

Trait emotional intelligence and somatic complaints with reference to positive and negative mood

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This study examined the relationship between trait emotional intelligence (trait EI) and somatic complaints after controlling for positive and negative affect (PA and NA). 362 volunteers (222 males) completed the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF), the Somatic Complaint List (SCL), and the Positive Affect and Negative Affect Scales (PANAS). Results showed that high trait EI is positively correlated to PA and negatively correlated to NA and somatic complaints, but that it can predict somatic complaints over and above PA and NA. These findings highlight the protective role of trait EI in mental and physical health.

Keywords: *trait emotional self-efficacy; mood; incremental validity; PANAS; TEIQue*

Epidemiological studies have revealed a high prevalence of somatic symptoms among the population (Colette, Molcho, Doyle, & Saoirse, 2010; Wool & Barsky, 1994), entailing considerable direct and indirect costs (De Gucht & Fischler, 2002; Shaw & Creed, 1991). The findings of these studies prompt us to consider somatization as a vital and complex process, influencing both clinical and socioeconomic outcomes (De Gucht & Fischler, 2002; Kahn, Kahn, Harezlak, Tu, & Kroenke, 2003; Ladwig, Marten-Mittag, Erazo, & Gündel, 2001).

Despite its multiple definitions (De Gucht & Fischler, 2002; De Gucht & Maes, 2006), the term ‘somatization’ (Stekel, 1911) is currently used as a description of any physical symptom, like headaches or stomachaches, which cannot be adequately explained by an organic cause. Even though somatization is a common problem among the general population, some differences have been found with respect to gender and age. Thus, the frequency of somatic symptoms seems to be higher among females in both clinical (Kirkmayer, Robbins, Dworkind, & Yaffe, 1993; Kornstein et al., 2000) and general samples (Kroenke & Price, 1993), as well as in older age groups (Fink, 1992).

Several psychological factors, such as perceptual or cognitive (Lundh & Wangby, 2002), are involved in somatization, but the main one seems to be an impairment in emotional functioning (Rieffe et al., 2007). A large body of research has showed a positive correlation between the intensification of somatic symptoms and many emotion-related factors, including the personality trait of neuroticism (Rosmalen, Neeleman, Gans, & de Jonge, 2007), negative affect (NA; De Gucht, Fischler, & Heiser, 2004; Jellesma, 2008), depression (Mavroveli, Petrides, Rieffe, & Bakker, 2007), feelings of fear (Jellesma, Rieffe, Meerum Terwogt, & Westenberg, 2008), and anxiety disorders (Kahn, Kahn, Harezlak, Tu, & Kroenke, 2003; Sayar, Kirmayer, & Taillefer, 2003; Scott et al., 2007). In addition, many studies have focused on the role of alexithymia (“no words for feeling”) in the experience of perceived somatic symptoms (Bailey & Henry, 2007; De Gucht & Heiser, 2003; Lumley, Ovies, Stettner, Wehmer, & Lakey 1996; Modestin, Furrer, & Maltin, 2004), yielding mixed results. In their quantitative review of the literature, De Gucht and Heiser (2003) reported a weak-to-moderate association between different dimensions of alexithymia, assessed by the three versions of the Toronto Alexithymia Scale (i.e., TAS, TAS-R and TAS-20), and somatic symptoms. Kooiman, Bolk, Rooijmans and Trijsburg (2004) found no relationship between alexithymia and medically unexplained physical symptoms (UPS). Karvonen et al. (2005) also found no relationship in an adult Finnish sample. Mattila et al. (2008) found a moderate correlation between somatization and alexithymia in a nonclinical sample of adults.

In a research study focusing specifically on children and young adolescents, Rieffe et al. (2010) found a direct link between alexithymia and somatic complaints. Nevertheless, this relationship weakened when mood was taken into account. It has also been argued that the influence of alexithymia on somatic symptoms may be mediated by negative affect (NA; Bailey & Henry, 2007). It seems possible that somatization and NA have a reciprocal influence on each other: intensification of NA caused by physical symptoms generates more somatic complaints, which, in turn, leads to more physical symptoms.

The relationship between somatization and emotional factors requires further investigation, which the present study carries out with reference to the construct of trait emotional intelligence that is *prima facie* relevant to the emotional difficulties experienced by somatizers.

TRAIT EMOTIONAL INTELLIGENCE (TRAIT EI)

Trait EI (or trait emotional self-efficacy) is defined as a constellation of emotional self-perceptions located at the lower levels of personality hierarchies (Petrides, Pita, & Kokkinaki, 2007). Table 1 presents the sampling domain of trait EI in adults.

There is an expanding body of evidence, including behavioral genetic investigations (Vernon, Villani, Schermer, & Petrides, 2008), giving reasons to conceptualize trait EI as a part of personality. At the same time, the construct

shows incremental validity over the Giant Three, the Big Five, and other personality variables (e.g., Mikolajczak, Luminet, & Menil, 2006; Petrides, Van der Zee, & Wabeke, 2004; Petrides, Vernon, Schermer, Ligthart, Boomsma, & Veselka, 2010). Trait EI offers a comprehensive operationalization of the affective aspects of personality, which makes it a prime candidate for investigation with reference to somatic complaints.

Numerous studies that have investigated trait EI yielded significant associations with important outcomes, including academic performance (Laborde, Dosseville, & Scelles, 2010), scholastic achievement and deviant behavior at school (Petrides, Frederickson, & Furnham, 2004), cognitive appraisal of stressful events (Mikolajczak et al., 2006), burnout (Mikolajczak, Menil, & Luminet, 2007), stress levels in athletes (Laborde, Brüll, Weber, & Anders, 2011), body image (Swami, Begum, & Petrides, 2010), and orgasmic frequency in women (Burri, Cherkas, & Spector, 2009).

Table 1. *The Sampling Domain of Trait EI in Adults*

Facets	High scorers perceive themselves as
Adaptability	...flexible and willing to adapt to new conditions...
Assertiveness	...forthright, frank and willing to stand up for their rights...
Emotion perception (self and others)	...clear about their own and other people's feelings...
Emotion expression	...capable of communicating their feelings to others...
Emotion management (others)	...capable of influencing other people's feelings...
Emotion regulation	...capable of controlling their emotions...
Impulsiveness (low)	...reflective and less likely to give in to their urges...
Relationships	...capable of having fulfilling personal relationships...
Self-esteem	...successful and self-confident...
Self-motivation	...driven and unlikely to give up in the face of adversity...
Social awareness	...accomplished networkers with excellent social skills...
Stress management	...capable of withstanding pressure and regulating stress...
Trait empathy	...capable of taking someone else's perspective...
Trait happiness	...cheerful and satisfied with their lives...
Trait optimism	...confident and likely to 'look on the bright side' of life...

THE PRESENT STUDY

The extant literature has shown that low trait EI is linked to high NA (Kafetsios & Zampetakis, 2008; Laborde et al., 2010; Schutte & Malouff, 2011), low positive affect (PA; Kafetsios & Zampetakis, 2008; Schutte & Malouff, 2002, 2011), maladaptive coping styles in both adults and adolescents (Mavroveli, Petrides, Rieffe, & Bakker, 2007; Petrides, Pérez-González, & Furnham, 2007), and difficulties in the expression and verbal description of emotions, all of which have been linked to somatic complaints. The ability of trait EI to

predict somatic symptoms has been demonstrated in several studies based on adult (e.g., Freudenthaler et al., 2008; Kotsou, Nelis, Grégoire, & Mikolajczak, 2011; Nelis, Quoidbach, Hansenne, & Mikolajczak, 2011), adolescent and child samples (Mavroveli et al., 2007; Rieffe, Oosterveld, Miers, Meerum Terwogt, & Ly, 2008), as well as in a large meta-analysis investigating the relationship between EI and health (Martins, Ramalho, & Morin, 2010). The literature has also provided some evidence that trait EI can predict somatic complaints over other relevant affect-related personality traits, such as optimism and alexithymia (Mikolajczak et al., 2006).

However, research has not yet examined whether the predictive role of trait EI on bodily complaints remains significant after controlling for positive and negative affect, which are significantly related to both trait EI and to the experience of somatic symptoms (Pressman & Cohen, 2005; Van Diest et al., 2005). The main aim of the present study was to address this question. We hypothesized that (H1) trait EI will correlate positively with PA and negatively with NA and somatic complaints; (H2) NA will correlate positively with somatic complaints; (H3) trait EI will predict somatic complaints over and above PA and NA.

Method

Participants. The sample comprised 362 volunteers (222 males), with a mean age of 33.69 years ($SD=11.92$). The ethnic background of most participants was White-UK (43%) and White-other (28%), followed by Japanese (8%), Black African and Indian (5% each), Black Caribbean (4%), Bangladeshi (2%), Pakistani (1%), and a further 1% from other backgrounds. Most participants were native English speakers ($\approx 67\%$).

Measures.

Trait Emotional Intelligence Questionnaire-Short Form. The Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; e.g., Swami, Begum, & Petrides, 2010) consists of 30 items, two for each of the fifteen TEIQue facets, measured on a 7 – point Likert scale, ranging from 1 (Completely Disagree) to 7 (Completely Agree). The TEIQue-SF provides a global trait EI score as well as scores on the four factors of the construct: Well-being, Self-control, Emotionality, and Sociability. Higher scores on the TEIQue-SF indicate higher trait EI. The TEIQue-SF has shown very robust psychometric properties and extensive evidence of validity (Cooper & Petrides, 2010).

Somatic Complaint List. The Somatic Complaint List (SCL; Rieffe, Meerum-Terwogt, & Bosch, 2004) assesses how often respondents experience somatic complaints in a specific time frame, which in the present study was ‘over the past two weeks’. The questionnaire comprises 11 items, covering a range of somatic complaints (e.g., ‘had a headache’, ‘had a stomachache’, ‘felt tired’, and ‘felt pain’). Participants are required to report the frequency of their somatic symptoms on a three-point scale (not true, sometimes true, often true). The SCL has shown very good psychometric properties (Jellesma, Rieffe, & Terwogt, 2007).

Positive Affect and Negative Affect Schedule. The Positive Affect and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) consists of two 10-item mood scales, providing conceptually independent measurements of PA and NA. Participants are required to rate, on a 5-point scale, how they feel at a specific point in time, which in the present study was ‘right now’. The PANAS has shown excellent psychometric properties over the years (Crawford & Henry, 2004; Watson et al., 1988).

Procedure. All measures were completed individually, anonymously, and on a voluntary basis. Completion time took approximately 30 minutes.

Results

Descriptive Statistics and Internal Consistencies

The internal consistencies, means, and standard deviations of all variables in the total sample are presented in Table 2, where it is shown that all instruments exhibited satisfactory levels of reliability.

Table 2. *Internal Consistencies, Means and Standard Deviations for the Key Variables in the Study (N = 362)*

Variable	Cronbach's α	Mean	SD
Trait EI	.86	151.82	19.76
Negative Affect	.82	14.04	4.91
Positive Affect	.89	29.15	8.30
Somatic Complaints	.79	17.25	3.58

Correlations between Global Trait EI, the PANAS Dimensions, and Somatic Complaints

The inter-correlations of the variables are presented in Table 3.

Table 3. *Bivariate Correlations Between Global Trait EI, Positive Affect (PA), Negative Affect (NA) and Somatic Complaints in the Total Sample (N = 362)*

Variable	1	2	3	4
1. Somatic Complaints	-			
2. Positive Affect	-.071	-		
3. Negative Affect	.254*	.069	-	
4. Trait EI	-.274*	.233*	-.277*	-

* $p < .001$.

As expected, trait EI presented a negative correlation with both NA ($r = -.28, p < .001$) and somatic complaints ($r = -.27, p < .01$), and a positive correlation with PA ($r = .23, p < .01$). In addition, there was a positive correlation between NA and somatic complaints ($r = .25, p < .01$). These results provide full support for H1 and H2. Although PA was negatively correlated with somatic complaints, the coefficient did not reach significant levels ($r = -.07, p = ns$).

Hierarchical Regression of Somatic Complaints on Trait EI, PA and NA

A two-step hierarchical regression was performed in order to investigate the direct and incremental influence of trait EI on somatic complaints (see Table 4). Positive and negative affect were entered together at step 1, while trait EI was entered on its own at step 2. At step 1, the model predicted 7.3% of the variance in somatic complaints ($F_{(2, 359)} = 14.04, p < .001$), and NA was found to be a positive predictor of somatic complaints ($\beta_{NA} = .26, t = 5.11, p < .001$). At step 2, trait EI was found to be a significant negative predictor of somatic complaints, over and above the PANAS dimensions ($\beta_{tei} = -.21, t = -3.91, p < .001$). Trait EI predicted a significant 3.8% of unique variance in somatic

complaints after controlling for positive and negative affect ($F_{\text{change}(3, 358)} = 15.36$, $p < .001$). Overall, these results provide support for hypothesis 3.

Table 4. *Two-step Hierarchical Regressions with the PANAS Dimensions Entered at Step 1 and Trait EI Entered at Step 2 as Predictors of Somatic Complaints*

Somatic Complaints		
Step 1	F(2, 359) = 14.04*, R ² adj = .067	
Step 2	Fchange(3, 358) = 15.36*, R ² adj = .103, R ² change = .038	
	Beta	t
Negative Affect	.26	5.11*
Positive Affect	-.09	-1.74
(Step 1)		
Negative Affect	.20	3.79*
Positive Affect	-.03	-.68
Trait EI	-.21	-3.92*
(Step 2)		

* $p < .001$.

DISCUSSION

The aim of this study was to examine the relationship between trait EI, somatic complaints, and positive and negative affect. All three study hypotheses were borne out by the data.

As predicted in the first hypothesis, high levels of trait EI corresponded to lower levels of NA and somatic complaints. The second hypothesis was also supported, with NA being positively associated with somatic complaints. These results are consistent with findings from the existing literature (De Gucht, Fischler, & Heiser, 2004; Jellesma, 2008; Mavroveli et al., 2007), in contrast to the results pertaining to PA. The latter relationship did not reach significance, thus failing to replicate previous findings (see De Gucht et al., 2004). In line with the third hypothesis, trait EI predicted levels of somatic complaints over and above positive and negative affect, showing clear evidence of incremental validity *vis-à-vis* the two PANAS scales.

Not only do our results support the incremental validity of trait EI over the two affect dimensions, but they also re-emphasize the strong link between trait EI and mental health (mental as well as physical; see especially Martins et al., 2010). High trait EI individuals are more likely to experience positive moods and less likely to experience negative moods. They are also less likely to experience somatic complaints, as would be expected given their frequent and competent use of adaptive coping strategies (trait EI is a strong predictor of coping style preferences; see Mavroveli et al., 2007; Mikolajczak & Luminet, 2008; Mikolajczak, Petrides, & Hurry, 2009; Mikolajczak, Petrides, Coumans, & Luminet, 2009).

Trait EI also influences primary and secondary cognitive appraisals of stressful events. Primary appraisals refer to a person's subjective judgments of a situation (e.g., perceiving a situation as potentially stressful), while secondary appraisals refer to a subjective evaluation of the resources available to deal with that situation (e.g., coping strategies). Mikolajczak and Luminet (2008) investigated the relationship between cognitive appraisals and trait EI and found that high trait EI levels are linked to challenge, rather than threat, appraisals. Challenge appraisal occurs when a situation is appraised as demanding, but entailing potential gains, while threat appraisal occurs when a situation is appraised as potentially harmful and exceeding one's resources and competences. It, therefore, seems that high trait EI individuals are more likely to appraise and to cope with situations in ways that are generally adaptive and helpful. In a previous study, Mikolajczak, Roy, Luminet, Fillée and De Timary (2007), discovered a biological counterpart to these findings by showing that high trait EI individuals secrete significantly less cortisol in anticipation of a potentially stressful situation, compared to their low trait EI peers.

Although the origins of somatic symptoms are not fully understood yet, in line with the transactional model of stress and coping (Lazarus & Folkman, 1984), they can be conceptualized as the result of the interaction between environmental variables (e.g., a stressful situation), and an individual's resources (e.g., their coping strategies). Our data show that, in addition to the nature of external events and our cognitive evaluation of the demands that these events impose on our resources, our reactions are also strongly influenced by our personality. In particular, research from several different angles converges on the vital importance of emotion-related traits in maintaining healthy cognitive evaluations and mental well-being. Trait EI is the construct that best integrates these traits within a coherent theoretical framework (Petrides et al., 2007).

This research can be extended in various ways. For example, it would be worthwhile to examine if the relationship between trait EI and somatic complaints is mediated via coping styles, for which a coping styles measure would need to be incorporated into the research design. Also, a broader operationalization of somatic complaints would be helpful in establishing the underlying causes of the symptoms with greater accuracy. To this end, future studies may wish to incorporate medical history checklists, specifically to rule out the possibility that some of the symptoms have organic causes. Irrespective of how our research may be extended, there is now evidence that high trait EI can be an important protective factor over and above affect against the experiencing of psychosomatic complaints.

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