10.1097/NMD.0b013e31822fcbfb

Marchesi, C., Brusamonti, E., & Maggini, C. (2000). Are alexithymia, depression, and anxiety distinct constructs in affective disorders? Journal of Psychosomatic Research, 49 (1), 43–49. APA PsycInfo.https://doi.org/10.1016/S0022-3999(00)00084-2

Marchesi, C., Fontò, S., Balista, C., Cimmino, C., & Maggini, C. (2005). Relationship between Alexithymia and Panic Disorder: A Longitudinal Study to Answer an Open Question. Psychotherapy and Psychosomatics, 74 (1), 56–60. APA PsycInfo.https://doi.org/10.1159/000082028

Marchesi, C., Giaracuni, G., Paraggio, C., Ossola, P., Tonna, M., & De Panfilis, C. (2014). Pre-morbid alexithymia in panic disorder: A cohort study. Psychiatry Research, 215 (1), 141–145. APA PsycInfo.https://doi.org/10.1016/j.psychres.2013.10.030

Marques, L., Kaufman, RE, LeBeau, RT, Moshier, SJ, Otto, MW, Pollack, MH, & Simon, NM (2009). A comparison of emotional approach coping (EAC) between individuals with anxiety disorders and nonanxious controls. CNS Neuroscience & Therapeutics, 15 (2), 100–106. APA PsycInfo.https://doi.org/10.1111/j.1755-5949.2009.00080.x

Mauss, IB, Cook, CL, & Gross, JJ (2007). Automatic emotion regulation during anger provocation. Journal of Experimental Social Psychology, 43 (5), 698–711. APA PsycInfo.https://doi.org/10.1016/j.jesp.2006.07.003

Mayer, JD, Salovey, P., Caruso, DR, & Sitarenios, G. (2001). Emotional intelligence as a standard intelligence. Emotion, 1 (3), 232–242. APA PsycArticles.https://doi.org/10.1037/1528-3542.1.3.232

Mayer, J. D., & Stevens, A. A. (1994). An emerging understanding of the reflective (meta-) experience of mood. Journal of Research in Personality, 28(3), 351–373. APA PsycInfo. https://doi.org/10.1006/jrpe.1994.1025

McHugh, M. L. (2012). Interrater reliability: The kappa statistic. Biochemia Medica, 22(3), 276–282. Academic Search Premier.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Medicine, 6(7), 1–6. Academic Search Premier.

Muthny FA (1989) Freiburg Questionnaire of Coping with Illness Manual. Beltz Test, Weinheim, Germany.

Muyia, HM (2009). Approaches to and instruments for measuring emotional intelligence: A review of selected literature. Advances in Developing Human Resources, 11 (6), 690–702. APA PsycInfo.https://doi.org/10.1177/1523422309360843

Naragon-Gainey, K., McMahon, TP, & Park, J. (2018). The contributions of affective traits and emotion regulation to internalizing disorders: Current state of the literature and measurement challenges. American Psychologist, 73 (9), 1175–1186. APA PsycInfo.https://doi.org/10.1037/amp0000371

Naragon-Gainey, K., & Watson, D. (2018). What lies beyond neuroticism? An examination of the unique contributions of social-cognitive vulnerabilities to internalizing disorders. Assessment, 25 (2), 143–158. APA PsycInfo.https://doi.org/10.1177/1073191116659741

Nazemi, H., & Dager, SR (2003). Coping strategies of panic and control subjects undergoing lactate infusion during magnetic resonance imaging confinement. Comprehensive Psychiatry, 44 (3), 190–197. APA PsycInfo.https://doi.org/10.1016/S0010-440X(03)00011-7

Nelis, D., Quoidbach, J., Mikolajczak, M., & Hansenne, M. (2009). Increasing emotional intelligence: (How) is it possible? Personality and Individual Differences, 47 (1), 36–41. APA PsycInfo.https://doi.org/10.1016/j.paid.2009.01.046

Oguz, G., Celikbas, Z., Batmaz, S., Cagli, S., & Sungur, MZ (2019). Comparison between obsessive compulsive disorder and panic disorder on metacognitive beliefs, emotional schemas, and cognitive flexibility. International Journal of Cognitive Therapy, 12 (3), 157–178. APA PsycInfo.https://doi.org/10.1007/s41811-019-00047-5

Onur, E., Alkın, T., Sheridan, MJ, & Wise, TN (2013). Alexithymia and emotional intelligence in patients with panic disorder, generalized anxiety disorder and major depressive disorder. Psychiatric Quarterly, 84 (3), 303–311. APA PsycInfo.https://doi.org/10.1007/s11126-012-9246-y

Oussi, A., & Bouvet, C. (In Press). Current theoretical models of panic disorder: Conceptual review and clinical implications. Medico-Psychological Annals.https://doi.org/10.1016/j.amp.2021.09.004

Panayiotou, G., Karekla, M., & Mete, I. (2014). Dispositional coping in individuals with anxiety disorder symptomatology: Avoidance predicts distress. Journal of Contextual Behavioral Science, 3 (4), 314–321. APA PsycInfo.https://doi.org/10.1016/j.jcbs.2014.07.001

Panzini, RG, & Bandeira, DR (2005). Escala de coping religioso-espiritual (escala CRE): Elaboração e validação de construto = Spiritual / Religious Coping Scale (SRCOPE scale): Elaboration and construct validation. Psicologia Em Estudo, 10 (3), 507–516. APA PsycInfo.https://doi.org/10.1590/S1413-73722005000300019

Pargament, KI, & Koenig, HG (2000). The many methods of religious coping: Development and initial validation of the RCOPE. Journal of Clinical Psychology, 56 (4), 519–543. Psychology and Behavioral Sciences Collection.

Park, J., & Naragon-Gainey, K. (2019). Daily experiences of emotional clarity and their association with internalizing symptoms in naturalistic settings. Emotion, 19 (5), 764–775. APA PsycInfo.https://doi.org/10.1037/emo0000482

Parker, JD, Taylor, GJ, Bagby, RM, & Acklin, MW (1993). Alexithymia in panic disorder and simple phobia: A comparative study. The American Journal of Psychiatry, 150 (7), 1105–1107. APA PsycInfo.https://doi.org/10.1176/ajp.150.7.1105

Peña-Sarrionandia, A., Mikolajczak, M., & Gross, JJ (2015). Integrating emotion regulation and emotional intelligence traditions: A meta-analysis. Frontiers in Psychology, 6. APA PsycInfo.https://doi.org/10.3389/fpsyg.2015.00160
Perkonigg A, Wittchen H-U (1995) Daily-Hassles-Skala: Forschungsversion, vol Book, Whole. Eigendruck, München

Perna, G., Menotti, R., Borriello, G., Cavedini, P., Bellodi, L., & Caldirola, D. (2010). Emotional intelligence in panic disorder. Rivista Di Psichiatria, 45 (5), 320–325. APA PsycInfo.
Pozzi, G., Frustaci, A., Tedeschi, D., Solaroli, S., Grandinetti, P., Di Nicola, M., & Janiri, L. (2015). Coping strategies in a sample of anxiety patients: Factorial analysis and associations with psychopathology. Brain & Behavior, 5 (8), n / aN.PAG. Academic Search Premier.
Reinecke A, Filippini N, Berna C, Western DG, Hanson B, Cooper MJ, Taggart P, Harmer CJ. Effective emotion regulation strategies improve fMRI and ECG markers of psychopathology in panic disorder: implications for psychological treatment action. Transl Psychiatry. 2015 Nov 3; 5 (11): e673. doi: 10.1038 / tp.2015.160. PMID: 26529426; PMCID: PMC5068756.
Rufer, M., Albrecht, R., Zaum, J., Schnyder, U., Mueller-Pfeiffer, C., Hand, I., & Schmidt, O. (2010). Impact of alexithymia on treatment outcome: A naturalistic study of short-term cognitive-behavioral group therapy for panic disorder. Psychopathology, 43 (3), 170–179. APA PsycInfo.https://doi.org/10.1159/000288639
Salovey, P., & Mayer, JD (2004). Emotional intelligence. In P. Salovey, MA Brackett, & JD Mayer (Eds.), Emotional intelligence: Key readings on the Mayer and Salovey model. (2004-16474-001; pp. 1–27). Dude Publishing; APA PsycInfo.
Savoia MG, Bernik M. Adverse life events and coping skills in panic disorder. Rev Hosp Clin Fac Med Sao Paulo. 2004 Dec; 59 (6): 337-40. doi: 10.1590 / s0041-87812004000600005. Epub 2005 Jan 11. PMID: 15654486.
Savóia MG, Santana PR, Mejias NP. Adaptação do inventário de estratégias de coping de Folkman e Lazarus para o português. Psicol USP 1996;7:183-201.
Schmidt, NB, Eggleston, AM, Trakowski, JH, & Smith, JD (2005). Does coping predict CO_2-induced panic in patients with panic disorder? Behavior Research and Therapy, 43 (10), 1311–1319. APA PsycInfo.https://doi.org/10.1016/j.brat.2004.09.007
Schutte, N. S., Malouff, J. M., & Thorsteinsson, E. B. (2013). Increasing emotional intelligence through training: Current status and future directions. *The International Journal of Emotional Education*, *5*(1), 56–72. APA PsycInfo.
Schütte, K., Vocks, S., & Waldorf, M. (2016). Fears, coping styles, and health behaviors: A comparison of patients with hypochondriasis, panic disorder, and depression. Journal of Nervous and Mental Disease, 204 (10), 778–786. APA PsycInfo.https://doi.org/10.1097/NMD.0000000000000566
Shear, MK, and Maser, JP Standardized assessment for panic disorder research: A conference report. Arch Gen Psychiatry 51: 346-354, 1994.
Sifneos PE. Alexithymia and its relationship to hemispheric specialization, affect, and creativity. Psychiatr Clin North Am. 1988; 11: 287–293.
Spinhoven, P., Hemert, A., & Penninx, B. (2017). Experiential Avoidance and Bordering Psychological Constructs as Predictors of the Onset, Relapse and Maintenance of Anxiety Disorders: One or Many? Cognitive Therapy & Research, 41 (6), 867–880. Psychology and Behavioral Sciences Collection.
Stanton, AL, Kirk, SB, Cameron, CL, & Danoff-Burg, S. (2000). Coping through emotional approach: Scale construction and validation. Journal of Personality and Social Psychology, 78 (6), 1150–1169. APA PsycArticles.https://doi.org/10.1037/0022-3514.78.6.1150
Strauss, A. Y., Kivity, Y., & Huppert, J. D. (2019). Emotion regulation strategies in cognitive behavioral therapy for panic disorder. *Behavior Therapy*, *50*(3), 659–671. APA PsycInfo. https://doi.org/10.1016/j.beth.2018.10.005
Summerfeldt, LJ, Kloosterman, PH, Antony, MM, McCabe, RE, & Parker, JDA (2011). Emotional intelligence in social phobia and other anxiety disorders. Journal of Psychopathology and Behavioral Assessment, 33 (1), 69–78. APA PsycInfo.https://doi.org/10.1007/s10862-010-9199-0
Taylor, C. B., & Arnow, B. (1988). *The nature and treatment of anxiety disorders* (1988-98369-000). Free Press; APA PsycInfo.
Taylor, C. B., & Arnow, B. (1988). *The nature and treatment of anxiety disorders* (1988-98369-000). Free Press; APA PsycInfo.
Taylor, GJ, Bagby, RM, & Parker, JDA (2003). The 20-Item Toronto Alexithymia Scale IV Reliability and factorial validity in different languages and cultures. Journal of Psychosomatic Research, 55 (3), 277–283. APA PsycInfo.https://doi.org/10.1016/S0022-3999(02)00601-3
Telch, MJ, Brouillard, M., Telch, CF, Agras, WS, & Taylor, CB (1989). Role of cognitive appraisal in panic-related avoidance. Behavior Research and Therapy, 27 (4), 373–383. APA PsycInfo.https://doi.org/10.1016/0005-7967(89)90007-7
Tull, MT, Berghoff, CR, Wheeless, LE, Cohen, RT, & Gratz, KL (2018). PTSD symptom severity and emotion regulation strategy use during trauma cue exposure among patients with substance use disorders: Associations

with negative affect, craving, and cortisol reactivity. Behavior Therapy, 49 (1), 57–70. APA PsycInfo.https://doi.org/10.1016/j.beth.2017.05.005
Vitaliano, PP, Russo, J., Carr, JE, Maiuro, RD, & Becker, J. (1985). The Ways of Coping Checklist: Revision and Psychometric Properties. Multivariate Behavioral Research, 20 (1), 3. Business Source Ultimate.
Wang, S., Kim, Y., Yeon, B., Lee, H., Kweon, Y., Lee, CT, & Lee, K. (2013). Symptom severity of panic disorder associated with impairment in emotion processing of threat-related facial expressions. Psychiatry & Clinical Neurosciences, 67 (4), 245–252. Psychology and Behavioral Sciences Collection.
Wang, S.-M., Lee, H.-K., Kweon, Y.-S., Lee, C. T., Chae, J.-H., Kim, J.-J., & Lee, K.-U. (2016). Effect of emotion regulation training in patients with panic disorder: Evidenced by heart rate variability measures. *General Hospital Psychiatry*, *40*, 68–73. APA PsycInfo. https://doi.org/10.1016/j.genhosppsych.2016.01.003
Watson, M., & Greer, S. (1983). Development of a questionnaire measure of emotional control. Journal of Psychosomatic Research, 27 (4), 299–305. APA PsycInfo.https://doi.org/10.1016/0022-3999(83)90052-1
Wise, TN, Mann, LS, Mitchell, JD, Hryvniak, M., & Hill, B. (1990). Secondary alexithymia: An empirical validation. Comprehensive Psychiatry, 31 (4), 284–288. APA PsycInfo.https://doi.org/10.1016/0010-440X(90)90035-Q
Wesner, A. C., Behenck, A., Finkler, D., Beria, P., Guimarães, L. S. P., Manfro, G. G., Blaya, C., & Heldt, E. (2019). Resilience and coping strategies in cognitive behavioral group therapy for patients with panic disorder. *Archives of Psychiatric Nursing*, *33*(4), 428–433. APA PsycInfo. https://doi.org/10.1016/j.apnu.2019.06.003
Wesner, A. C., Gomes, J. B., Detzel, T., Blaya, C., Manfro, G. G., & Heldt, E. (2013). Effect of cognitive-behavioral group therapy for panic disorder in changing coping strategies. *Comprehensive Psychiatry*. APA PsycInfo. https://doi.org/10.1016/j.comppsych.2013.06.008
Wittchen, H. U., Jacobi, F., Rehm, J., Gustavsson, A., Svensson, M., Jönsson, B., Olesen, J., Allgulander, C., Alonso, J., Faravelli, C., Fratiglioni, L., Jennum, P., Lieb, R., Maercker, A., van Os, J., Preisig, M., Salvador-Carulla, L., Simon, R., & Steinhausen, H.-C. (2011). The size and burden of mental disorders and other disorders of the brain in Europe 2010. European Neuropsychopharmacology, 21(9), 655–679. PsycINFO. https://doi.org/10.1016/j.euroneuro.2011.07.018
Xiong, H., Li, Z., Wang, N., Han, H., & Yao, S. (2011). Study of the characteristics of irrational beliefs, coping style and their relationship with symptoms in panic disorder patients. *Chinese Journal of Clinical Psychology*, *19*(3), 382–384. APA PsycInfo.
Yamada, K., Fujii, I., Akiyoshi, J., & Nagayama, H. (2004). Coping behavior in patients with panic disorder. Psychiatry and Clinical Neurosciences, 58 (2), 173–178. APA PsycInfo.https://doi.org/10.1111/j.1440-1819.2003.01213.x
Yang, M., & Deng, X. (2021). The Immediate and Lasting Effect of Emotion Regulation in Adolescents: An ERP Study. *International Journal of Psychophysiology*, *168*, S150–S150. Academic Search Premier.
Yildirim, E. A., Kaşar, M., Güdük, M., Ateş, E., Küçükparlak, I., & Özalmete, E. O. (2011). Gözlerden Zihin Okuma Testi'nin Türkçe Güvenirlik Çalişmasi = Investigation of the reliability of the "Reading the Mind in the Eyes Test" in a Turkish population. Türk Psikiyatri Dergisi, 22(3), 177–186. APA PsycInfo.
Zeitlin, SB, & McNally, RJ (1993). Alexithymia and anxiety sensitivity in panic disorder and obsessive-compulsive disorder. The American Journal of Psychiatry, 150 (4), 658–660. APA PsycInfo.https://doi.org/10.1176/ajp.150.4.658
Zhang, B.-W., Xu, J., Chang, Y., Wang, H., Yao, H., & Tang, D. (2016). Impaired cognitive reappraisal in panic disorder revealed by the late positive potential. NeuroReport: For Rapid Communication of Neuroscience Research, 27 (2), 99–103. APA PsycInfo.https://doi.org/10.1097/WNR.0000000000000504
Zimpel, RR, Panzini, RG, Bandeira, DR, Heldt, E., Manfro, GG, Fleck, MP, & da Rocha, NS (2018). Can religious coping and depressive symptoms predict clinical outcome and quality of life in panic disorder? A Brazilian longitudinal study. Journal of Nervous and Mental Disease, 206 (7), 544–548. APA PsycInfo.
Zou, Z., Huang, Y., Wang, J., He, Y., Min, W., Chen, X., Wang, J., & Zhou, B. (2016). Association of childhood trauma and panic symptom severity in panic disorder: Exploring the mediating role of alexithymia. *Journal of Affective Disorders*, *206*, 133–139. APA PsycInfo. https://doi.org/10.1016/j.jad.2016.07.027
Zvolensky, M. J., & Eifert, G. H. (2001). A review of psychological factors/processes affecting anxious responding during voluntary hyperventilation and inhalations of carbon dioxide-enriched air. Clinical Psychology Review, 21(3), 375–400. APA PsycInfo. https://doi.org/10.1016/S0272-7358(99)00053-7