



## Pathways into Psychopathology: Modelling the Effects of Trait Emotional Intelligence, Mindfulness, and Irrational Beliefs in a Clinical Sample

|                               |   |
|-------------------------------|---|
| Journal:                      | <i>Clinical Psychology &amp; Psychotherapy</i>  |
| Manuscript ID                 | CPP-1376.R2   |
| Wiley - Manuscript type:      | Research Article  |
| Date Submitted by the Author: | 24-Jan-2017   |
| Complete List of Authors:     | Petrides, K. V. ; University College London, London Psychometric Laboratory<br>Gómez, María G.; Universidad de Barcelona, Faculty of Psychology<br>Pérez-González, Juan-Carlos; Universidad Nacional de Educación a Distancia (UNED), Emotional Education Laboratory (EDUEMO Lab) |
| Keywords:                     | Trait Emotional Intelligence, Personality, Mental Health, Clinical Psychology, Personality Disorders, TEIQue  |
|                               |   |

SCHOLARONE™  
Manuscripts

Review

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

Running Head: PATHWAYS INTO PSYCHOPATHOLOGY

Pathways into Psychopathology: Modelling the Effects of Trait Emotional Intelligence,  
Mindfulness, and Irrational Beliefs in a Clinical Sample

For Peer Review

## Abstract

We investigated possible pathways into mental illness via the combined effects of trait emotional intelligence (trait EI), mindfulness, and irrational beliefs. The sample comprised 121 psychiatric outpatients (64.5% males, mean age = 38.8 years) with a variety of formal clinical diagnoses. Psychopathology was operationalized by means of three distinct indicators from the Millon Clinical Multi-Axial Inventory ('mild pathology,' 'severe pathology,' and 'clinical symptomatology'). A structural equation model confirmed significant direct trait EI and mindfulness effects on irrational beliefs and psychopathology. Trait EI also had a significant indirect effect on psychopathology via mindfulness. Together, the three constructs accounted for 44% of the variance in psychopathology. A series of hierarchical regressions demonstrated that trait EI is a stronger predictor of psychopathology than mindfulness and irrational beliefs combined. We conclude that the identified pathways can provide the basis for the development of safe and effective responses to the ongoing mental health and overmedication crises.

**Key Practitioner Message:**

- Self-perception constructs concerning one's beliefs about oneself have a major impact on the likelihood of developing psychopathological symptoms.
- Emotional perceptions captured by trait emotional intelligence (trait EI) were stronger predictors of psychopathology than either or both mindfulness and irrational beliefs in a clinical sample of adults.
- If the seed factors of psychopathology are mainly psychological, rather than mainly biological, and given that psychological constructs, like trait EI, mindfulness, and irrational beliefs, are amenable to training and optimization, the findings herein provide the impetus for a much needed shift of emphasis from pharmacological to psychological treatments.

**Keywords:** trait emotional intelligence, personality, mental health, clinical psychology, personality disorders, TEIQue.

1  
2  
3 Pathways into Psychopathology: Modelling the Effects of Trait Emotional Intelligence,  
4  
5 Mindfulness, and Irrational Beliefs in a Clinical Sample  
6  
7

8 Like many constructs in psychology, psychopathology lacks a consensually  
9 agreed definition (Maddux, Gosselin, & Winstead, 2012). From a statistical point of  
10 view, it has been proposed that abnormality is located in the negative tail of a bell-  
11 shaped distribution. According to the dimensional model of psychopathology, normal  
12 and abnormal personality as well as effective and ineffective psychological functioning  
13 lie along a continuum of underlying level of risk for disorder that is graded in severity,  
14 rather than discrete and categorical (Krueger & Markon, 2006). Psychopathology has  
15 been concisely conceptualized as harmful dysfunction (Wakefield, 1992), ultimately  
16 resulting in maladaptive behaviors that also involve experiences of psychological  
17 suffering or loss of well-being.  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29

30 Recent research from a clinical perspective has suggested the possibility of a  
31 general dimension of psychopathology, labelled the “p factor” by Caspi et al. (2014; see  
32 also Lahey et al., 2015). This development had been foreshadowed by Rushton and  
33 colleagues (Rushton & Irwing, 2009; Rushton, Irwing, & Booth, 2010), who  
34 successfully extracted general factors from the Millon Clinical Multiaxial Inventory  
35 (MCMI), the Dimensional Assessment of Personality Pathology, and the Personality  
36 Assessment Inventory. Based on these results, they suggested that a general factor  
37 occupies the apex of the multifactorial hierarchies of personality disorders, mirroring  
38 the general factor identified in non-clinical personality traits (Rushton et al., 2009), and  
39 the general factor in the hierarchy of cognitive abilities (Carroll, 1993).  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51

52  
53 *Millon's theory and psychopathology*  
54

55 Following evolutionary principles, Millon (1969) outlined a theory that views  
56 personality as a collection of stable qualities, including temperament, sensitivities,  
57  
58  
59  
60

1  
2  
3 proclivities, preferences, behavioral patterns, and coping strategies (Strack & Millon,  
4  
5 2013). According to Millon, each personality style comprises three polarities:  
6  
7 “pleasure-pain,” “active-passive,” and “self-other”. Millon’s theory, which incorporates  
8  
9 universal guiding principles, stages of development based on neuropsychology, and a  
10  
11 taxonomic classification system (Tringone & Bockian, 2015) has exerted a major  
12  
13 impact on the development of the *Diagnostic and Statistical Manual of Mental*  
14  
15 *Disorders* (DSM; Pincus & Krueger, 2015).

16  
17  
18 The MCMI is one of the most widely used diagnostic inventories in Spain  
19  
20 (Muñiz & Fernández- Hermida, 2010), where the present sample originates, as well as  
21  
22 in Europe (Evers et al., 2012) and the United States (e.g., Prins, 2014). It was  
23  
24 developed in accordance with Loevinger’s (1957) three-stage model of test  
25  
26 construction, involving theoretical foundation, internal structural checks, and external  
27  
28 criterion validation (Choca & Grossman, 2015). The MCMI has been utilized in  
29  
30 numerous clinical studies to assess personality disorders. Examples of recent topics  
31  
32 include alcohol and cocaine abuse (López-Goñi, Fernández-Montalvo & Arteaga,  
33  
34 2015), mood disorders (Osma, García-Palacios, Botella, & Barrada, 2014), pathological  
35  
36 gambling (Maniaci et al., 2015), posttraumatic stress disorders (Palic & Elklit, 2014),  
37  
38 and somatoform disorders (Herrero, Ramírez-Maestre & González, 2008). Its profiling  
39  
40 accuracy has rendered it highly popular in research with forensic samples, such as  
41  
42 domestic violence perpetrators (Gibbons, Collins & Reid, 2011) and fire-setters (Ó  
43  
44 Ciardha et al., 2015).

45  
46  
47 Given that psychopathology underpins a broad range of disordered behavior  
48  
49 (e.g., Carragher, Krueger, Eaton, & Slade, 2015; Lahey & Waldman, 2012), it seems  
50  
51 imperative to investigate potential psychological drivers of individual differences in  
52  
53 psychopathological traits. Such investigations should preferably be conducted on  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 clinical samples, since they alone can ensure clinical utility by allowing the  
4  
5 extrapolation of results to clinical populations. Furthermore, the means, factor  
6  
7 structures, and nomological networks of constructs may vary substantially between  
8  
9 clinical and non-clinical samples (e.g., Bagby et al., 1999; Sinclair & Feigenbaum,  
10  
11 2012; Williams & Paulhus, 2004). It follows that without clinical data (of which there  
12  
13 is a severe dearth in emotional intelligence research; Hansen, Lloyd, & Stough, 2009), it  
14  
15 is very difficult to establish whether, and with what caveats, research conclusions  
16  
17 obtained in non-clinical samples may apply to clinical groups.  
18  
19

20  
21 The present paper focuses specifically on the constructs of trait emotional  
22  
23 intelligence and mindfulness in combination with a construct whose roots can be traced  
24  
25 back to Greek sage Socrates, viz., irrational beliefs (Ellis, David, & Lynn, 2010).  
26

### 27 *Trait emotional intelligence*

28

29  
30 Trait emotional intelligence (trait EI or trait emotional self-efficacy) refers to a  
31  
32 constellation of emotional perceptions assessed via questionnaires and rating scales  
33  
34 (Petrides, Pita, & Kokkinaki, 2007). Essentially, the construct concerns people's  
35  
36 perceptions of their emotional abilities. In recent years, trait EI has emerged as a  
37  
38 variable of central interest in the broader field of personality, with promising  
39  
40 applications in clinical psychology (Delhaye, Kempnaers, Stroobants, Goossens, &  
41  
42 Linkowski, 2013; Petrides et al., 2016; Sinclair & Feigenbaum, 2012).  
43  
44

45  
46 A large meta-analysis by Martins, Ramalho, and Morin (2010; see also Petrides,  
47  
48 Pérez-González, & Furnham, 2007) established that trait EI is a strong positive  
49  
50 predictor of mental health. The construct has been positively associated with adaptive  
51  
52 coping styles, peer relations, and socio-emotional competence (e.g., Frederickson,  
53  
54 Petrides, & Simmonds, 2012) and negatively associated with a wide range of mental  
55  
56 disorders, in clinical (e.g., Kornreich et al., 2011) as well as non-clinical (e.g.,  
57  
58  
59  
60

1  
2  
3 Mikolajczak, Petrides, Luminet, & Coumans, 2009) samples. Nevertheless, there  
4  
5 continues to be a relative dearth of theory-driven trait EI research in clinical samples  
6  
7 (Hansen et al., 2009; Zeidner, Matthews, & Roberts, 2012).  
8

### 9 10 *Mindfulness*

11  
12 Mindfulness is a state of consciousness, attention, and awareness of present  
13  
14 events and experiences. Although its precise factor structure remains under  
15  
16 investigation (Siegling & Petrides, 2014, 2016), the construct includes characteristics  
17  
18 like clarity of awareness, non-conceptual awareness, ability to focus attention, non-  
19  
20 evaluation or judgement of sensory experience, and orientation to the present (Brown,  
21  
22 Ryan, & Creswell, 2007).  
23

24  
25 As regards its relevance to emotions, it has been shown that mindfulness  
26  
27 correlates positively with the capacity to be more aware of emotional states and the  
28  
29 ability to change them so as to fulfil basic psychological needs (Brown & Ryan, 2003).  
30  
31 Mindfulness has also been linked to emotional stability (Kumar, Feldman, & Hages,  
32  
33 2008) and emotion regulation (Wallace & Shapiro, 2006). These associations are  
34  
35 pertinent to the present research because emotion regulation problems are strongly  
36  
37 related to psychopathology (Davidson, 2000). Lack of mindfulness can lead to  
38  
39 avoidance of, or preoccupation with, negative emotions, which are common agents of  
40  
41 psychopathology (Gross, 2002). Indeed, several mindfulness-based interventions have  
42  
43 proven effective in enhancing emotion regulation, and reducing depression and  
44  
45 rumination (Kabat-Zinn, 2003; Kumar, Feldman & Hayes, 2008).  
46  
47  
48

### 49 50 *Irrational beliefs*

51  
52 Irrational beliefs have been defined as “unrealistic reasoning processes by which  
53  
54 external events are interpreted and through which emotional distress is mediated”  
55  
56 (Koopmans, Sanderman, Timmerman, & Emmelkamp, 1994, p. 15). They are generally  
57  
58  
59  
60

1  
2  
3 illogical, absolutist, and sincerely held, even though not provable or falsifiable, while  
4  
5 rational beliefs are those that are logically self- or socially-helping (Ellis, 1995). By  
6  
7 virtue of their involvement in dysfunctional behaviors, psychological disturbances, and  
8  
9 unhealthy emotions (Davies, 2008), irrational beliefs play a central role in  
10  
11 psychopathology.  
12

13  
14 Modelled on the teachings of the Greek philosopher Epictetus, Ellis' rational-  
15  
16 emotional behavior theory (e.g., Ellis, 1989) suggests that psychological problems and  
17  
18 self- defeating behaviors are not caused by external events, but by beliefs about the  
19  
20 events. Distorted perceptions and irrational beliefs are key factors in the etiology of  
21  
22 many disorders, such as depression and anxiety (Haaga, Dyck, & Ernst, 1991), bulimic  
23  
24 symptomatology (Lohr & Parkinson, 1989), posttraumatic stress disorder (Hyland,  
25  
26 Shevlin, Adamson, & Boduszek, 2015), and workaholism (Van Wijhe, Peeters, &  
27  
28 Schaufeli, 2013).  
29

### 30 31 *The present study* 32

33  
34 Recognizing their theoretical connections, sporadic studies have explored the  
35  
36 interrelationships between various permutations of trait EI, mindfulness, and irrational  
37  
38 beliefs. For example, Bao, Xue, and Kong (2015) showed that trait EI and mindfulness  
39  
40 are positively related and that aspects of the former mediate the latter's impact on stress  
41  
42 (see also Schutte & Malouff, 2011), while Whitfield (2006) went so far as to propose  
43  
44 integrating mindfulness-based and rational-emotive behavior therapies.  
45  
46

47  
48 To our knowledge, however, no empirical research has tried to model these  
49  
50 interrelationships simultaneously in a multicomponent system. Furthermore, even those  
51  
52 studies that previously examined these variables in a pairwise fashion have been  
53  
54 overwhelmingly conducted on normative samples, which compromises their  
55  
56 informational value with respect to clinical populations.  
57  
58  
59  
60



1  
2  
3 The present study contributes towards addressing these theoretical gaps and  
4 methodological limitations in the literature by formulating and testing the model  
5 depicted in Figure 1. According to this model, trait EI and mindfulness are permitted to  
6 have direct as well as indirect effects on a latent variable of psychopathology (defined  
7 through the three MCMI indicators, viz., 'mild pathology,' 'severe pathology,' and  
8 'clinical symptomatology'), while irrational beliefs are modelled as a potential mediator  
9 of trait EI and mindfulness, with the additional possibility of a direct effect.  
10  
11  
12  
13  
14  
15  
16  
17

18 The model was set up with trait EI as the upstream variable, reflecting its  
19 precedence as a partly genetically determined construct (e.g., Vernon, Petrides, Bratko,  
20 & Schemer, 2008), and with psychopathology as the downstream variable as the main  
21 outcome of interest in the study. In between, mindfulness takes precedence over  
22 irrational beliefs because awareness of the contents of our mind informs our beliefs,  
23 rather than the other way around.  
24  
25  
26  
27  
28  
29  
30  
31

32 A secondary aim of the study was to investigate the incremental validity of trait  
33 EI vis-à-vis mindfulness and irrational beliefs. From a clinical perspective, the relevant  
34 analyses will help us establish whether emotional disturbances are more important than  
35 mechanical or illogical thinking patterns in predicting psychopathology. In the light of  
36 previous results (e.g., Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016; Petrides et al.,  
37 2007; Siegling, Vesely, Petrides, & Saklofske, 2015) and theoretical accounts giving  
38 more weight to emotions than to cognitive evaluations in the development of  
39 psychological illness (e.g., hyper-emotion theory; Johnson-Laird, Mancini, & Gangemi,  
40 2006), we hypothesized that trait EI would be a stronger predictor of psychopathology  
41 than both mindfulness and irrational beliefs.  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52

53 This hypothesis was tested by means of three distinct statistical tests: i) a  
54 hierarchical regression, whereby the global trait EI score was evaluated against the total  
55  
56  
57  
58  
59  
60

1  
2  
3 mindfulness and total irrational beliefs scores (hypothesis H1); ii) a more stringent  
4  
5 hierarchical regression, whereby the global trait EI score was evaluated against the five  
6  
7 mindfulness factor scores and the two irrational beliefs factor scores (hypothesis H2);  
8  
9 and, last, iii) a hierarchical regression, whereby the four trait EI factor scores were  
10  
11 evaluated against the five mindfulness and two irrational beliefs factor scores  
12  
13 (hypothesis H3). All three hypotheses predicted significantly negative incremental trait  
14  
15 EI effects.  
16  
17

## 18 **Method**

### 19 *Participants*

20  
21  
22 One hundred and twenty-one psychiatric outpatients (64.5% males and 35.5%  
23  
24 females) at the Molina del Segura Hospital in Spain with formal Axis I diagnoses  
25  
26 according to the DSM-IV-TR, participated in the study. The sample comprised the  
27  
28 following clinical diagnoses: 25.6% personality disorder (cluster A: 4 paranoid, 3  
29  
30 schizoid, 3 schizotypal; cluster B: 1 antisocial, 5 borderline, 2 histrionic, 6 narcissistic;  
31  
32 cluster C: 2 dependent, 5 obsessive-compulsive), 17.4% anxiety (7 generalized anxiety  
33  
34 disorder, 4 panic disorder/agoraphobia, 4 social phobia/social anxiety disorder,  
35  
36 6 obsessive-compulsive disorder), 15.7% dysthymia, 13.2% obsessive-compulsive  
37  
38 disorder, 11.6% schizophrenia, 8.3% bipolar, and 8.3% depression. In 78.5% of cases,  
39  
40 participants had been suffering from mental disorders for over a year.  
41  
42  
43  
44

45  
46 Mean age was 38.80 years ( $SD = 10.26$ ; range 23 to 65). Fifty-seven percent  
47  
48 were married, 41.3% single, and 1.7% widowed. With respect to education, 30.6% had  
49  
50 completed primary school, 36.4% secondary school, and 33.1% held university degrees.  
51  
52 With respect to occupational status, 45% were employed and 55% unemployed.  
53  
54 Assessments of physical health confirmed that 19% of the sample also suffered from  
55  
56 various physical conditions.  
57  
58  
59  
60

### *Measures*

#### *Trait emotional intelligence*

Trait EI was measured using the Spanish adaptation (Pérez-González, 2010) of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; Petrides, 2009). The TEIQue-SF consists of 30 items designed to measure global trait EI, although it can also yield fairly reliable scores on the four factors of the construct, viz., Well-Being, Self-control, Emotionality, and Sociability. Items are responded to on a 7-point Likert scale. For a psychometric investigation of the TEIQue-SF using item-response theory, see Cooper and Petrides (2010). Cronbach's alphas on our sample were .85 for the global score, and .87, .61, .61, and .66, for Well-Being, Self-control, Emotionality, and Sociability, respectively.

#### *Mindfulness*

To assess mindfulness, we used the Five Factors Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The FFMQ consists of 39 items, responded to on a 5-point Likert scale. The five factors of the FFMQ are: *Observing*, which refers to noticing or attending to internal and external experiences, such as thoughts, body sensations, or emotions; *Describing*, which refers to labelling internal experiences with words; *Acting with awareness*, which refers to focusing on one's activities at a given moment as opposed to behaving mechanically; *Non-judging of inner experience*, which refers to taking a non-evaluative stance toward thoughts and feelings; and *Non-reactivity to inner experience*, which refers to allowing thoughts and feelings to come and go, without getting carried away by them. The Spanish adaptation of the FFMQ has shown good psychometric properties, with Cronbach's alphas, ranging from 0.80 to 0.91 (Cebolla et al., 2012). In our sample, the FFMQ exhibited satisfactory levels of reliability (ranging from .70 to .87; see Table 1).

### *Irrational beliefs*

We used the brief Spanish adaptation (Calvete & Cardeñoso, 1999) of the Irrational Beliefs Test (IBT; Jones, 1968), which comprises 57 statements and 10 subscales: 'Demand for approval,' 'High self-expectations,' 'Blame proneness,' 'Frustration reactivity,' 'Emotional irresponsibility,' 'Anxious over-concern,' 'Problem avoidance,' 'Dependence,' 'Helplessness,' and 'Perfectionism'. Participants rated their agreement or disagreement with each statement on a 6-point Likert scale.

A total score was derived by summing up the scores on seven of the ten subscales. Three subscales were excluded due to negative or very low item-total correlations ('Problem avoidance,' 'Dependency,' and 'Perfectionism'). The internal consistency of this total score was .75. For the purposes of the second set of hierarchical regressions (hypothesis H2), which required the extraction of a smaller number of factors for analysis, a principal axis factor analysis with PROMAX rotation of the seven subscales was performed (full FA results are available from the corresponding author). Two factors emerged, explaining 58.73% of the variance. They were labelled as Emotional Irrational Beliefs (EIB; comprising 'Frustration reactive,' 'Emotional irresponsibility,' 'Anxious Over-concern,' 'Blame proneness,' and 'Helplessness') and Social Irrational Beliefs (SIB; comprising 'High Self-expectations' and 'Demand for Approval'). Factor pattern loadings ranged between .409 and .907 and the two factors intercorrelated at -.44. Factor score coefficients for the two factors were estimated by means of the regression method. Their alphas were .70 and .66, respectively.

### *Psychopathology*

Personality features and symptom syndromes were assessed with the Spanish version (Ávila-Espada, Jiménez-Gómez et al., 2002) of the Millon Clinical Multi-Axial

1  
2  
3 Inventory (MCMI-II; Millon, 1987)<sup>1</sup>. The MCMI-II is a 175-item true/false  
4  
5 questionnaire designed for use in clinical populations. It yields scores on 10 mildly  
6  
7 pathological personality facets (Aggressive/sadistic, Antisocial, Avoidant, Compulsive,  
8  
9 Dependent, Histrionic, Narcissistic, Passive-aggressive, Schizoid, Self-defeating), three  
10  
11 severely pathological personality facets (Borderline, Paranoid, and Schizotypal), and  
12  
13 nine facets of clinical symptomatology (Alcohol dependence, Anxiety disorder, Bipolar  
14  
15 manic disorder, Delusional disorder, Drug disorder, Dysthymic disorder, Major  
16  
17 Depression, Somatoform disorder, and Thought disorder). Last, it also includes three  
18  
19 validity indices (Debasement, Desirability, and Disclosure). The MCMI has been  
20  
21 constructed in accordance with a “polythetic” structural model, which permits item  
22  
23 overlap between scales. We focus on four MCMI scores in this study (alphas in  
24  
25 parentheses): mild personality pathology (.80), severe personality pathology (.86),  
26  
27 clinical symptomatology (.92), and the total score (.92).  
28  
29  
30

### 31 *Procedure*

32  
33  
34 The research protocol was approved by three experienced psychiatrists and  
35  
36 ethical approval for the study was granted by the collaborating hospital’s Ethics  
37  
38 Committee. The recruitment phase of the study lasted approximately eight weeks.  
39  
40 Inclusion criteria for the study were age (between 18 and 65 years), ability to read and  
41  
42 write, and ability to respond meaningfully to the interview questions. Exclusion criteria  
43  
44  
45

---

46  
47 <sup>1</sup> The Spanish translation of the MCMI-III has been available for several years and there  
48  
49 is growing support for its convergent and predictive validity, however not in clinical  
50  
51 samples yet (Rossi & Derksen, 2015). As a result, the MCMI-II remains one of the  
52  
53 most widely used personality inventories in research and clinical practice in the Spanish  
54  
55 language (López-Goñi et al., 2015).  
56  
57  
58  
59  
60

1  
2  
3 were age outside the 18-65 bracket, illiteracy, and mental or physical symptomatology  
4  
5 that prevented meaningful participation in the study.  
6

7 Patients were initially assessed by a psychiatrist and then referred to a  
8  
9 psychologist for the implementation of the study. Diagnosis was based on a structured  
10  
11 diagnostic interview during which symptoms were considered strictly in relation to  
12  
13 DSM-IV-TR criteria. The interview lasted approximately one hour and included a  
14  
15 structured assessment of sociodemographic characteristics. Data provided by the  
16  
17 psychiatrist included an objective evaluation of symptomatology and diagnosis through  
18  
19 formal consultation, age of onset of disorder, number of disease relapses, and physical  
20  
21 health information. Fourteen patients declined to participate citing reasons like fatigue  
22  
23 or more urgent commitments. All participants gave written informed consent to  
24  
25 participate in this study.  
26  
27  
28

### 29 **Results**

30  
31 The descriptive statistics and internal consistencies for the variables in the study  
32  
33 are presented in Table 1. The average global trait EI (TEIQue-SF) score in our clinical  
34  
35 sample was two standard deviations ( $M=3.53$ ;  $SD=.77$ ) below normative means  
36  
37 (Cooper & Petrides, 2010:  $M=5.02$ ,  $SD=.73$ ; Pérez-González, 2010:  $M=4.90$ ,  $SD=.65$ ).  
38  
39 It can be seen in that table that the study variables exhibited generally satisfactory  
40  
41 internal consistencies. A pattern of associations consistent with theoretical expectations  
42  
43 can be detected in the variable inter-correlation matrix (see Table 2). We note, in  
44  
45 particular, the strong negative correlations between all five trait EI variables (four  
46  
47 factors and the global score) and the four psychopathology variables (three MCMI  
48  
49 factors and the total score). Given that most variables in the table are moderately-to-  
50  
51 strongly interrelated, it is possible to introduce a structure to the correlation matrix in  
52  
53 accordance with the path diagram in Figure 1.  
54  
55  
56  
57  
58  
59  
60

*Structural equation model*

Using MPlus, we tested a structural equation model with maximum likelihood estimation, since the data were relatively normally distributed. A latent variable of psychopathology was operationalized via the three Millon indicators, viz., mild pathology, severe pathology, and clinical symptomatology. This latent variable was regressed onto trait EI, irrational beliefs, and mindfulness. In turn, irrational beliefs were regressed onto trait EI and mindfulness, and, last, mindfulness was regressed onto trait EI. The resultant standardized path estimates are depicted in Figure 1.

The model represented a satisfactory fit to the data as judged against the Hu and Bentler (1999) criteria:  $\chi^2_{(6)}=42.89$ , CFI=.96, TLI = .91, SRMR=0.03. The RMSEA value was unsatisfactory (.23; 90%CI = 0.17 - 0.29), however, this index tends to be inappropriate and misleading for models with low degrees of freedom, such as the present one (Kenny, Kaniskan, & McCoach, 2015). As can be seen in Figure 1, all paths reached statistical significance with the exception of that from irrational beliefs to psychopathology. Thus, both trait EI and mindfulness had significant direct effects on irrational beliefs and psychopathology, although the former's were somewhat stronger in both cases (-.559 versus -.189 for irrational beliefs and -.387 versus -.255 for psychopathology). Overall, 44% percent of the total variance in psychopathology was accounted for in the model.

*Direct and indirect effects*

The total standardized effect of trait EI on psychopathology was -0.637. This can be broken down to a direct part (-0.387, as reported above;  $p < .01$ ) and an indirect part (-0.25;  $p < .01$ ). The bulk of the indirect part involved the path via mindfulness (-0.189,  $p < .05$ ).

1  
2  
3 The total standardized effect of mindfulness on psychopathology was -0.272.

4  
5 The direct part formed the bulk of this effect (-0.255, as reported above;  $p < .01$ ), while  
6  
7 the indirect part (via irrational beliefs) did not reach significance levels (-0.017,  $p = ns$ ).  
8

9  
10 *Hierarchical regressions*

11  
12 Using SPSS, a hierarchical regression was performed with the total Millon score  
13  
14 as the dependent variable in order to test hypothesis H1, viz., that trait EI will be a  
15  
16 stronger predictor of psychopathology than irrational beliefs and mindfulness. Full  
17  
18 details are presented in Table 3. At step 1, the total scale scores for irrational beliefs  
19  
20 and mindfulness were jointly entered into the equation ( $R^2_{adj} = .38$ ,  $F_{(2, 118)} = 38.13$ ,  $p <$   
21  
22  $.01$ ). At step 2, with global trait EI added to the equation,  $R^2_{adj} = .45$ ,  $F_{(3, 117)} = 31.27$ ,  $p$   
23  
24  $< .01$  ( $\beta_{TEI} = -.386$ ,  $t = 3.32$ ,  $p < .01$ ). These results support hypothesis H1.  
25  
26

27  
28 Subsequently, we conducted a hierarchical regression with the same dependent  
29  
30 variable (total Millon score), but this time with the five factor scores of mindfulness, the  
31  
32 two factor scores of irrational beliefs, and global trait EI as predictors, in order to test  
33  
34 hypothesis H2. This is a more stringent test of the incremental validity of trait EI,  
35  
36 contrasting its one degree of freedom against two degrees of freedom for irrational  
37  
38 beliefs and five degrees of freedom for mindfulness. Full details are presented in Table  
39  
40 3. At step 1, the factor scores for irrational beliefs and mindfulness were jointly entered  
41  
42 into the equation ( $R^2_{adj} = .44$ ,  $F_{(7, 113)} = 14.53$ ,  $p < .01$ ). At step 2, with global trait EI  
43  
44 added to the equation,  $R^2_{adj} = .50$ ,  $F_{(8, 112)} = 14.20$ ,  $p < .01$  ( $\beta_{TEI} = -.347$ ,  $t = 2.59$ ,  $p <$   
45  
46  $.05$ ). These results support hypothesis H2.  
47  
48

49  
50 A third and final hierarchical regression was performed with the same dependent  
51  
52 variable (total Millon score), and the factor scores of irrational beliefs, mindfulness, and  
53  
54 trait EI as predictors. This was in order to investigate which of the four trait EI factors  
55  
56 are mainly responsible for the effects of the global score. Full details are presented in  
57  
58  
59  
60



1  
2  
3 Table 3. The first step was identical to the corresponding step in the hierarchical  
4 regression above. At step 2, with the four trait EI factors added to the equation,  $R^2_{adj} =$   
5  $.53$ ,  $F_{(11, 109)} = 13.15$ ,  $p < .01$  ( $\beta_{WB} = -.469$ ,  $t = 4.08$ ,  $p < .01$ ;  $\beta_{SC} = -.009$ ,  $t = 0.11$ ,  $p = ns$ ;  
6  $\beta_{EMO} = -.151$ ,  $t = 1.54$ ,  $p = ns$ ;  $\beta_{SOC} = .082$ ,  $t = .91$ ,  $p = ns$ ). Thus, only the Well-being  
7 factor reached significance levels in this equation.  
8  
9  
10  
11  
12  
13

### 14 Discussion

15  
16 Our emotional perceptions, reasoning processes, and ability to maintain  
17 awareness on a moment-to-moment basis play an important role in the development and  
18 maintenance of mental illness. Up to about half the variance in total MCMI scores can  
19 be accounted for by individual differences in trait emotional intelligence, mindfulness,  
20 and irrational beliefs. The structural equation and hierarchical regression models  
21 suggest that negative emotional self-perceptions are perhaps more fundamental than  
22 irrational thinking or lack of awareness in the development of psychopathology. It  
23 seems that such self-perceptions lead to psychopathology both directly, but also  
24 indirectly, through clouding awareness and fueling irrational thinking.  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35

36 Previous research on typical samples has shown that trait EI correlates  
37 negatively with psychopathology (Martins et al., 2010) and irrational beliefs (Kamae &  
38 Weisani, 2014), and positively with mindfulness (Schutte & Malouff, 2011). In turn,  
39 mindfulness and irrational beliefs are, respectively, negatively and positively associated  
40 with psychopathology (e.g., Gregório & Pinto-Gouveia, 2013; Browne, Dowd, &  
41 Freeman, 2010) and inversely interrelated between them (Mellinger, 2010).  
42  
43  
44  
45  
46  
47  
48  
49

50 Our study adds weight to this body of knowledge by integrating the foregoing  
51 variables within a structural equation model and scrutinizing it on a clinical sample.  
52 This sample exhibited a very low level of trait EI (two standard deviations below the  
53 normative mean), which accords with findings from other studies that have compared  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 personality profiles of typical versus clinical populations (e.g., Bagby et al., 1999;  
4  
5 Sinclair & Feigenbaum, 2012). Clinical samples are as rare as they are necessary for  
6  
7 this type of research because they do not leave any doubts as to whether the findings are  
8  
9 theoretically and practically relevant to clinical groups (e.g., Wupperman, Neumann, &  
10  
11 Axelrod, 2008). Studies using clinical samples are needed to identify personality  
12  
13 correlates of mental health problems as well as to determine whether these differ from  
14  
15 correlates in non-clinical samples (Resurrección, Salguero, & Ruiz-Aranda, 2014).  
16  
17

18  
19 However, it should be recognized that clinical samples may inflate the  
20  
21 relationships between trait EI and mental health and that their findings cannot be  
22  
23 extrapolated to the general population. Normative samples may provide a more  
24  
25 accurate estimate of the increased mental health risk associated with low trait EI.  
26  
27 Therefore, both clinical and non-clinical samples are necessary to develop a full  
28  
29 understanding of the relationship between personality and health (Ferguson, 2013).  
30  
31

32  
33 The integration of the study's key variables within a structural equation model  
34  
35 enabled the examination of specific pathways into psychopathology, in contrast to the  
36  
37 dominant research designs in the literature that examine permutations of variables in a  
38  
39 rather haphazard fashion. An important conclusion of the analysis concerns the primacy  
40  
41 of emotional perceptions in the genesis of mental illness. Broad patterns of unhealthy  
42  
43 emotional perceptions are at the root of irrational thinking, of mechanical and  
44  
45 ruminative cognition that undermines mindfulness, and of maladaptive coping styles  
46  
47 leading to self-harming, personality disorders, and general psychopathy (e.g., Gardner  
48  
49 & Qualter, 2009; Mikolajczak, Petrides, & Hurry, 2009; Peña-Sarrionandia,  
50  
51 Mikolajczak, & Gross, 2015; Sinclair & Feigenbaum, 2012).  
52  
53

54  
55 The practical implications of this finding are thought-provoking when  
56  
57 considered in a treatment context. Identifying seed factors at the start of  
58  
59  
60

1  
2  
3 psychopathological pathways can help us target our intervention efforts more precisely  
4  
5 and efficiently. If it is eventually established, in accordance with the present findings,  
6  
7 that these seed factors are mainly psychological, rather than mainly biological, as large  
8  
9 meta-analyses also seem to suggest (Risch et al. 2009), this can provide an impetus for a  
10  
11 much-needed shift from pharmacological to psychological treatments (Deacon, 2013).  
12  
13 This would be most desirable, given that drugs tend to operate on the basis of symptom  
14  
15 suppression (Hollon, Thase, & Markowitz, 2002) and are attended with problems of  
16  
17 addiction, tolerance, and a range of, potentially very severe, side-effects (Read,  
18  
19 Cartwright, & Gibson, 2014; Weich et al., 2014).  
20  
21  
22

23 Related to this point are the facts that psychotherapy has been shown to be at  
24  
25 least as effective in the treatment of various psychopathologies as standard psychotropic  
26  
27 drugs (e.g., DeRubeis, Siegle, & Hollon, 2008) and that experiential and social  
28  
29 influences (e.g., cognitive therapy and meditation) are most powerful in inducing plastic  
30  
31 change in the brain (Davidson & McEwen, 2012). Such findings appear to be inspiring  
32  
33 a new wave of research that, like the present study, focuses on the theoretical links and  
34  
35 pathways inter-connecting fundamental self-perception constructs (see also Brockmeyer  
36  
37 et al., 2015).  
38  
39

40 If dysfunctional emotional perceptions, as reflected in uniformly depressed trait  
41  
42 EI profiles, are at the root of pathways to psychopathology, an important question arises  
43  
44 as to whether these profiles can be adjusted via training. Experimental studies with  
45  
46 adults have shown that trait EI is amenable to training, which leads to parallel and  
47  
48 lasting improvements in well-being, subjective health, quality of social relationships,  
49  
50 and employability (e.g., Nelis et al., 2011). There is additional evidence from similarly  
51  
52 rigorous research that trait EI training has long-term (lasting for at least one year)  
53  
54 beneficial effects in terms of reducing perceived stress levels, somatic complaints and  
55  
56  
57  
58  
59  
60

1  
2  
3 even diurnal cortisol secretion, a biological marker for stress (Kotsou, Nelis, Gregoire,  
4 & Mikolajczak, 2011). Preliminary research with young adolescents has suggested that  
5  
6  
7 cognitive behavioral group-work (Ruttledge & Petrides, 2012) or yoga interventions  
8  
9  
10 (McIlvain, Miller, Lawhead, Barbosa-Leiker, & Anderson, 2015) can have positive  
11  
12 effects on trait EI scores (see also Khalsa, Greiner-Ferris, Hofmann, & Khalsa, 2015).  
13  
14 Collectively, this evidence is important both for its practical consequences in people's  
15  
16 lives, but also for what it implies about the causal effects of trait EI on a range of  
17  
18 psychological and behavioral outcomes.  
19

20  
21 As far as the incremental validity of trait EI is concerned, a spate of research,  
22  
23 including meta-analyses, has shown that not only is it a strong protective factor against  
24  
25 mental illness, but that it actually protects over and above multiple established  
26  
27 susceptibility factors, like maladaptive coping styles, negative affect, and neuroticism  
28  
29 (e.g., Andrei, Siegling, Aloe, Baldaro, & Petrides, 2016; Martins et al., 2010). The  
30  
31 hierarchical regressions revealed that the emotional perceptions captured by trait EI are  
32  
33 stronger predictors of psychopathology than both mindfulness and irrational beliefs. Of  
34  
35 the four trait EI factors, Well-being had the strongest incremental predictive validity,  
36  
37 which further highlights the key role that this factor plays in mental health (see also  
38  
39 Edmodson & MacLeod, 2015).  
40  
41

42  
43 While the incremental predictive effects of trait EI tend to be modest, especially  
44  
45 in methodologically stringent designs whereby the global trait EI score is pitched  
46  
47 against multiple baseline constructs (as in the second hierarchical regression herein),  
48  
49 however they are still statistically and practically significant (Andrei et al., 2016). We  
50  
51 must also carefully distinguish between prediction and explanation, and appreciate that  
52  
53 the latter is at least as important as the former, if not more (Scriven, 1959). It is in its  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 explanatory power and intervention possibilities, which can enhance people's everyday  
4  
5 lives, where the utility of trait EI mainly rests.  
6

#### 7 8 *Limitations*

9  
10 The main limitations of this study are as follows. First, the sample size,  
11  
12 although fairly large for clinical standards, was on the low end for structural equation  
13  
14 modelling, which prevented us from fully modelling the observed indicators of the  
15  
16 latent variables. Second, as previously mentioned, the clinical nature of the sample  
17  
18 means that the results of the study do not necessarily generalize to the general  
19  
20 population. Third, the heterogeneous nature of the clinical sample, comprising a range  
21  
22 of psychiatric diagnoses, prevents us from proposing specific therapeutic actions.  
23  
24 Fourth, the study was conducted on a Spanish-speaking sample and it is not certain that  
25  
26 its results will generalize to other languages. An important goal for future research,  
27  
28 then, is to examine the circumstances and extent to which the findings replicate in other  
29  
30 contexts, countries, and cultures.  
31  
32

#### 33 34 *Conclusion*

35  
36 Millions of people of all ages are suffering from debilitating mental disorders,  
37  
38 despite the ever-increasing popularity of psychotropic drugs (Brugha et al., 2004;  
39  
40 Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Kessler et al., 2005; Merikangas et  
41  
42 al., 2010; Mojtabai & Jorm, 2015; Mojtabai, & Olfson, 2014). The present study  
43  
44 demonstrated that emotional perceptions, reasoning processes, and general awareness  
45  
46 create intertwined, but clearly identifiable, pathways leading to psychopathology. More  
47  
48 specifically, the results revealed significant paths, direct and mediational (via irrational  
49  
50 beliefs and mindfulness) from trait EI into psychopathology in a clinical sample.  
51  
52 Understanding in greater detail and in multiple contexts the pathways uncovered in this  
53  
54 study can help us develop effective, non-toxic responses to the mental health and  
55  
56  
57  
58  
59  
60

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

overmedication crises that are scarring the lives of adults, adolescents, and children  
alike.

For Peer Review

## References

- 1  
2  
3  
4  
5 Andrei F., Siegling A. B., Aloe, A. M., Baldaro, B., & Petrides, K. V. (2016). The  
6  
7 incremental validity of the Trait Emotional Intelligence Questionnaire (TEIQue):  
8  
9 A systematic review and meta-analysis. *Journal of Personality Assessment*, 98,  
10  
11 261-276.  
12  
13  
14 Ávila-Espada, A., Jiménez Gómez, F. et al. (2002). *MCMI-II. Inventario clínico*  
15  
16 *multiaxial de Millon-II (3ª edición revisada)[Millon Clinical Multiaxial*  
17  
18 *Inventory-II]*. Madrid: TEA, Ediciones.  
19  
20  
21 Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-  
22  
23 report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27–  
24  
25 45.  
26  
27  
28 Bagby, R. M., Costa, P. T. Jr., McCrae, R. R., Livesley, W. J., Kennedy, S. H., Levitan,  
29  
30 R. D., Levitt, A. J., Joffe, R. T., & Young, L. T. (1999). Replicating the five  
31  
32 factor model of personality in a psychiatric sample. *Personality and Individual*  
33  
34 *Differences*, 27, 1135–1139.  
35  
36  
37 Bao, X., Xue, S., & Kong, F. (2015). Dispositional mindfulness and perceived stress:  
38  
39 The role of emotional intelligence. *Personality and Individual Differences*, 78,  
40  
41 48-52.  
42  
43  
44 Brockmeyer, T., Holtforth, M. G., Krieger, T., Altenstein, D., Doerig, N., Zimmermann,  
45  
46 J., ... & Bents, H. (2015). Preliminary evidence for a nexus between rumination,  
47  
48 behavioural avoidance, motive satisfaction and depression. *Clinical Psychology*  
49  
50 *& Psychotherapy*, 22, 232-239.  
51  
52  
53 Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and  
54  
55 its role in psychological well-being. *Journal of Personality and Social*  
56  
57 *Psychology*, 84, 822.  
58  
59  
60

- 1  
2  
3 Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical  
4 foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211-  
5 237.  
6  
7  
8  
9  
10 Browne, C.M., Dowd, E.T., & Freeman, A. (2010). Rational and irrational beliefs and  
11 psychopathology. In D. David, S.J. Lynn, & A. Ellis. *Rational and irrational*  
12 *beliefs: Research, theory, and clinical practice*. New York: Oxford University  
13 Press.  
14  
15  
16  
17  
18 Brugha, T. S., Bebbington, P. E., Singleton, N., Melzer, D., Jenkins, R., Lewis, G., ... &  
19 Meltzer, H. (2004). Trends in service use and treatment for mental disorders in  
20 adults throughout Great Britain. *British Journal of Psychiatry, 185*, 378-384.  
21  
22  
23  
24 Calvete, E., & Cardeñoso, O. (1999). Creencias y síntomas depresivos: Resultados  
25 preliminares en el desarrollo de una escala de creencias irracionales abreviada.  
26 *Anales de Psicología, 15*, 179-190.  
27  
28  
29  
30  
31 Carragher, N., Krueger, R. F., Eaton, N. R., & Slade, T. (2015). Disorders without  
32 borders: current and future directions in the meta-structure of mental disorders.  
33 *Social Psychiatry and Psychiatric Epidemiology, 50*, 339-350.  
34  
35  
36  
37  
38 Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*.  
39 New York: Cambridge University Press.  
40  
41  
42  
43 Caspi, A., Houts, R. M., Belsky, D. W., Goldman-Mellor, S. J., Harrington, H., Israel,  
44 S., ... & Moffitt, T. E. (2014). The p factor one general psychopathology factor  
45 in the structure of psychiatric disorders? *Clinical Psychological Science, 2*, 119-  
46 137.  
47  
48  
49  
50  
51  
52 Cebolla, A., García-Palacios, A., Soler, J., Guillen, V., Baños, R., & Botella, C. (2012).  
53 Psychometric properties of the Spanish validation of the Five Facets of  
54  
55  
56  
57  
58  
59  
60



- 1  
2  
3 Mindfulness Questionnaire (FFMQ). *European Journal of Psychiatry*, 26, 118-  
4  
5 126.  
6  
7 Choca, J. P., & Grossman, S. D. (2015). Evolution of the Millon Clinical Multiaxial  
8  
9 Inventory. *Journal of Personality Assessment*, 97, 541-549.  
10  
11 doi:10.1080/00223891.2015.1055753  
12  
13  
14 Cooper, A., & Petrides, K. V. (2010). A psychometric analysis of the Trait Emotional  
15  
16 Intelligence Questionnaire-Short Form (TEIQue-SF) using Item Response  
17  
18 Theory. *Journal of Personality Assessment*, 92, 449-457.  
19  
20  
21 Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence  
22  
23 and development of psychiatric disorders in childhood and  
24  
25 adolescence. *Archives of General Psychiatry*, 60, 837-844.  
26  
27  
28 Davidson, R. J. (2000). Affective styles, psychopathology, and resilience: Brain  
29  
30 mechanisms and plasticity. *American Psychologist*, 55, 1196-1214.  
31  
32  
33 Davidson, R. J., & McEwen, B. S. (2012). Social influences on neuroplasticity: stress  
34  
35 and interventions to promote well-being. *Nature Neuroscience*, 15, 689-695.  
36  
37  
38 Davies, M. F. (2008). Irrational beliefs and unconditional self-acceptance. II.  
39  
40 Experimental evidence linking two key features of REBT. *Journal of Rational-  
41  
42 Emotive & Cognitive Behaviour Therapy*, 26, 89-10.  
43  
44  
45 Deacon, B. J. (2013). The biomedical model of mental disorder: A critical analysis of its  
46  
47 validity, utility, and effects on psychotherapy research. *Clinical Psychology  
48  
49 Review*, 33, 846-861.  
50  
51  
52 Delhaye, M., Kempnaers, C., Stroobants, R., Goossens, L., & Linkowski, P. (2013).  
53  
54 Attachment and socio-emotional skills: A comparison of depressed inpatients,  
55  
56 institutionalized delinquents and control adolescents. *Clinical Psychology &  
57  
58 Psychotherapy*, 20, 424-433.  
59  
60

- 1  
2  
3 DeRubeis, R. J., Siegle, G. J., & Hollon, S. D. (2008). Cognitive therapy versus  
4  
5 medication for depression: treatment outcomes and neural mechanisms. *Nature*  
6  
7 *Reviews Neuroscience*, 9, 788-796.  
8  
9  
10 Edmondson, O., & MacLeod, A. K. (2015). Psychological well - being and anticipated  
11  
12 positive personal events: Their relationship to depression. *Clinical Psychology*  
13  
14 *& Psychotherapy*, 22, 418-425.  
15  
16  
17 Ellis, A. (1989). Rational-emotive therapy. In R.J. Corsin and D. Wedding (Eds.),  
18  
19 *Current psychotherapies*. Itasca, IL: FE Peacock Publishers.  
20  
21  
22 Ellis, A. (1995). Thinking processes involved in irrational beliefs and their disturbed  
23  
24 consequences. *Journal of Cognitive Psychotherapy*, 9, 105–116.  
25  
26  
27 Ellis, A., David, D., & Lynn, S. J. (2010). Rational and irrational beliefs: A historical  
28  
29 and conceptual perspective. In D. David, S. J. Lynn, and A. Ellis (Eds.),  
30  
31 *Rational and irrational beliefs: Research, theory, and clinical practice*. New  
32  
33 York, NY: Oxford University Press.  
34  
35  
36 Evers, A., Muñiz, J., Bartram, D., Boben, D., Egeland, J., Fernández-Hermida, J.  
37  
38 R., ... & Urbánek, T. (2012). Testing practices in the 21st century:  
39  
40 Developments and European psychologists' opinions. *European*  
41  
42 *Psychologist*, 17, 300.  
43  
44  
45 Ferguson, E. (2013). Personality is of central concern to understand health: towards a  
46  
47 theoretical model for health psychology. *Health Psychology Review*, 7, S32-S70.  
48  
49  
50 Frederickson, N., Petrides, K. V., & Simmonds, E. (2012). Trait emotional  
51  
52 intelligence as a predictor of socioemotional outcomes in early adolescence.  
53  
54 *Personality and Individual Differences*, 52, 317-322.  
55  
56  
57 Gardner, K., & Qualter, P. (2009). Emotional intelligence and Borderline personality  
58  
59 disorder. *Personality and Individual Differences*, 47, 94-98.  
60

- 1  
2  
3 Gibbons, P., Collins, M., & Reid, C. (2011). How useful are indices of personality  
4  
5 pathology when assessing domestic violence perpetrators? *Psychological*  
6  
7 *Assessment*, 23, 164–173.  
8  
9  
10 Gregório, S., & Pinto-Gouveia, J. (2013). Mindful attention and awareness:  
11  
12 relationships with psychopathology and emotion regulation. *Spanish Journal*  
13  
14 *of Psychology*, 16, E79.  
15  
16 Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social  
17  
18 consequences. *Psychophysiology*, 39, 281–291.  
19  
20  
21 Haaga, D.A.F., Dyck, M.J., & Ernst, D. (1991) Empirical status of cognitive theory  
22  
23 of depression. *Psychological Bulletin*, 110, 215-236.  
24  
25  
26 Hansen, K., Lloyd, J., & Stough, C. (2009). Emotional intelligence and clinical  
27  
28 disorders. In C. Stough, D. H. Saklofske, and J. D. A. Parker (Eds.),  
29  
30 *Assessing emotional intelligence*. New York: Springer US.  
31  
32  
33 Herrero, A. M., Ramírez-Maestre, C., & González, V. (2008). Personality,  
34  
35 cognitive appraisal and adjustment in chronic pain patients. *The Spanish*  
36  
37 *Journal of Psychology*, 11, 531–542.  
38  
39  
40 Hollon, S. D., Thase, M. E., & Markowitz, J. C. (2002). Treatment and prevention of  
41  
42 depression. *Psychological Science in the Public Interest*, 3, 39-77.  
43  
44  
45 Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure  
46  
47 analysis: Conventional criteria versus new alternatives. *Structural Equation*  
48  
49 *Modeling*, 6, 1-55.  
50  
51  
52 Hyland, P., Shevlin, M., Adamson, G., & Boduszek, D. (2015). Irrational beliefs in  
53  
54 posttraumatic stress responses: A Rational Emotive Behavior Therapy  
55  
56 approach. *Journal of Loss and Trauma*, 20, 171-188.  
57  
58  
59  
60

- 1  
2  
3 Johnson-Laird, P. N., Mancini, F., & Gangemi, A. (2006). A hyper-emotion theory of  
4  
5 psychological illness. *Psychological Review*, *113*, 822–841.  
6  
7 Jones, R. A. (1968). *A factored measure of Ellis' irrational belief system with*  
8  
9 *personality and maladjustment correlates*. Dissertation Abstracts International,  
10  
11 29, 4379-4380.  
12  
13 Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and  
14  
15 future. *Clinical Psychology: Science and Practice*, *10*, 144–156.  
16  
17 Kamae, A., & Weisani, M. (2014). The relationship between social anxiety, irrational  
18  
19 beliefs and emotional intelligence with homesickness in dormitory students of  
20  
21 Tehran university. *Indian Journal of Fundamental and Applied Life Science*, *4*,  
22  
23 285-292.  
24  
25  
26  
27 Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The performance of RMSEA in  
28  
29 models with small degrees of freedom. *Sociological Methods & Research*, *44*,  
30  
31 486-507.  
32  
33  
34 Kessler, R. C., Demler, O., Frank, R. G., Olfson, M., Pincus, H. A., Walters, E. E., ... &  
35  
36 Zaslavsky, A. M. (2005). Prevalence and treatment of mental disorders, 1990 to  
37  
38 2003. *New England Journal of Medicine*, *352*, 2515-2523.  
39  
40  
41 Khalsa, M. K., Greiner-Ferris, J. M., Hofmann, S. G., & Khalsa, S. B. S. (2015). Yoga-  
42  
43 enhanced cognitive behavioural therapy (Y-CBT) for anxiety management: a  
44  
45 pilot study. *Clinical Psychology & Psychotherapy*, *22*, 364-371.  
46  
47  
48 Koopmans, P. C., Sanderman, R., Timmerman, I., & Emmelkamp, P. M. (1994). The  
49  
50 Irrational Beliefs Inventory (IBI): Development and psychometric evaluation.  
51  
52 *European Journal of Psychological Assessment*, *10*, 15-27.  
53  
54  
55 Kornreich, C., Delle-Vigne, D., Knittel, J., Nerinx, A., Campanella, S., Noel, X.,  
56  
57 Hanak, C., Verbanck, P., & Ermer, E. (2011). Impaired conditional reasoning in  
58  
59  
60

1  
2  
3 alcoholics: a negative impact on social interactions and risky behaviors?

4  
5 *Addiction, 106, 951-959.*

6  
7 Kotsou, I., Nelis, D., Gregoire, J., & Mikolajczak, M. (2011). Emotional plasticity:

8  
9 Conditions and effects of improving emotional competence in adulthood.

10  
11 *Journal of Applied Psychology, 96, 827-839.*

12  
13 Krueger, R. F., & Markon, K. E. (2006). Understanding psychopathology melding

14  
15 behavior genetics, personality, and quantitative psychology to develop an

16  
17 empirically based model. *Current Directions in Psychological Science, 15, 113-*

18  
19  
20  
21 117.

22  
23 Kumar, S., Feldman, G., & Hayes, A. (2008). Changes in mindfulness and emotion

24  
25 regulation in an exposure-based cognitive therapy for depression. *Cognitive*

26  
27 *Therapy and Research, 32, 734-744.*

28  
29 Lahey, B. B., Rathouz, P. J., Keenan, K., Stepp, S. D., Loeber, R., & Hipwell, A. E.

30  
31 (2015). Criterion validity of the general factor of psychopathology in a

32  
33 prospective study of girls. *Journal of Child Psychology and Psychiatry, 56, 415-*

34  
35  
36  
37 422.

38  
39 Lahey, B. B., & Waldman, I. D. (2012). Annual research review: phenotypic and causal

40  
41 structure of conduct disorder in the broader context of prevalent forms of

42  
43 psychopathology. *Journal of Child Psychology and Psychiatry, 53, 536-557.*

44  
45 Loevinger, J. (1957). Objective tests as instruments of psychological theory.

46  
47 *Psychological Reports, 3, 635-694.*

48  
49 Lohr, J.M., & Parkinson, D.L. (1989) Irrational beliefs and bulimia symptoms. *Journal*

50  
51 *of Rational-Emotive and Cognitive-Behavior Therapy, 7, 253-262.*

- 1  
2  
3 López-Goñi, J. J., Fernández-Montalvo, J., & Arteaga, A. (2015). Differences between  
4  
5 alcoholics and cocaine addicts seeking treatment. *Spanish Journal of*  
6  
7 *Psychology, 18*, e2, 1-10.
- 8  
9  
10 Maddux, J. E., Gosselin, J. T., & Winstead, B. A. (2012). Conceptions of  
11  
12 psychopathology: A social constructionist perspective. In J. E. Maddux & B. A.  
13  
14 Winstead (Eds.), *Psychopathology: Foundations of a contemporary*  
15  
16 *understanding (3<sup>rd</sup> Ed.)*. New York: Routledge.
- 17  
18  
19 Maniaci, G., Picone, F., Dimarco, T., Lipari, A., Brancato, A., & Cannizzaro, C. (2015).  
20  
21 Psychodiagnostic assessment of pathological gamblers: A focus on personality  
22  
23 disorders, clinical syndromes and alexithymia. *International Journal of Mental*  
24  
25 *Health and Addiction, 13*, 728-739.
- 26  
27  
28 Martins, A., Ramalho, N., & Morin, E. (2010). A comprehensive meta-analysis of the  
29  
30 relationship between emotional intelligence and health. *Personality and*  
31  
32 *Individual Differences, 49*, 554-564.
- 33  
34  
35 McIlvain, S. J., Miller, B., Lawhead, B. A., Barbosa-Leiker, C., & Anderson, A. (2015).  
36  
37 Piloting yoga and assessing outcomes in a residential behavioural health unit.  
38  
39 *Journal of Psychiatric and Mental Health Nursing, 22*, 199-207.
- 40  
41  
42 Mellinger, D. I. (2010). Mindfulness and Irrational Beliefs. In David, D., Lynn, S. J., &  
43  
44 Ellis, A. *Rational and irrational beliefs: Research, theory, and clinical practice*.  
45  
46 New York, NY: Oxford University Press.
- 47  
48  
49 Merikangas, K. R., He, J. P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., ... &  
50  
51 Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents:  
52  
53 Results from the National Comorbidity Survey Replication–Adolescent  
54  
55 Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent*  
56  
57 *Psychiatry, 49*, 980-989.
- 58  
59  
60

- 1  
2  
3 Mikolajczak, M., Petrides, K. V., & Hurry, J. (2009). Adolescents choosing self-  
4  
5 harm as an emotion regulation strategy: the protective role of trait emotional  
6  
7 intelligence. *British Journal of Clinical Psychology*, *48*, 181-193.  
8  
9  
10 Mikolajczak, M., Petrides, K. V., Luminet, O., & Coumans, N. (2009). An experimental  
11  
12 investigation of the moderating effects of trait emotional intelligence on  
13  
14 laboratory-induced stress. *International Journal of Clinical and Health*  
15  
16 *Psychology*, *9*, 455-477.  
17  
18  
19 Millon, T. (1969/1976). *Psicopatología moderna: Un enfoque biosocial de los*  
20  
21 *aprendizajes erróneos y de los disfuncionalismos*. Barcelona: Salvat.  
22  
23 Millon, T. (1981). *Disorders of personality: DSM-III, Axis II*. New York: Wiley.  
24  
25 Millon, T. (1987). *MCMI-II. Millon Clinical Multiaxial Inventory-II*. National  
26  
27 Computer Systems, Inc. Minneapolis.  
28  
29  
30 Mojtabai, R., & Jorm, A. F. (2015). Trends in psychological distress, depressive  
31  
32 episodes and mental health treatment-seeking in the United States: 2001–  
33  
34 2012. *Journal of Affective Disorders*, *174*, 556-561.  
35  
36  
37 Mojtabai, R., & Olfson, M. (2014). National trends in long-term use of antidepressant  
38  
39 medications: results from the US National Health and Nutrition Examination  
40  
41 Survey. *Journal of Clinical Psychiatry*, *75*, 169-177.  
42  
43  
44 Muñiz, J., & Fernández-Hermida, J. R. (2010). La opinión de los psicólogos españoles  
45  
46 sobre el uso de los tests. *Papeles del Psicólogo*, *31*, 108-121.  
47  
48  
49 Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., &  
50  
51 Mikolajczak, M. (2011). Increasing emotional competence improves  
52  
53 psychological and physical well-being, social relationships, and employability.  
54  
55 *Emotion*, *11*, 354-366.  
56  
57  
58  
59  
60

- 1  
2  
3 Ó Ciardha, C., Alleyne, E. K., Tyler, N., Barnoux, M. F., Mozova, K., & Gannon, T. A.  
4  
5 (2015). Examining the psychopathology of incarcerated male firesetters using  
6  
7 the Millon Clinical Multiaxial Inventory-III. *Psychology, Crime & Law, 21*, 606-  
8  
9 616.
- 10  
11 Osma, J., García-Palacios, A., Botella, C., & Barrada, J. R. (2014). Personality  
12  
13 disorders among patients with panic disorder and individuals with high anxiety  
14  
15 sensitivity. *Psicothema, 26*, 159–165.
- 16  
17  
18 Palic, S., & Elklit, A. (2014). Personality dysfunction and complex posttraumatic stress  
19  
20 disorder among chronically traumatized Bosnian refugees. *Journal of Nervous &*  
21  
22 *Mental Disease, 202*, 111–118.
- 23  
24  
25 Peña-Sarrionandia, A., Mikolajczak, M., & Gross, J. J. (2015). Integrating emotion  
26  
27 regulation and emotional intelligence traditions: a meta-analysis. *Frontiers in*  
28  
29 *Psychology, 6*, 317. doi: 10.3389/fpsyg.2015.00160
- 30  
31  
32 Pérez-González, J.C. (2010). *Trait emotional intelligence operationalized through the*  
33  
34 *TEIQue: Construct validity and Psycho-pedagogical implications*. Unpublished  
35  
36 PhD dissertation. Universidad Nacional de Educación a Distancia (UNED).
- 37  
38  
39 Petrides, K. V. (2009). Psychometric properties of the Trait Emotional Intelligence  
40  
41 Questionnaire. In C. Stough, D. H. Saklofske, and J. D. Parker, *Assessment of*  
42  
43 *emotional intelligence*. New York: Springer. doi: 10.1007/978-0-387-88370-0\_5
- 44  
45  
46 Petrides, K. V., Pérez-González, J. C., & Furnham, A. (2007). On the criterion and  
47  
48 incremental validity of trait emotional intelligence. *Cognition and Emotion, 21*,  
49  
50 26-55.
- 51  
52  
53 Petrides, K. V., Hudry, K., Michalaria, G., Swami, V., & Sevdalis, N. (2011). A  
54  
55 comparison of the trait emotional intelligence profiles of individuals with and  
56  
57 without Asperger syndrome. *Autism, 13*, 1–12.
- 58  
59  
60



- 1  
2  
3 Petrides, K. V., Mikolajczak, M., Mavroveli, S., Sanchez-Ruiz, M. J., Furnham, A., &  
4  
5 Pérez-González, J. C. (2016). Developments in trait emotional intelligence  
6  
7 research. *Emotion Review*, *8*, 335-341.  
8
- 9  
10 Petrides, K. V., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional  
11  
12 intelligence in personality factor space. *British Journal of Psychology*, *98*, 273-  
13  
14 289.  
15
- 16 Pincus, A. L., & Krueger, R. F. (2015). Theodore Millon's contributions to  
17  
18 conceptualizing personality disorders. *Journal of Personality Assessment*, *97*,  
19  
20 537-540. doi: 10.1080/00223891.2015.1031376  
21  
22
- 23 Prins, S. J. (2014). Prevalence of mental illnesses in US state prisons: A systematic  
24  
25 review. *Psychiatric Services*, *65*, 862-872.  
26
- 27 Read, J., Cartwright, C., & Gibson, K. (2014). Adverse emotional and interpersonal  
28  
29 effects reported by 1829 New Zealanders while taking  
30  
31 antidepressants. *Psychiatry Research*, *216*, 67-73.  
32  
33
- 34 Resurrección, D. M., Salguero, J. M., & Ruiz-Aranda, D. (2014). Emotional intelligence  
35  
36 and psychological maladjustment in adolescence: A systematic review. *Journal*  
37  
38 *of Adolescence*, *37*, 461-472.  
39
- 40 Risch, N., Herrell, R., Lehner, T., Liang, K. Y., Eaves, L., Hoh, J., ... & Merikangas, K.  
41  
42 R. (2009). Interaction between the serotonin transporter gene (5-HTTLPR),  
43  
44 stressful life events, and risk of depression: A meta-analysis. *JAMA*, *301*, 2462-  
45  
46 2471.  
47  
48
- 49 Rossi, G., & Derksen, J. (2015). International Adaptations of the Millon Clinical  
50  
51 Multiaxial Inventory: Construct Validity and Clinical Applications. *Journal of*  
52  
53 *Personality Assessment*, *97*, 572-590.  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Rushton, J. P., & Irwing, P. (2009). A general factor of personality in the Millon  
4  
5 Clinical Multiaxial Inventory-III, the Dimensional Assessment of Personality  
6  
7 Pathology, and the Personality Assessment Inventory. *Journal of Research in*  
8  
9 *Personality, 43*, 437-442.  
10
- 11 Rushton, J. P., Irwing, P., & Booth, T. (2010). A general factor of personality (GFP) in  
12  
13 the personality disorders: Three studies of the Dimensional Assessment of  
14  
15 Personality Pathology-Basic Questionnaire (DAPP-BQ). *Twin Research and*  
16  
17 *Human Genetics, 13*, 301-311.  
18
- 19 Rushton, J. P., Bons, T. A., Ando, J., Hur, Y. M., Irwing, P., Vernon, P. A., Petrides, K.  
20  
21 V., & Barbaranelli, C. (2009). A general factor of personality from multitrait–  
22  
23 multimethod data and cross–national twins. *Twin Research and Human*  
24  
25 *Genetics, 12*, 356-365.  
26
- 27  
28  
29 Ruttledge, R. A., & Petrides K. V. (2012). A cognitive-behavioural group approach for  
30  
31 adolescents with disruptive behaviour in schools. *School Psychology*  
32  
33 *International, 33*, 223-239.  
34
- 35  
36 Schutte, N. S., & Malouff, J. M. (2011). Emotional intelligence mediates the  
37  
38 relationship between mindfulness and subjective well-being. *Personality and*  
39  
40 *Individual Differences, 50*, 1116-1119.  
41
- 42  
43 Scriven, M. (1959). Explanation and prediction in evolutionary theory. *Science, 130*,  
44  
45 477-482.  
46
- 47  
48 Siegling, A. B., & Petrides, K. V. (2014). Measures of trait mindfulness: Convergent  
49  
50 validity, shared dimensionality, and linkages to the five-factor model. *Frontiers*  
51  
52 *in Psychology, 5*. doi:10.3389/fpsyg.2014.01164  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Siegling A. B., & Petrides, K. V. (2016). Zeroing in on mindfulness facets: Similarities,  
4  
5 validity, and dimensionality across three independent measures. *PLoS ONE*  
6  
7 *11(4)*: e0153073. doi:10.1371/journal.pone.0153073  
8  
9  
10 Siegling, A. B., Vesely, A. K., Petrides, K. V., & Saklofske, D. H. (2015). Incremental  
11  
12 validity of the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue–  
13  
14 SF). *Journal of Personality Assessment*, *97*, 525-535.  
15  
16 Sinclair, H., & Feigenbaum, J. (2012). Trait emotional intelligence and borderline  
17  
18 personality disorder. *Personality and Individual Differences*, *52*, 674-679.  
19  
20 Strack, S., & Millon, T. (2013). Personalized psychotherapy: A treatment approach  
21  
22 based on Theodore Millon's integrated model of clinical science. *Journal of*  
23  
24 *Personality*, *81*, 528-541.  
25  
26  
27 Tringone, R., & Bockian, N. (2015). Millon's Contributions to preadolescent and  
28  
29 adolescent personality assessment: Searching onward and upward. *Journal of*  
30  
31 *Personality Assessment*, *97*, 563-571. doi: 10.1080/00223891.2015.1064438  
32  
33  
34 Van Wijhe, C., Peeters, M., & Schaufeli, W. (2013). Irrational beliefs at work and their  
35  
36 implications for workaholism. *Journal of Occupational Rehabilitation*, *23*, 336-  
37  
38 346.  
39  
40 Vernon, P. A., Petrides, K. V., Bratko, D., & Schemer, J. A. (2008). A behavioral  
41  
42 genetic study of trait emotional intelligence. *Emotion*, *8*, 635-642.  
43  
44  
45 Wakefield, J. C. (1992). The concept of mental disorder: on the boundary between  
46  
47 biological facts and social values. *American Psychologist*, *47*, 373-388.  
48  
49  
50 Wallace, B. A., & Shapiro, S. L. (2006). Mental balance and well-being: Building  
51  
52 bridges between Buddhism and western psychology. *American Psychologist*, *61*,  
53  
54 690-701.  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Weich, S., Pearce, H. L., Croft, P., Singh, S., Crome, I., Bashford, J., & Frisher, M.  
4  
5 (2014). Effect of anxiolytic and hypnotic drug prescriptions on mortality  
6  
7 hazards: retrospective cohort study. *BMJ*, 348.  
8  
9  
10 Whitfield, H. J. (2006). Towards case-specific applications of mindfulness-based  
11  
12 cognitive-behavioural therapies: A mindfulness-based rational emotive behavior  
13  
14 therapy. *Counselling Psychology Quarterly*, 19, 205-217.  
15  
16 Williams, K. M., & Paulhus, D. L. (2004). Factor structure of the Self-Report  
17  
18 Psychopathy scale (SRP-II) in non-forensic samples *Personality and Individual*  
19  
20 *Differences*, 37, 765–778.  
21  
22  
23 Wupperman, P., Neumann, C. S., & Axelrod, S. R. (2008). Do deficits in mindfulness  
24  
25 underlie borderline personality features and core difficulties? *Journal of*  
26  
27 *Personality Disorders*, 22, 466–482.  
28  
29  
30 Zeidner, M., Matthews, G., & Roberts, R. D. (2012). The emotional intelligence, health,  
31  
32 and well-being nexus: What have we learned and what have we missed? *Applied*  
33  
34 *Psychology: Health and Well-Being*, 4, 1-30.  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

Table 1

*Descriptive Statistics and Internal Consistencies for the Key Variables in the Study*

| Variable                           | Cronbach's $\alpha$ | Mean   | SD    |
|------------------------------------|---------------------|--------|-------|
| 1. Emotional irrational beliefs    | .70                 | 114.61 | 21.90 |
| 2. Social irrational beliefs       | .66                 | 44.57  | 10.44 |
| 3. Total irrational beliefs        | .75                 | 159.18 | 28.11 |
| 4. Mindfulness Observe             | .70                 | 20.65  | 5.91  |
| 5. Mindfulness Descriptive         | .87                 | 21.48  | 7.49  |
| 6. Mindfulness Awareness           | .88                 | 21.44  | 8.11  |
| 7. Mindfulness Non-judgement       | .88                 | 19.12  | 7.79  |
| 8. Mindfulness Non-reaction        | .78                 | 17.08  | 5.46  |
| 9. FFMQ total score                | .80                 | 99.78  | 26.11 |
| 10. Millon Personality Style       | .80                 | 30.66  | 7.06  |
| 11. Millon Personality Pathology   | .86                 | 33.09  | 14.19 |
| 12. Millon Clinical Symptomatology | .92                 | 24.54  | 9.72  |
| 13. Millon total                   | .92                 | 88.29  | 29.88 |
| 14. Trait EI Well-being            | .87                 | 3.57   | 1.36  |
| 15. Trait EI Self-control          | .61                 | 3.25   | 1.01  |
| 16. Trait EI Emotionality          | .61                 | 4.34   | .93   |
| 17. Trait EI Sociability           | .66                 | 3.44   | 1.13  |
| 18. Global trait EI                | .85                 | 3.53   | .77   |

Table 2

*Correlation Matrix for the Key Variables in the Study*

|   | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14    | 15    | 16    | 17    |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|
| 1. Emotional irrational beliefs           | -      |        |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |
| 2. Social irrational beliefs              | -.52** | -      |        |        |        |        |        |        |        |        |        |        |        |       |       |       |       |
| 3. Total irrational beliefs               | .94**  | -.73** | -      |        |        |        |        |        |        |        |        |        |        |       |       |       |       |
| 4. Mindfulness Observe                    | -.28** | .30**  | -.33** | -      |        |        |        |        |        |        |        |        |        |       |       |       |       |
| 5. Mindfulness Descriptive                | -.42** | .30**  | -.42** | .36**  | -      |        |        |        |        |        |        |        |        |       |       |       |       |
| 6. Mindfulness Awareness                  | -.41** | .44**  | -.42** | .17    | .47**  | -      |        |        |        |        |        |        |        |       |       |       |       |
| 7. Mindfulness Non-judgement              | -.49** | .42**  | -.50** | .22*   | .50**  | .66**  | -      |        |        |        |        |        |        |       |       |       |       |
| 8. Mindfulness Non-reaction               | -.67** | .39**  | -.61** | .43**  | .60**  | .52**  | .54**  | -      |        |        |        |        |        |       |       |       |       |
| 9. Five Factors Mindfulness Questionnaire | -.60** | .49**  | -.60** | .54**  | .79**  | .79**  | .81**  | .80**  | -      |        |        |        |        |       |       |       |       |
| 10. Millon Personality Style              | .47**  | -.34** | .47**  | -.02   | -.32** | -.34** | -.50** | -.44** | -.44** | -      |        |        |        |       |       |       |       |
| 11. Millon Personality Pathology          | .53**  | -.31** | .50**  | -.09   | -.48** | -.47** | -.59** | -.53** | -.59** | .94**  | -      |        |        |       |       |       |       |
| 12. Millon Clinical Symptomatology        | .55**  | -.28** | .51**  | -.26** | -.53** | -.48** | -.59** | -.55** | -.65** | .81**  | .90**  | -      |        |       |       |       |       |
| 13. Millon total                          | .55**  | -.32** | .51**  | -.13   | -.48** | -.46** | -.59** | -.54** | -.60** | .94**  | .99**  | .94**  | -      |       |       |       |       |
| 14. Well being                            | -.61** | .40**  | -.62** | .38**  | .50**  | .37**  | .53**  | .52**  | .61**  | -.44** | -.52** | -.55** | -.53** | -     |       |       |       |
| 15. Self control                          | -.58** | .33**  | -.56** | .25**  | .45**  | .44**  | .48**  | .58**  | .59**  | -.36** | -.46** | -.49** | -.46** | .57** | -     |       |       |
| 16. Emotionality                          | -.63** | .26**  | -.54** | .12    | .54**  | .28**  | .30**  | .51**  | .46**  | -.45** | -.51** | -.53** | -.52** | .50** | .34** | -     |       |
| 17. Sociability                           | -.26** | .21*   | -.32** | .27**  | .56**  | .28**  | .42**  | .22*   | .48**  | -.20*  | -.31** | -.31** | -.30** | .42** | .20*  | .18   | -     |
| 18. Global trait EI                       | -.72** | .38**  | -.70** | .34**  | .72**  | .46**  | .60**  | .64**  | .74**  | -.51** | -.64** | -.66** | -.62** | .84** | .70** | .71** | .63** |

Note: \* p&lt;.05; \*\* p&lt;.01

Table 3

*Hierarchical Regressions of Psychopathology (total Millon MCMI score) on Mindfulness, Irrational Beliefs and Trait EI*

|            | MCMI <sup>a</sup>   |                    | MCMI <sup>b</sup>  |       | MCMI <sup>c</sup>   |               |       |                    |
|------------|---|--------------------|--|-------|---|---------------|-------|--------------------|
| Step 1     | F <sub>(2, 118)</sub> = 38.13 <sup>**</sup> , R <sup>2</sup> <sub>adj</sub> = .38 |                    | Step 1 F <sub>(7, 113)</sub> = 14.53 <sup>**</sup> , R <sup>2</sup> <sub>adj</sub> = .44 |       | Step 1 F <sub>(7, 113)</sub> = 14.53 <sup>**</sup> , R <sup>2</sup> <sub>adj</sub> = .44  |               |       |                    |
| Step 2     | F <sub>(3, 117)</sub> = 31.27 <sup>**</sup> , R <sup>2</sup> <sub>adj</sub> = .45 |                    | Step 2 F <sub>(8, 112)</sub> = 14.20 <sup>**</sup> , R <sup>2</sup> <sub>adj</sub> = .50 |       | Step 2 F <sub>(11, 109)</sub> = 13.15 <sup>**</sup> , R <sup>2</sup> <sub>adj</sub> = .53 |               |       |                    |
|            | Beta  | t                  | Beta   | t     | Beta  | t             |       |                    |
| Step 1:    |   |                    | Step 1:  |       | Step 1:   |               |       |                    |
| FFMQ       | -.451   | 5.03 <sup>**</sup> | Descriptive  | -.168 | 1.86  | Descriptive   | -.168 | 1.86               |
| Irrational | .241  | 2.68 <sup>**</sup> | Observe  | .128  | 1.63  | Observe       | .128  | 1.63               |
| Beliefs    |   |                    | Awareness  | -.012 | .13   | Awareness     | -.012 | .13                |
|            |   |                    | Non-judgement  | -.333 | 3.38 <sup>**</sup>  | Non-judgement | -.333 | 3.38 <sup>**</sup> |
|            |   |                    | Non-reaction   | -.138 | 1.24  | Non-reaction  | -.138 | 1.24               |
|            |   |                    | EIB  | .265  | 2.65 <sup>**</sup>  | EIB           | .265  | 2.65 <sup>**</sup> |
|            |   |                    | SIB  | .029  | .34   | SIB           | .029  | .34                |
| Step 2:    |   |                    | Step 2:  |       | Step 2:   |               |       |                    |
| FFMQ       | -.258   | 2.47 <sup>*</sup>  | Descriptive  | -.007 | .07   | Descriptive   | -.022 | .99                |
| Irrational | .088  | .91 <sup>**</sup>  | Observe  | .140  | 1.83  | Observe       | .127  | 1.70               |
| Beliefs    |   |                    | Awareness  | -.033 | .34   | Awareness     | -.020 | .23                |
|            |   |                    | Non-judgement  | -.260 | 2.60 <sup>*</sup>   | Non-judgement | -.220 | 2.22 <sup>*</sup>  |
| Trait EI   | -.386   | 3.32 <sup>**</sup> | Non-reaction   | -.150 | 1.37  | Non-reaction  | -.110 | 1.01               |

|   |  |   |       |       |  |       |        |
|---|--|---|-------|-------|--|-------|--------|
|   |  | EIB   | .094  | .80   | EIB  | -.020 | .18    |
|   |  | SIB   | .006  | .07   | SIB  | -.021 | .27    |
|   |  | Trait EI  | -.347 | 2.59* | Well-being   | -.469 | 4.08** |
|   |  |   |       |       | Self-control   | -.009 | .11    |
|   |  |   |       |       | Emotionality   | -.151 | 1.54   |
|   |  |   |       |       | Sociability  | .082  | .91    |
| F <sub>change (1,117)</sub> = 11.04**, R <sup>2</sup> <sub>change</sub> = .05 |  | F <sub>change (1,112)</sub> = 6.72*, R <sup>2</sup> <sub>change</sub> = .03 |       |       | F <sub>change (4,109)</sub> = 6.13**, R <sup>2</sup> <sub>change</sub> = .10 |       |        |

Note. <sup>a</sup>Regression was based on total scores for irrational beliefs, mindfulness, and trait EI. <sup>b</sup>Regression was based on factor scores for irrational beliefs and mindfulness, and total scores for trait EI. <sup>c</sup>Regression was based on factor scores for irrational beliefs, mindfulness, and trait EI. EIB = Emotional irrational beliefs. SIB = Social irrational beliefs. \*p<.05; \*\*p<.01

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49



Running Head: PATHWAYS INTO PSYCHOPATHOLOGY

Pathways into Psychopathology: Modelling the Effects of Trait Emotional Intelligence, Mindfulness, and Irrational Beliefs in a Clinical Sample

For Peer Review

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49

Figure 1

Path Model of Trait Emotional Intelligence, Mindfulness, and Irrational Beliefs as Predictors of Psychopathology

